



PROCEEDINGS INTERNATIONAL CONFERENCE

Promoting multidisciplinary studies on emerging trends and innovations in education and sustainable development

Volume 2



AGRICULTURAL UNIVERSITY PUBLISHING HOUSE - 2024

Proceedings
International Conference

ICMR12 Proceedings book - Promoting multidisciplinary studies
on emerging trends and innovations in education and
sustainable development

AGRICULTURAL UNIVERSITY PUBLISHING HOUSE - 2024



9 786049 248375

ISBN: 978-604-924-837-5

Tài liệu không kinh doanh

ICMR12 PROCEEDINGS BOOK

**PROMOTING MULTIDISCIPLINARY STUDIES
ON EMERGING TRENDS AND INNOVATIONS IN
EDUCATION AND SUSTAINABLE
DEVELOPMENT**

(VOLUME 2)

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INTRODUCTION

The 12th International Conference on Multidisciplinary Research 2024 (ICMR 2024) with the theme of “Promoting multidisciplinary studies on emerging trends and innovations in education and sustainable development” will be jointly organized by Tan Trao University (Vietnam), Vietnam National University Of Agriculture (Vietnam), Universiti Sains Malaysia (Malaysia), Universitas Hasanuddin (Indonesia), Universitas Islam Sumatera Utara (Indonesia), Universitas Syiah Kuala (Indonesia), Universitas Sulawesi Barat (Indonesia), Cambodia University Of Technology And Science (Cambodia), Thaksin University (Thailand), and University Of Science And Technology of Southern Philippines (Phillippines). The conference aims to create a platform for students, academician and industries from various fields to share their findings and provide insights to explore current ideas and technologies. Sharing of research findings can be channeled into discoveries for improving the quality of life.

ICMR12 proceedings offer a diverse collection of studies, beginning with Economics and Business Administration. The research in this section explores financial strategies, business models, and economic policies that promote sustainable growth and resilience. By examining the role of economic structures and corporate responsibility, these papers highlight the importance of informed, sustainable decision-making within business and economic systems.

Following this, the Environment and Sustainable Tourism section addresses environmental preservation and sustainable resource management, particularly in the context of the tourism industry. Papers in this category investigate strategies to minimize ecological impacts and enhance community involvement, aligning tourism practices with broader environmental goals and sustainable development. Together, these works emphasize the necessity of balancing development with conservation to foster sustainable, eco-friendly tourism development.

The final section, Education and Engineering, reflects on how educational methodologies and technological advancements are instrumental in shaping sustainable societies. The studies presented here range from innovative teaching approaches to engineering solutions designed to meet contemporary needs while considering future implications. These contributions underscore the critical role of education and technology in preparing individuals and industries to engage with sustainability in meaningful, practical ways.

With over 160 peer-reviewed papers selected from an initial 341 submissions, the iCMR12 Proceedings reflect the conference's dedication to high-quality, impactful researches. We extend our sincere gratitude to all authors, reviewers, and partner institutions who have contributed to this volume. It is our hope that these proceedings inspire continued inquiry and foster collaborations that drive sustainable development across disciplines. We invite readers to engage deeply with these works, which collectively offer valuable perspectives on how multidisciplinary research can pave the way toward a sustainable, innovative future.

The ICMR 12 Organizing Committee extends our sincere gratitude to the leaders of the Tuyen Quang Provincial People’s Committee for the support and for facilitating the collaboration between Tan Trao University and Vietnam National University of Agriculture in co-hosting this international conference. We sincerely appreciate the leaders, faculties, researchers, and scientists

from 10 partner institutions for their ongoing partnership, support, and valuable contributions, all of which have been instrumental in the success of this event.

We also highly appreciate the universities, educational institutions, researchers, lecturers, students and scholars from diversified universities, educational institutions for their valuable submissions to the conference.

We extends heartfelt gratitude to the Agricultural Academy Publishing House for providing essential support and enabling this scientific publication to reach its readers.

The Conference Organizing Committee

CHAPTER III. EDUCATION AND ENGINEERING

A STUDY ON UNIVERSITY OF ECONOMICS – TECHNOLOGY FOR INDUSTRIES STUDENTS’ MOTIVATION IN LEARNING ENGLISH AS A FOREIGN LANGUAGE

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ABSTRACT

Motivation is vital in language acquisition as it determines learner involvement, perseverance in the face of difficulties, and ultimately, the achievement of language competence objectives. Understanding the types and factors of motivation is vital for designing effective instructional strategies and creating supportive learning environments. This study investigates the motivation types of 1st and 2nd year students at UNETI in learning English, focusing on intrinsic, extrinsic, instrumental, and integrative motivations. Descriptive research was used to describe the motivation phenomenon. The quantitative method is used to find the students’ motivation in learning English. In addition, the factors that affect students’ motivation are also explored. The findings reveal that while both groups exhibit higher extrinsic motivation, particularly driven by career prospects and parental encouragement, there are notable differences in their intrinsic and integrative motivations. 1st-year students show moderately higher intrinsic motivation, characterized by personal interest and enjoyment, whereas 2nd-year students strongly focus on instrumental and integrative motivations, emphasizing practical benefits such as job opportunities and language proficiency achievement. The study highlights that intrinsic motivation tends to decrease over time, possibly due to academic pressures, while extrinsic motivation, particularly related to future career aspirations, intensifies. These insights underscore the need for balanced instructional strategies that foster intrinsic and extrinsic motivations to enhance students' engagement and effectiveness in English language learning. The research suggests that integrating more culturally and socially engaging activities could help maintain or increase intrinsic motivation among students.

Keywords: UNETI, English learning motivation, intrinsic motivation, extrinsic motivation, instrumental motivation, integrative motivation.

1. INTRODUCTION

Motivation plays a crucial role in language learning, influencing the extent to which learners engage with the learning process, persist through challenges, and ultimately achieve their language proficiency goals. In the context of English language learning, understanding the types and sources of motivation is vital for designing effective instructional strategies and creating supportive learning environments.

English has become a global lingua franca, essential for academic success, career advancement, and cultural exchange. For non-native speakers, particularly in non-English speaking countries like Vietnam, mastering English opens up numerous opportunities, ranging from accessing global knowledge and education to enhancing employability in an increasingly interconnected world. Despite its recognized importance, the motivation to learn English can vary significantly among students, influenced by a multitude of factors such as personal interests, external pressures, educational context, and future aspirations.

Previous studies have highlighted the significance of both intrinsic and extrinsic motivation in language learning. Intrinsic motivation refers to the internal desire to learn, driven by interest, enjoyment, or a sense of personal achievement, while extrinsic motivation is influenced by external rewards or pressures, such as grades, career prospects, or parental expectations. Additionally, instrumental motivation relates to the practical benefits of language learning, such as job opportunities or academic requirements, whereas integrative motivation reflects a desire to integrate into the culture of the language being learned, fostering a deeper engagement with the language beyond utilitarian purposes.

This study seeks to investigate the types of motivation possessed by 1st and 2nd-year students at UNETI in learning English. By examining both intrinsic and extrinsic motivations, as well as instrumental and integrative motivations, the research aims to provide a comprehensive understanding of the motivational dynamics at play. The study's findings are expected to offer valuable insights into how educators can better tailor their teaching methods to address the diverse motivational needs of students, ultimately enhancing the effectiveness of English language education at UNETI.

In particular, this research addresses the following questions:

1. *What are the types of motivation possessed by UNETI students in learning English?*
2. *What are the factors motivating students in learning English?*

By answering these questions, this study contributes to the broader field of language education by highlighting the motivational challenges and opportunities that educators may encounter in similar educational contexts.

2. LITERATURE REVIEW

Motivation has always been a pivotal concept in the study of language learning. In the field of motivation, much knowledge has been given by the following experts: Edmondson (1997), Tohihi and Tarokh (2006), (Tohihi & Jabbari, 2012), Hadre et al. (2007), Gardner (1985), Gardner and Lambert (1959), Harmer (1991), etc.

Motivation is an internal driving force that guides, controls, and sustains human behavior (Edmondson, 1997). According to Tohihi and Tarokh (2006), motivation is "*a driving force that leads, controls, and sustains human behavior*". In other words, motivation is reinforcing attitudes, guiding or controlling behavior towards a specific direction, and enhancing and maintaining attitudes (Tohihi & Jabbari, 2012). Hadre et al. (2007) confirmed that motivation is the key to success in learning and is one of the most important factors in achieving success or failure at school (Hadre et al., 2007).

Gardner and Lambert (1959 in Hernandez, 2008) have identified two types of motivation: instrumental motivation and integrative motivation. The term "*instrumental motivation*" describes a learner's desire to pick up a new language for pragmatic purposes and to acknowledge the benefits and advantages of mastering the target language. It is also defined as "learning a language because of someone or less clearly perceived utility it might have for the learner". The term

“*integrative motivation*” refers to a learner's desire to learn more about or assimilate into the target language's cultural community.

Williams and Burden (1997) asserted that factors affecting student motivation include both *internal* and *external* factors. They also suggest that internal factors are influenced by one's self-perception and ability to control their own behavior whereas external factors are changes in context that can deeply affect an individual's initial motivation.

In 1991, Harmer showed four variables that influence students' motivation: Physical condition is related to the atmosphere in the classroom. The lecturer's approach to teaching is referred to as their method, and it impacts the students' desire to learn. Thirdly, the most influential factor in motivation is the lecturer. Last but not least, Success is defined as the right amount of challenge set by the lecturer.

McDonough (1983) confirmed that students' motivation is the most significant factor influencing the students' success or failure in learning a language. In addition, motivation is incredibly important in second language learning, and understanding the students' motivations is undoubtedly crucial. (Oxford and Shearin, 1994). Therefore, motivation cannot be separated from learning English because students' success or failure actually depends on their motivation level.

The primary goal of the University of Economics Technology for Industries is for its graduates to attain a TOEIC score of 500 points. However, many students have been found to be neglecting their English language learning and failing to prioritize the preparation for the TOEIC examination as required. Based on this empirical evidence, an initial observation can be made that students lack the motivation to learn and are thus encountering numerous challenges in meeting the university's graduation requirements and the broader demands of the labor market.

From these reasons above, it is hoped that this study will explore students' motivation to learn English as well as the factors influencing their motivation for English language learning at UNETI.

3. RESEARCH METHODOLOGY

This research was conducted with non-English major students at UNETI. It was focused on a small group of 40 first-year and 40 second-year non-English major students as the participants involved in this research. This research is descriptive research, which describes the phenomenon that has existed. The quantitative method is used to find the students' motivation in learning English, including intrinsic motivation, extrinsic motivation, instrumental motivation, and integrative motivation. In addition, the factors that affect students' motivation are also explored.

The questionnaire includes two main parts. Part 1 includes 8 questions and gives personal information that may affect the student's motivation. Part 2 is a 5-point Likert Scale adapted from Arina Hafadhotul Husna and Rahayu Tri Murtini (2019) to gather information about students' motivation, ranging from strongly agree to strongly disagree (Gardner, 2004). It includes 14 statements: intrinsic motivation (statements 1-8) and extrinsic motivation (statements 9-14). 20 next statements in the questionnaire were also adapted from Mohammed Hamid Al-Ta'ani (2018). The items (15-24) were designed to measure the participants' instrumental motivation. The last ten items (25-34) measured the participants' integrative motivation in learning English. The

researcher translated the questionnaire into Vietnamese to verify that the participants understood the items correctly and completely; and to avoid confusion.

The data and information collected from the surveys were condensed and examined using IBM SPSS 22 Statistics in order to address the study enquiries. A 5-point Likert scale was used to measure students' learning motivation level and type.

3.1. Results

The types of motivation possessed by students in learning English.

The Intrinsic motivation and the Extrinsic motivation.

This study tried to find out the 1st and 2nd-year students' motivation in learning English at UNETI, both intrinsic and extrinsic motivation, as well as instrumental motivation or integrative motivation.

Table 1 shows the reliability statistics of the questionnaire. An assessment of a multiple-item questionnaire's internal consistency is done using Cronbach's alpha coefficient. Typically, the range varies between 0.00 and 1.0. Cronbach's alpha score was 0.924, which indicates that all questions were constructed similarly. This questionnaire is reliable and trustworthy.

Table 1: The reliability statistics of the questionnaire.

Reliability Statistics	
Cronbach's Alpha	N of Items
.924	34

The survey results on the motivation of 1st-year students at UNETI in learning English are presented in Table 2, which includes 14 statements assessing intrinsic and extrinsic motivation factors. Intrinsic motivation statements focus on students' enjoyment, interest, and confidence, while extrinsic motivation statements relate to the practical benefits of learning English, such as career advancement.

Based on the data in Table 2, the intrinsic motivation and extrinsic motivation in learning English for 1st-year students are presented. Regarding ***Intrinsic Motivation***, mean scores range from 3.275 to 3.900, with a median of 3.684. The highest mean (3.900) was for the statement "5. *My English instructor is a fantastic source of motivation for me as I learn the language.*" suggesting strong motivation from teacher influence. The lowest standard deviation (0.4743) was for the statement "7. *I greatly benefit from my English class time.*" indicating consistent agreement on the usefulness of the class.

About ***Extrinsic Motivation***, mean scores range from 3.425 to 4.075, with a median of 3.717. The highest mean (4.075) was for "10. *I learn English in order to perform well on my test.*" and "11. *My parents want me to study as much English as possible*", suggesting strong motivation from exams and parental encouragement.

Overall, the students are motivated by both intrinsic and extrinsic factors, with a slightly higher mean score for extrinsic motivation. Intrinsic motivation responses showed more variation, while extrinsic motivation was more consistent, suggesting that while external factors drive motivation more uniformly, intrinsic motivation varies more depending on context. These findings suggest that educators should create a positive learning environment to foster intrinsic motivation while recognizing the role of extrinsic factors in motivating students.

Table 2. Intrinsic motivation and extrinsic motivation results of 1st year students.

Descriptive Statistics						
Statements	N	Minimum	Maximum	Mean	Std. Deviation	
1. I study English to become more fluent in the language.	40	3.0	5.0	3.825	.4465	
2. When requested to speak in English in class, I feel comfortable doing so.	40	2.0	5.0	3.275	.8161	
3. I'm having a great time learning English.	40	2.0	5.0	3.700	.7232	
4. One of the most crucial subjects in the university curriculum is English.	40	2.0	5.0	3.775	.5768	
5. My English instructor is a fantastic source of motivation for me as I learn the language.	40	3.0	5.0	3.900	.6325	
6. I'm excited to study more English in the future since I enjoy my English lesson so much.	40	3.0	5.0	3.750	.5883	
7. I greatly benefit from my English class time.	40	3.0	4.0	3.675	.4743	
8. I have to admit that I'm incredibly interested in my English class.	40	2.0	4.0	3.575	.6751	
Total:				3.684		
9. Acquiring fluency in English can help you land a decent career.	40	2.0	5.0	3.525	.6400	
10. I learn English in order to perform well on my test.	40	3.0	5.0	4.075	.4168	
11. My parents want me to study as much English as possible.	40	3.0	5.0	4.075	.6938	
12. It is crucial that I learn English because it will enable me to interact and communicate with a wider range of people, particularly foreigners.	40	2.0	5.0	3.500	.5991	
13. I should learn English because I will need it for my future profession.	40	2.0	4.0	3.425	.5495	
14. My parents make an effort to assist me in learning English.	40	3.0	5.0	3.700	.5639	
Total:				3.717		

Table 3 examines both intrinsic and extrinsic motivation among 2nd-year students at UNETI in learning English. *Intrinsic Motivation* is measured by statements 1-8, with mean scores ranging from 2.700 to 3.675. The highest mean score (3.675) indicates students view English as an important subject, while the lowest scores (2.700) show lower confidence and enjoyment in learning English. The overall mean score for intrinsic motivation is 3.150, reflecting a moderate level. This suggests that while students recognize the importance of English, they struggle with personal interest and confidence in the language.

Secondly, the *Extrinsic Motivation* of 2nd-year students at UNETI is assessed by statements 9-14, with mean scores ranging from 3.800 to 4.525. The highest score (4.525) shows strong

motivation linked to job prospects, while the lowest score (3.800) still suggests an awareness of English's career relevance. The overall mean score for extrinsic motivation is 4.133, significantly higher than for intrinsic motivation, indicating that external factors such as career opportunities and parental support are stronger motivators for these students.

Evidently, the table reveals that 2nd-year students are more driven by extrinsic motivation, particularly for career advancement and parental encouragement, while their intrinsic motivation is moderate, with lower levels of personal enjoyment and confidence in English. Addressing these intrinsic gaps could improve engagement and balance in language learning strategies.

Table 3. Intrinsic motivation and extrinsic motivation results of 2nd year students.

Descriptive Statistics					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
1. I study English to become more fluent in the language.	40	3.0	4.0	3.550	.5038
2. When requested to speak in English in class, I feel comfortable doing so.	40	1.0	4.0	2.700	.9661
3. I'm having a great time learning English.	40	1.0	4.0	2.700	.7232
4. One of the most crucial subjects in the university curriculum is English.	40	3.0	5.0	3.675	.5723
5. My English instructor is a fantastic source of motivation for me as I learn the language.	40	2.0	5.0	3.375	.6279
6. I'm excited to study more English in the future since I enjoy my English lessons so much.	40	2.0	5.0	3.050	.8756
7. I greatly benefit from my English class time.	40	2.0	5.0	3.050	.8756
8. I have to admit that I'm incredibly interested in my English class.	40	2.0	5.0	3.100	.8102
Total:				3.150	
9. Acquiring fluency in English can help you land a decent career.	40	2.0	5.0	4.525	.6789
10. I learn English in order to perform well on my test.	40	3.0	5.0	4.300	.5639
11. My parents want me to study as much English as possible.	40	4.0	5.0	4.450	.5038
12. It is crucial that I learn English because it will enable me to interact and communicate with a wider range of people, particularly foreigners.	40	3.0	5.0	3.875	.6864
13. I should learn English because I will need it for my future profession.	40	2.0	5.0	3.800	.7579
14. My parents make an effort to assist me in learning English.	40	2.0	5.0	3.850	.7355
Total:				4.133	

Tables 2 and 3 show that both 1st-year and 2nd-year students show a similar distribution of mean scores across the intrinsic motivation statements (1-8). The mean scores for the intrinsic motivation statements are generally lower than those for the extrinsic motivation statements (9-14).

1st-year students tend to have higher mean scores for intrinsic motivation statements (1-8) ($M = 3.684$) than 2nd-year students ($M = 3.150$). This suggests that 1st-year students may be more motivated by personal interest and enjoyment in learning English.

On the other hand, 2nd-year students tend to have higher mean scores for extrinsic motivation statements (9-14) ($M = 4.133$) than 1st-year students ($M = 3.717$). This suggests that 2nd-year students may be more driven by external factors such as career prospects and parental support.

The standard deviation of the mean scores for the intrinsic motivation statements is generally lower for 1st-year students than for 2nd-year students. This suggests that 1st-year students may be more homogeneously motivated by intrinsic factors, while 2nd-year students may be more heterogeneous in their motivations.

These differences may be due to changes in students' perspectives and priorities over time or to differences in the learning environment and expectations.

3.2. The Instrumental motivation and the Integrative motivation

The survey results from Tables 4 and 5 indicate that first-year students at UNETI are more motivated by instrumental factors (mean = 3.355) than integrative factors (mean = 2.432) in learning English. **Instrumental motivation**, which focuses on practical benefits like academic success and job prospects, shows a moderate level among the students. The highest instrumental motivation is reflected in the statement, "15. My primary goal is to master English for homework and tests." (mean = 4.050), indicating a strong focus on academic purposes. The lowest score for instrumental motivation is "16. I just study English in the textbooks; I don't really pay attention to what I say or write in class" (mean = 2.850), suggesting less agreement with limiting English learning to textbooks.

Integrative motivation, which involves engaging with native speakers, cultural activities, and personal enrichment, has a weaker overall score. The highest scores for integrative motivation are "30. Studying English allows me to easily participate in academic, social, and professional activities, as well as those of other cultures." and "34. Studying English enables me to achieve maximum proficiency" (both with a mean of 3.350). The lowest score is "33. Studying English helps me to be a more open-minded and sociable person." (mean = 2.675), indicating less strong agreement with English learning contributing to personal traits like open-mindedness.

Overall, the data suggests that first-year students view English primarily as a tool for achieving academic and career goals rather than for cultural or social integration. This insight highlights a need for educators to develop strategies to increase integrative motivation, encouraging students to appreciate the broader cultural and social benefits of learning English.

Table 4. Instrumental motivation and Integrative motivation results of 1st year students.

Descriptive Statistics					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
15. My primary goal is to master English for homework and tests.	40	4.0	5.0	4.050	.2207
16. I just study English in the textbooks; I don't really pay attention to what I say or write in class.	40	2.0	4.0	2.850	.9213
17. For my university coursework, I would only like to read English textbooks—not other English literature like newspapers or magazines.	40	2.0	4.0	3.125	.9111

Statements	N	Minimum	Maximum	Mean	Std. Deviation
18. Learning English is crucial since it'll help you get a good job.	40	2.0	4.0	3.425	.5495
19. I'm more interested in improving my studies than in learning the English language.	40	2.0	4.0	3.000	.5547
20. Learning English is essential for me to travel overseas.	40	2.0	4.0	3.175	.5943
21. Learning English is essential for being a better-educated person.	40	2.0	5.0	3.450	.6775
22. Learning English is essential for developing my knowledge and skills.	40	2.0	5.0	3.450	.6775
23. Being fluent in English can lead to greater success and achievements in life.	40	3.0	4.0	3.550	.5038
24. Others admire me for my English proficiency.	40	2.0	4.0	3.475	.5541
Total:				3.355	
25. Studying English helps me understand novels, stories, and movies.	40	2.0	4.0	2.900	.7089
26. Studying English allows me to better understand and appreciate the lifestyles of native speakers.	40	2.0	4.0	2.900	.6718
27. Studying English allows me to keep in touch with overseas acquaintances.	40	2.0	4.0	2.950	.5970
28. Studying English allows me to discuss interesting problems in English with people from other nationalities.	40	2.0	4.0	2.900	.6718
29. Studying English allows me to share my expertise with foreigners, such as giving directions to a tourist.	40	2.0	4.0	3.175	.5006
30. Studying English allows me to easily participate in academic, social, and professional activities, as well as those of other cultures.	40	2.0	4.0	3.350	.5796
31. Studying English allows me to speak English like a native speaker, including accents, tone, and English expressions.	40	2.0	4.0	3.100	.6718
32. Studying English allows me to approach English literature and art.	40	2.0	4.0	2.825	.5495
33. Studying English helps me to be a more open-minded and sociable person.	40	2.0	4.0	2.675	.6558
34. Studying English allows me to reach maximal proficiency.	40	2.0	4.0	3.350	.6222
Total:				2.432	

Table 5 shows the motivation in learning English among 2nd-year students, distinguishing between instrumental and integrative motivations.

Regarding *Instrumental Motivation*, the overall mean score is high ($M = 3.497$). Practical purposes such as career advancement have the highest mean score: "18. Learning English is crucial since it'll help you get a good job." ($M = 4.525$). Meanwhile, personal education has the lowest mean score, "21. Learning English is essential for being a better-educated person." ($M = 2.750$). The lower standard deviation range (0.3038 to 0.8228) indicates more uniformity in views on practical benefits.

Integrative Motivation of 2nd-year students is lower than instrumental motivation with an overall score ($M = 3.360$). Achieving maximum proficiency has the highest mean score: "34. Studying English allows me to reach maximal proficiency", ($M = 4.150$), whereas; Cultural understanding has the lowest mean score ("26. Studying English allows me to better understand and appreciate the lifestyles of native speakers." $M = 2.850$). The higher standard deviation range (0.5057 to 1.0365) reflects diverse perceptions of cultural benefits.

2nd-year students are generally more motivated by practical benefits (e.g., career prospects) than cultural aspects of learning English. While proficiency in English is highly valued, cultural appreciation is less emphasized. Efforts could be made to enhance the perceived value of cultural and social aspects of English learning.

Table 5. Instrumental motivation and Integrative motivation results of 2nd year students.

Descriptive Statistics					
Statements	N	Minimum	Maximum	Mean	Std. Deviation
15. My primary goal is to master English for homework and tests.	40	3.0	4.0	3.900	.3038
16. I just study English in the textbooks; I don't really pay attention to what I say or write in class.	40	3.0	4.0	3.750	.4385
17. For my university coursework, I would only like to read English textbooks—not other English literature like newspapers or magazines.	40	3.0	4.0	3.775	.4229
18. Learning English is crucial since it'll help you get a good job.	40	2.0	5.0	4.525	.6789
19. I'm more interested in improving my studies than in learning the English language.	40	2.0	4.0	3.275	.7841
20. Learning English is essential for me to travel overseas.	40	2.0	4.0	3.475	.6789
21. Learning English is essential for being a better-educated person.	40	2.0	4.0	2.750	.7071
22. Learning English is essential for developing my knowledge and skills.	40	2.0	4.0	3.275	.7506
23. Being fluent in English can lead to greater success and achievements in life.	40	2.0	4.0	3.300	.8228
24. Others admire me for my English proficiency.	40	2.0	4.0	2.950	.5038
Total:				3.497	
25. Studying English helps me understand novels, stories, and movies.	40	2.0	4.0	2.950	.6775
26. Studying English allows me to better understand and appreciate the lifestyles of native speakers.	40	2.0	5.0	2.850	.8930
27. Studying English allows me to keep in touch with overseas acquaintances.	40	2.0	4.0	3.025	.7675
28. Studying English allows me to discuss interesting problems in English with people from other nationalities.	40	3.0	4.0	3.475	.5057
29. Studying English allows me to share my expertise with foreigners, such as giving directions to a tourist.	40	2.0	4.0	3.400	.6718
30. Studying English allows me to easily participate in academic, social, and professional activities, as well as those of other cultures.	40	2.0	4.0	3.125	.7228
31. Studying English allows me to speak English like a native speaker, including accents, tone, and English expressions.	40	2.0	4.0	3.050	.7143
32. Studying English allows me to approach English literature and art.	40	2.0	5.0	3.450	1.0365
33. Studying English helps me to be a more open-minded and sociable person.	40	3.0	5.0	4.125	.6864
34. Studying English allows me to reach maximal proficiency.	40	3.0	5.0	4.150	.6998
Total:				3.360	

According to Tables 4 and 5, in the Instrumental Motivation, the data reveals notable differences between 1st-year and 2nd-year students. The overall mean score for **Instrumental Motivation** (statements 15-24) is higher for 2nd-year students ($M = 3.497$) compared to 1st-year students ($M = 3.355$), suggesting a stronger Instrumental Motivation among the 2nd-year cohort. Furthermore, the standard deviations for the 1st-year students range from 0.2207 to 0.9213, while for 2nd-year students, they range from 0.3038 to 0.8228. This indicates that both groups exhibit relatively similar levels of variability in their responses, although there is slightly more variation among the 1st-year students in specific areas, such as the focus on learning English through textbooks ($SD = 0.9213$ vs. $SD = 0.4385$).

Regarding **Integrative Motivation** (statements 25-34), the mean scores indicate a significant difference between the two groups. The 2nd year students demonstrate a higher level of Integrative Motivation ($M = 3.360$) than 1st-year students ($M = 2.432$). The standard deviations also differ, with 2nd-year students showing a wider range ($SD = 0.5057$ to 1.0365) compared to 1st-year students ($SD = 0.5006$ to 0.7089). This wider range among 2nd-year students suggests a greater variability in attitudes toward integrative aspects of English learning, which could reflect a more diverse set of experiences and perspectives as they progress in their academic journey.

Both groups exhibit higher mean scores for **Instrumental Motivation** than for **Integrative Motivation**, indicating that, regardless of year, students place more emphasis on practical and utilitarian reasons for learning English. However, the findings highlight that 2nd-year students show a stronger motivation overall—both instrumental and integrative—than 1st-year students. The increased variability in the responses of 2nd-year students, particularly regarding integrative motivation, suggests a broader spectrum of attitudes and experiences in this group as they advance in their studies.

3.3. The factors motivating students in learning English

According to Tables 3, 4, and 5, several factors such as English teachers, teaching methodology, learning condition, family background, personal goals and future aspirations, cultural and social context, and previous experiences can significantly affect students' motivation to learn English. Based on the data from descriptive statistics, as well as general knowledge of educational psychology and language acquisition, the following factors are influential.

The primary factor is the presence of **English teachers**. Teachers play a crucial role in influencing students' motivation through their attitudes, teaching styles, feedback, and interactions with students. Based on the data of Table 2 and Table 3, Statement "5. *My English instructor is a fantastic source of motivation for me as I learn the language.*" (Mean = 3.900 for 1st-year students, $M = 3.375$ for 2nd-year students) show that a teacher's role as a motivator is recognized, especially among 1st-year students. It is evident that a passionate, supportive, and engaging teacher can increase students' intrinsic motivation, making them enjoy the learning process. Conversely, if the teacher is perceived as less inspiring or less effective, students' interest and motivation may decline over time.

Secondly, regarding **teaching methodology**, the methods and approaches teachers use can significantly affect student motivation. According to Tables 4 and 5, the impact of teaching

methodology on learning English motivation is expressed through the statement: "15. *My primary goal is to master English for homework and tests.*" (M = 4.050 - 1st-year students, M = 3.900 - 2nd-year students) indicate that a focus on exams and assignments might lead to a more extrinsic motivation framework. If the teaching methodology is more exam-focused, students might be motivated primarily by grades or passing exams (extrinsic motivation). On the other hand, if the approach emphasizes practical communication, interactive activities, and real-life application, it could foster more integrative and intrinsic motivation. The difference between 1st and 2nd-year students' intrinsic motivation might suggest a shift in teaching methodology or perceived relevance.

Thirdly, ***learning conditions, including factors such as class size, availability of resources, and overall classroom environment***, affect student learning English motivation. Evidence from the data in Tables 2 and 3 shows that lower intrinsic motivation in 2nd-year students could also reflect less stimulating or engaging learning environments. Moreover, statement 16 in Tables 4 and 5, "16. *I just study English in the textbooks; I don't really pay attention to what I say or write in class.*" (M = 2.850 - 1st-year students, M = 3.750 - 2nd-year students), suggests limited opportunities for communicative practice, which could diminish motivation. A supportive and resource-rich environment that provides meaningful practice and interaction opportunities is crucial for maintaining high motivation levels. Poor learning conditions, such as overcrowded classrooms or lack of access to up-to-date materials, can demotivate students.

Another important factor in motivation to learn English is ***family background***. Evidently, family attitudes toward English learning, parental encouragement, socioeconomic status, and access to learning materials can influence students' motivation. The impact of family background is presented in Tables 2 and 3, statement: "11. *My parents want me to study as much English as possible.*" (M = 4.075 - 1st-year students, M = 4.450 - 2nd-year students) show that family support is a significant motivating factor, especially among 2nd-year students. Students with strong parental encouragement or whose families value English learning tend to show higher extrinsic motivation. Socioeconomic status may also affect access to private tutoring, learning materials, and other resources that can enhance motivation. Conversely, a lack of family support or resources might negatively impact motivation.

Personal Goals and Future Aspirations are the next factors affecting English learning motivation. Students' goals, such as wanting to study abroad, travel, or work in an international environment, can drive their motivation to learn English. This factor is shown in Table 3 with higher scores in statements related to extrinsic motivation (e.g., "9. *Acquiring fluency in English can help you land a decent career.*" (M= 4.525 - 2nd-year students) suggest that as students advance, their focus on career-related outcomes increases. Motivation is likely influenced by students' perception of the utility of English in achieving personal and professional goals. This factor is closely linked with extrinsic and instrumental motivations, as students align their English learning with tangible future benefits.

The subsequent factor is the ***cultural and social context***. The cultural context and the status of English in the country or region can affect students' motivation. Motivation levels tend to be higher in societies where English is highly valued, either for economic reasons or social status.

Integrative motivation (which reflects a desire to integrate with English-speaking communities) is lower in 1st-year students (M 2.432) and improves in 2nd-year students (M 3.360). This could reflect increased awareness of the cultural and social benefits of learning English as students advance. Social acceptance, peer influence, and the perceived prestige of English can affect motivation levels. If English is seen as a gateway to social mobility or cultural engagement, students will likely be more motivated to learn.

Last but not least, *learning experiences* are also a factor that impacts students' motivation to learn English. Students' prior experiences with learning English, including success, failure, or enjoyment, can shape their attitudes and motivation. In Table 3, the decline in intrinsic motivation among 2nd-year students might indicate that previous negative experiences (e.g., difficulty with coursework, lack of engagement) have influenced their motivation levels. Positive experiences, such as successful communication, enjoyment in language games, or understanding media in English, can increase motivation. Conversely, negative experiences, like repeated failure or lack of progress, can lower motivation.

Many factors affect students' motivation to learn English, including the influence of teachers, teaching methods, learning conditions, family support, personal goals, cultural context, and prior experiences. The data suggest that while both 1st and 2nd-year students are highly extrinsically motivated, there are notable differences in their intrinsic and integrative motivations, likely influenced by these various factors. Understanding these can help educators and policymakers create more effective, engaging, and supportive English learning environments.

4. CONCLUSION

This research investigated the types of motivation influencing 1st and 2nd-year students at UNETI in learning English, focusing on Intrinsic, Extrinsic, Instrumental, and Integrative Motivations. The findings indicate that while both groups are motivated by a mix of intrinsic and extrinsic factors, there is a notable shift in motivational patterns as students advance. 1st-year students exhibit higher Intrinsic Motivation, reflecting enjoyment and personal interest in learning English. In contrast, 2nd-year students show a greater emphasis on Extrinsic Motivation, driven primarily by career prospects and parental encouragement. Additionally, the Instrumental Motivation, which focuses on practical benefits, remains significant for both groups but becomes slightly more pronounced in the second year. Integrative Motivation, which involves cultural and social integration, is relatively low among first-year students but increases in the second year, suggesting a gradual appreciation of cultural aspects of English learning over time.

The findings have important implications for language teaching and curriculum design at UNETI. The decline in intrinsic motivation among 2nd-year students suggests a need to create a more engaging and enjoyable learning environment that sustains students' interest throughout their academic journey. Additionally, the strong Extrinsic and Instrumental motivations indicate that students are primarily driven by practical benefits such as academic success and career advancement. Therefore, incorporating real-world applications and career-oriented content in the curriculum may enhance students' motivation. The increase in Integrative Motivation among 2nd-

year students suggests an opportunity to integrate more cultural and social elements into English instruction to foster a well-rounded appreciation for the language.

Based on the results of this research, some recommendations are given to improve the motivation of students to learn English at UNETI. Firstly, we must **enhance *Intrinsic Motivation***. To maintain and increase students' intrinsic motivation, educators should employ teaching methods emphasizing enjoyment, creativity, and engagement. Activities that are interactive, student-centred, and contextually relevant can help sustain students' interest in learning English. Incorporating multimedia tools, language games, and group discussions may also make learning more enjoyable. Secondly, **leverage *Extrinsic Motivation* is necessary**. Given the strong Extrinsic Motivation observed, particularly among second-year students, the University should provide clear connections between English learning and career opportunities. The university should invite guest lectures from industry professionals, teach English for specific purposes modules, and give practical assignments related to students' future careers to make these connections more explicit. Thirdly, ***Integrative Motivation should be fostered***. To enhance integrative motivation, it is recommended that more cultural content be included in the English curriculum. Activities such as cultural exchange programs, interactions with native speakers, and exposure to diverse media (e.g., films, literature, and news) can help students appreciate the social and cultural benefits of learning English. Next, ***Instrumental Motivation should be supported***. Given the high levels of instrumental motivation, integrating practical English applications relevant to students' academic and professional contexts is crucial. This could include projects focused on job interviews, writing professional emails, or presenting in English. Emphasizing the practical utility of English in everyday and professional contexts will reinforce its importance. In addition, the university should **create a *Supportive Learning Environment***. It is essential to foster a supportive and resource-rich learning environment to address the differences in motivational factors. Smaller class sizes, access to modern learning resources, and regular feedback can enhance motivation and learning outcomes.

By understanding these motivational patterns and tailoring instructional strategies accordingly, educators can create a more effective, engaging, and motivating environment for English language learners at UNETI.

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SEGMENTED SCHEDULING OPTIMIZATION FOR MOBILE EDGE COMPUTING IN 5G NETWORKS

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ABSTRACT

This article explores the optimization of Mobile Edge Computing (MEC) scheduling in 5G networks using segmentation mechanisms. By dividing computation tasks into smaller segments and distributing them to MEC servers, leading to an enhancement in system performance and improvement in user experience. The study employs the RND scheduling algorithm and UFGC segmentation channel protection to assess congestion probabilities for user sessions at An Giang University, Vietnam. MEC, with its low latency and high bandwidth, is essential for meeting the stringent requirements of 5G networks. Despite its benefits, MEC centers often face limitations in computing resources and connectivity. Extensive research has focused on computation offloading, communication, resource management, and access control to optimize MEC performance. This article addresses the interaction between MEC services and traditional mobile transmission services, advocating for segmentation as a key technique to improve MEC scheduling and overall 5G network efficiency.

Keywords: MEC, segmentation, scheduling, 5G network, congestion probability

1. INTRODUCTION

Mobile Edge Computing (MEC) scheduling in 5G networks with segmentation mechanisms is the process of determining the operation time of computation nodes located near users (MEC servers) and distributing computation tasks to these nodes to optimize computation in the 5G network. ETSI ISG (Industry Specification Group) has introduced MEC technology, incorporating cloud-computing functionalities into the Radio Access Network (RAN) and the IT service framework at the periphery of mobile networks, close to end-users. This setup provides features like ultra-low latency, high data throughput, and immediate access to wireless network insights, which can be leveraged and refined by applications and platforms that enhance Quality of Experience (QoE).

MEC is essential to the advancement of 5G network, transforming mobile broadband networks into a programmable world (3GPP, 2016) and meeting the stringent requirements of 5G for throughput, latency, scalability, and automation. In contrast to conventional cloud computing centers that possess ample computing resources, MEC centers often face limitations in computing resources and connectivity. To achieve low latency and effective utilization for numerous users,

extensive research has been conducted in various aspects, including computation offloading, communication, resource management, and access control. For instance, Chen et al. (2015) suggested a theoretical approach for offloading in multi-user MEC systems, which was later expanded to multi-cell environments (Sardellitti et al., 2015). They assumed known service and network demands. Additionally, to offload computation tasks, Lyapunov-based optimization for MEC systems has been introduced, considering both random and dynamic network characteristics (Kwak, 2015; Jiang, 2015; Mao, 2016). Instead of solely focusing on workload offloading, Barbarossa et al. (2013) explored the combined allocation of computation and transmission resources, with the goal of reducing overall energy consumption for mobile users. In contrast to most studies that focus on latency trade-offs, Hoang et al. (2012) optimized resource distribution to maximize service providers' revenue, while ensuring that quality-of-service (QoS) requirements for all mobile users were met.

However, prior works often neglect the interaction between MEC services and traditional mobile transmission services, including User Task (UT) and downlink transmission services (DT). The coexistence of UT users, DT users, and MEC users leads to contention for wireless network and resource transmission. Network slicing technologies based on business and technology requirements have been devised to allocate resources effectively. Segmentation, as a technique, breaks computation tasks into smaller segments, enabling parallel processing across multiple computation nodes. When combined with MEC scheduling, segmentation optimizes computation in 5G networks by distributing tasks to MEC servers, reducing processing time, enhancing system performance, and improving user experience.

In this article, we investigate the RND scheduling algorithm combined with the UFGC segmentation channel protection mechanism to determine the congestion probability of user sessions within the premises of An Giang University, Vietnam.

2. METHODOLOGY

2.1. MEC proposed architecture

The suggested MEC architecture aids users in gaining a clearer understanding of the mobile edge system (described in Figure 1), by providing a more detailed definition of functional entities and their interrelationships. This architecture mirrors the division found at both the system and server levels within the framework model. Notably, the network level is omitted from the proposed architecture documentation, as no specific MEC reference point is required for accessing entities (ETSI, 2016).

2.2. Problem model and system parameters

Assuming that mobile users in the area initiate usage sessions following a Poisson process with rate λ , the session duration is modeled by an exponential distribution with parameter μ . Throughout the session, user movement is directed by the Gauss-Markov mobility model with parameters $\alpha = 0.7$ and average speeds of 1.5m/s, 5m/s, and 10m/s, respectively.

The probability of congestion for a new user session and the probability of congestion for a transitioning user session (denoted as P_F and P_H , respectively) are determined based on the average

session holding time. The arrival rate of new user sessions and the arrival rate of transitioning user sessions, denoted as λ_F and λ_H , respectively, are both modeled as Markov processes. The service rate μ and the return time when service cannot be immediately received are modeled as an exponential distribution with parameter $\frac{1}{\mu_r}$. In this case, the model is $X = \{I(t), J(t); t \geq 0\}$ In this context, $I(t)$ ($0 \leq I(t) \leq c$) denotes the count of active user sessions, while $J(t)$ ($0 \leq J(t) \leq N$) signifies the number of user sessions that are queued. The model is shown in Figure 2.

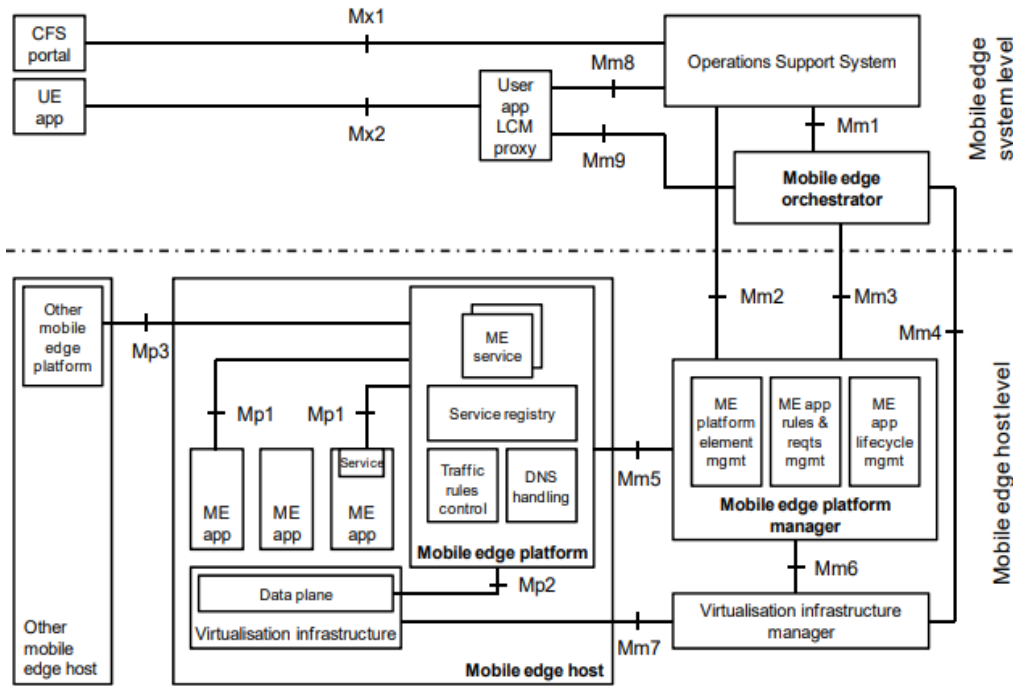


Figure 1. Mobile edge system reference architecture (ETSI, 2016)

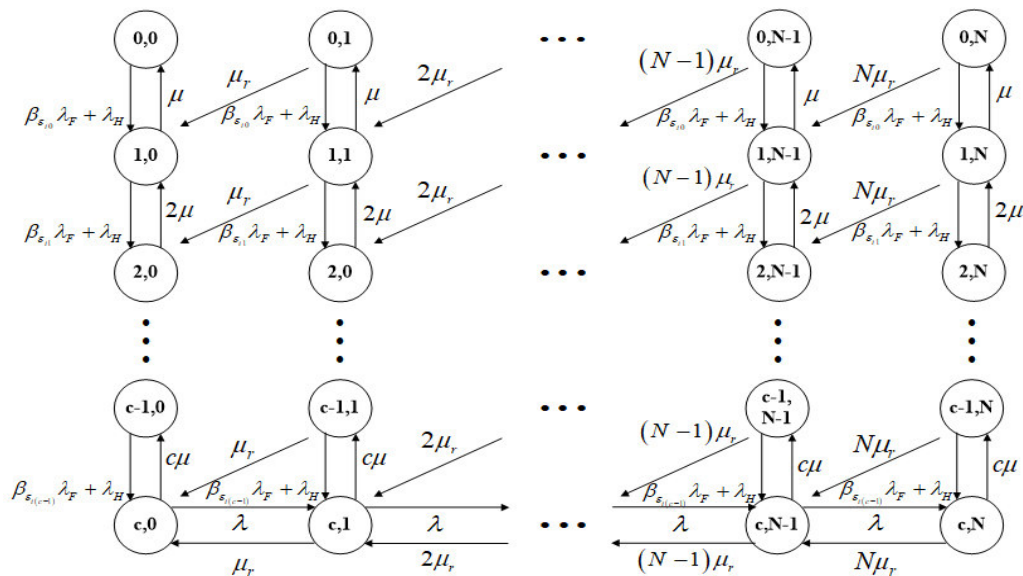


Figure 2. State transition diagram of the problem

We have the following state transition matrices:

$$A_j = A = \begin{pmatrix} 0 & \beta_{\epsilon_{t0}}\lambda_F + \lambda_H & 0 & \cdots & 0 & 0 & 0 \\ \mu & 0 & \beta_{\epsilon_{t1}}\lambda_F + \lambda_H & \cdots & 0 & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & \cdots & (c-1)\mu & 0 & \beta_{\epsilon_{t(c-1)}}\lambda_F + \lambda_H \\ 0 & 0 & 0 & \cdots & 0 & c\mu & 0 \end{pmatrix}, (j \geq 0).$$

(a) $A_j(i, k)$ represents the transition from (i, j) to (k, j) (where $0 \leq i, k \leq c$ and $j \geq 0$) due to a new user session generated or leaving the area after using the service

$$B_j = B = \begin{pmatrix} 0 & 0 & \cdots & 0 & 0 \\ 0 & 0 & \cdots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & \cdots & 0 & 0 \\ 0 & 0 & \cdots & 0 & \beta_{\epsilon_{tc}}\lambda_F + \lambda_H \end{pmatrix}, (j \geq 0).$$

(b) $B_j(i, k)$ represents the transition from (i, j) to $(k, j + 1)$ (where $0 \leq i, k \leq c$ and $j \geq 0$) due to a request for service from a user, but all MECs are busy at that time.

$$C_j = \begin{pmatrix} 0 & j\mu_r & 0 & \cdots & 0 & 0 \\ 0 & 0 & j\mu_r & \cdots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & \cdots & 0 & j\mu_r \\ 0 & 0 & 0 & \cdots & 0 & j\mu_r \end{pmatrix}, (j \geq 1).$$

(c) $C_j(i, k)$ represents the transition from (i, j) to $(k, j - 1)$ (where $0 \leq i, k \leq c$ and $j \geq 0$) due to a user session successfully using the service and returning to the MEC system.

The generating matrix Q can be expressed as follows:

$$Q = \begin{pmatrix} Q_1^{(0)} & Q_0^{(0)} & & & \\ Q_2^{(1)} & Q_1^{(1)} & Q_0^{(1)} & & \\ & Q_2^{(2)} & Q_1^{(2)} & Q_0^{(2)} & \\ & & Q_2^{(3)} & Q_1^{(3)} & \ddots \\ & & & \ddots & \ddots \end{pmatrix}.$$

Where $Q_0^{(j)} = B$, $Q_1^{(j)} = A - D^A - B - D^{C_j}$ ($j \geq 0$), $Q_2^{(j)} = C_j$ ($j \geq 1$).

$$D^A = \begin{pmatrix} \beta_{\epsilon_{t0}}\lambda_F + \lambda_H & 0 & 0 & \cdots & 0 & 0 & 0 \\ 0 & \mu + \beta_{\epsilon_{t1}}\lambda_F + \lambda_H & 0 & \cdots & 0 & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & \cdots & 0 & (c-1)\mu + \beta_{\epsilon_{t(c-1)}}\lambda_F + \lambda_H & 0 \\ 0 & 0 & 0 & \cdots & 0 & 0 & c\mu \end{pmatrix}.$$

$$D^{Cj} = \begin{pmatrix} j\mu_r & 0 & 0 & \cdots & 0 & 0 \\ 0 & j\mu_r & 0 & \cdots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & \cdots & j\mu_r & 0 \\ 0 & 0 & 0 & \cdots & 0 & j\mu_r \end{pmatrix}, (j \geq 1).$$

The probability of state (i, j) is denoted by $p_{i,j} = \lim_{t \rightarrow +\infty} P(I(t) = i, J(t) = j)$ and the probability vector at level $v_j = (p_{0,j}, p_{1,j}, \dots, p_{c,j})$. Consequently, the balance equations of the system can be expressed as follows:

$$v_0 Q_1^{(0)} + v_1 Q_2^{(1)} = \underbrace{(0, 0, \dots, 0)}_{c+1}, \quad (1)$$

$$v_{j-1} Q_0^{(j-1)} + v_j Q_1^{(j)} + v_{j+1} Q_2^{(j+1)} = \underbrace{(0, 0, \dots, 0)}_{c+1} \quad (1 \leq j \leq N-1), \quad (2)$$

$$v_{N-1} Q_0^{(N-1)} + v_N Q_1^{(N)} = \underbrace{(0, 0, \dots, 0)}_{c+1}. \quad (3)$$

2.3. Calculation method for the blocking probability of the system

Blocking probability of new user sessions

Occurs when a service request from a new session is received through the FGC mechanism and all MECs are fully occupied.

$$P_H = \sum_{j=0}^N p_{c,j}. \quad (4)$$

Blocking probability of ongoing user sessions

The system rejects new incoming calls (with a probability of $(1 - \beta_{\epsilon_{ti}})$) according to the FGC mechanism.

$$P_F = \sum_{j=0}^N \sum_{i=0}^c p_{i,j} (1 - \beta_{\epsilon_{ti}}). \quad (5)$$

3. RESULTS AND DISCUSSION

3.1. Problem

This article explores MEC scheduling in 5G networks with a segmentation mechanism to optimize computation tasks. By dividing tasks into smaller segments and distributing them to MEC servers, computation processing time is reduced, enhancing system performance and improving the user experience. The study utilizes RND scheduling algorithm combined with UFGC segmentation channel protection to determine congestion probabilities of user sessions at An Giang University with a size of 900 m × 900 m (Fig.3).

We assume that eNodeBs are positioned to provide coverage over a square area measuring 150 m × 150 m. Thus, a total of 36 eNodeBs are required. We also consider the deployment of 5 MECs (as shown in Figure 4), with $\sum_{\gamma \in \Gamma} C_{n,\gamma} = 500$.



Figure 3. Campus of An Giang University.

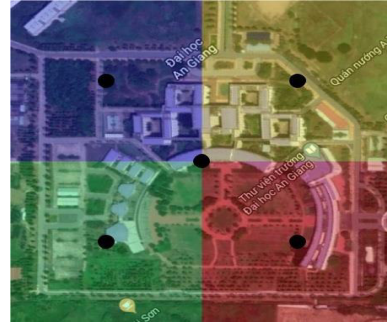


Figure 4. MEC placements at An Giang University.

Table 1. Allocation of mobile users in various regions to MECs

Area	I	II	III	IV
MEC_1	x	x	x	
MEC_2	x	x		x
MEC_3	x		x	x
MEC_4		x	x	x
MEC_5	x	x	x	x

3.2. Algorithm and segmentation mechanism

3.2.1. Algorithm application

Algorithm 1 outlines the process for assigning a session for a new user session or an existing handover session initiated by user e at eNodeB $\epsilon_{e(t)}$. The procedure evaluates the set of available MECs $\Gamma_{n,\epsilon_{e(t)}}$ and searches for the suitable MEC γ_{to} using $FIND_SUITABLE_MEC(\Gamma_{n,\epsilon_{e(t)}})$. If the request cannot be satisfied due to insufficient capacity, a NULL value is returned.

Algorithm 1. Assigning a new/handover session to an available MEC

Input:

- $\epsilon_{e(t)}$ is the identifier of the eNodeB that connects UE e at time t .

Output:

- Route the session to a MEC or block the session.

procedure ASSIGN_SESSION ($\epsilon_{e(t)}$)

 Assign $\gamma_{to} = FIND_SUITABLE_MEC (\Gamma_{n,\epsilon_{e(t)}})$

if ($\gamma_{to} \neq NULL$) **then**

 Route the session to MEC γ_{to}

else

 Block the session

end if

end procedure

The function $\text{FIND_SUITABLE_MEC}(\Gamma_{n,\epsilon(t)})$ could be RND algorithm (Algorithm 2), to select a suitable MEC for the problem requirements. In which RND function will declare and add to the Γ_{ret} set MECs γ that satisfy, then randomly choose a MEC $\gamma \in \Gamma_{ret}$ or NULL value (if no MEC satisfies the requirements).

Algorithm 2. RND algorithm for managing new/ongoing sessions: Choose a random available MEC.

Input:

- Γ_{to} : a set of MECs.

Output:

- An available MEC or NULL.

procedure FIND_SUITABLE_MEC (Γ_{to})

Initialize $\Gamma_{ret} = \emptyset$

for ($\gamma \in \Gamma_{to}$) **do**

if ($W_\gamma(t) < C_\gamma$) **then**

 Assign $\Gamma_{ret} = \Gamma_{ret} \cup \gamma$

end if

end for

if ($\Gamma_{ret} \neq \emptyset$) **then**

return a random MEC from $n \text{ t\`ur } \Gamma_{ret}$ Return a random MEC from Γ_{ret}

else

return NULL

end if

end procedure

3.2.2. Applying the segment protection channel mechanism

The probability of congestion is high for a user's handover session if the average session time and user mobility speed are high. Primarily, the segment protection channel mechanism is used to maintain a balance between the congestion probability of new user sessions and the session drop probability of existing user sessions.

Given an eNodeB ϵ , $C_\epsilon(t) = \sum_{\gamma \in \Gamma_\epsilon(t)} C_\gamma$ và $W_\epsilon(t) = \sum_{\gamma \in \Gamma_\epsilon(t)} W_\gamma(t)$. When a new user session request arrives at eNodeB ϵ_{to} at time t , it has a probability of acceptance denoted by $\beta_{\epsilon_{to}}(t)$ (applying the segment protection channel mechanism).

UFGC segment protection channel mechanism: Every new session request is received with a probability of β : $\beta_{\epsilon_{to}}(t) = \beta, (0 \leq W_{\epsilon_{to}}(t) < C_{\epsilon_{to}}(t))$.

3.3. Assessment of the analysis results

In this section, the article will introduce an analysis and evaluation of the problem based on the impact of system performance parameters, mainly using two segment protection channel

mechanisms: UFGC, for analysis and evaluation. The parameters will be adjusted and evaluated using Mathematica programming tools. Then, it will be determined which parameters affect the system, thereby selecting the optimal value. The available capacity of each MEC is the same, so we only need to consider a fixed MEC to determine the system's congestion probability.

Table 2. The parameters in regions to MECs

Parameter	Value	Description
c	50	Maximum number of user sessions that an MEC can serve.
N	100	Maximum number of users.
p	[0.1,0.9]	Probability of allowing a new user session to be accepted using the segmentation protection mechanism.
λ_H	[0.01,2]	Rate of continuous user sessions.
λ_F	[0.001,1]	Rate of new user sessions.
μ	0.1	Service rate of users within an MEC.
$1/\mu_r$	5	Time for a user to return after not being able to be served immediately within an MEC.

3.3.1. Analysis of congestion probability based on the $\frac{\lambda_H}{\lambda_F}$ value

We fix the value of $\lambda_F + \lambda_H = 1.2$ và $\beta_{\epsilon_{ti}} = 0.5$. The results are as follows:

From Figures 5, we observe that when the $\frac{\lambda_H}{\lambda_F}$ ratio varies from 1/5 to 5, the congestion probability values P_F and P_H remain constant (as shown on the figure as a horizontal line). This limitation can be attributed to the maximum number of users that an MEC can serve simultaneously, capped at 50, whereas the total number of users that may exist is restricted to only 100, plus the lower service rate compared to the user return rate to the MEC. Hence, the congestion probability does not depend on the $\frac{\lambda_H}{\lambda_F}$ ratio.

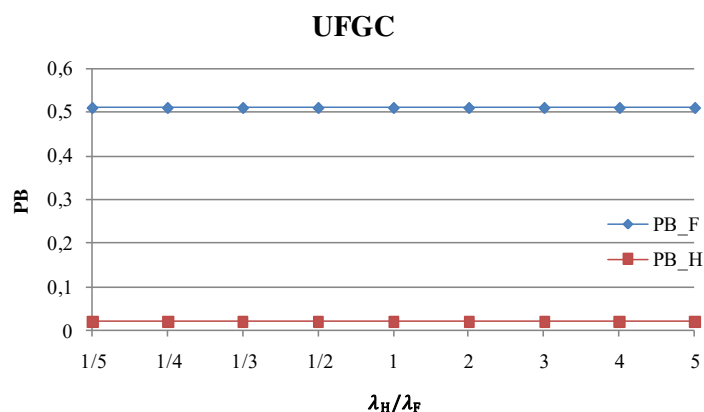


Figure 5. Congestion probability PB_F và PB_H as a function of $\frac{\lambda_H}{\lambda_F}$ (UFGC mechanism)

3.3.2. Analyzing probability as a function of ρ value.

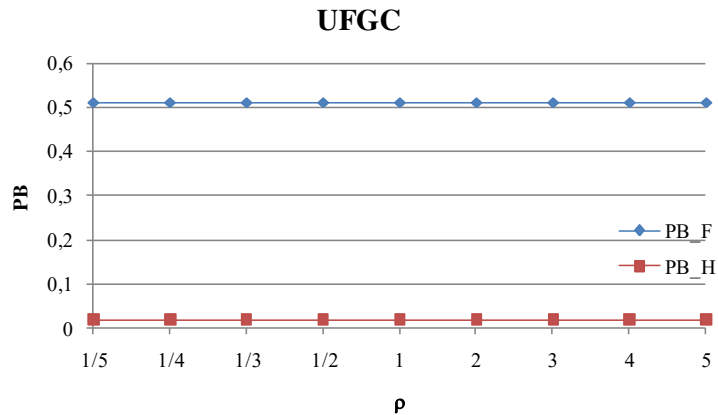


Figure 6. Congestion probability PB_F và PB_H as a function of ρ (UFGC mechanism)

As noted in previous section, the congestion probabilities also do not depend on throughput $\rho = \frac{\lambda_F + \lambda_H}{c\mu}$.

Analyzing probability as a function of p value.

With the UFGC mechanism, we observe that as the probability of service $\beta_{\epsilon_{ti}}$ increases, the system's congestion probability decreases significantly (this is consistent with the model we are considering). In contrast, the LFGC mechanism only allows for a slight decrease in probability since only the probability of service at the g state $g(\beta_{\epsilon_{tg}})$ is affected.

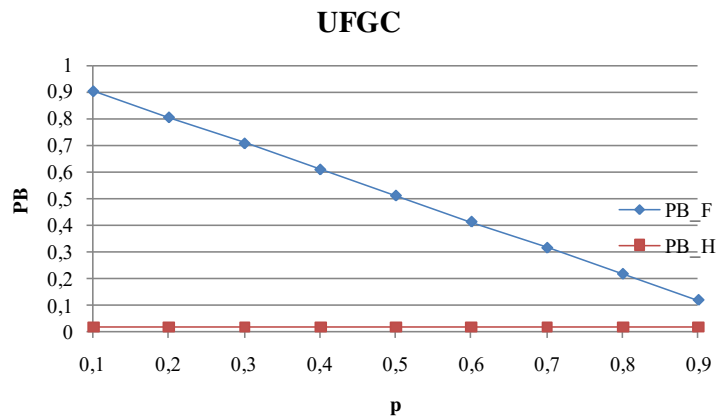


Figure 7. Congestion probability PB_F và PB_H as a function of p (UFGC mechanism)

4. CONCLUSIONS

The proposal is to evaluate a specific model within the campus of An Giang University with specific performance metrics, and then evaluate it using an algorithm, RND, combined with a congestion control mechanism, UFGC. Finally, an analysis is performed to assess how changes in the performance metrics affect the system under consideration. In the future, this article can be

expanded to evaluate the effectiveness of algorithms based on congestion control mechanisms, such as LFGC, QUFGC, LAFGC, and two advanced scheduling algorithms, SOL and LFS.

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SPECIFYING A DIGITAL COMPETENCE FRAMEWORK USING A CONTENT-ORIENTED APPROACH

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ABSTRACT

This study presents the specification of the digital competency framework in a content-based approach to effectively integrate digital skills into the training program. The authors analyze and compare existing digital competency frameworks and identify the knowledge, skills, and attitudes of the digital competency framework. At the same time, the authors analyze the content, methods, and processes of integrating the digital competency framework into the course outline in a content-based approach to each specific competency. Based on the practical requirements and development trends of the digital age, the authors propose a common course outline for all undergraduate students at Tra Vinh University. The analysis results show that the outline fully equips students with digital knowledge and digital skills upon graduation, meeting the development of technology and the requirements of the labor market.

Keywords: digital competence framework, digital content, digital citizens, digital skills, digital technology, digital world.

1. INTRODUCTION

In the modern technological world, digital competence plays a crucial role. Specifying digital competence framework in a content-based approach is necessary for universities to prepare their students for the workforce. To be able to accomplish this, we must create a rigorous training program framework that blends basic technological knowledge with information that is specifically relevant to the framework for digital competence.

According to the perspective of European Union e-Skills (2021), the development of digital skills for citizens and the workforce in the age of digitization is the main emphasis in which the EU highlights the need of digital skills for everyone, not only for IT experts. People who possess basic digital abilities are better equipped to engage in the digital world, from using digital devices and the internet to comprehending and handling personal data. Digital skills, according to the EU, are essential to preserving and raising worker productivity. All sectors, from business and public services to education and health, need to include digital capabilities.

The Recommendation on Digital Education of UNESCO (2021) states that the strategy for sustainable growth in the area of digital skills focuses on promoting and strengthening digital skills for all educational levels and target groups in society. In order to advance sustainable development and meet the objective of high-quality education for sustainable development, UNESCO (2019) has released suggestions on digital education. These suggestions contain certain tactics and steps to improve individuals' digital literacy worldwide. They stress how important it is to improve

students' and teachers' digital skills. They do this by supplying ongoing instruction in digital skills, such as how to use information and communication technologies (ICT) safely and effectively, creating curricula that incorporate digital competencies into subjects, and assisting students in acquiring the skills they will need in the digital age.

In the context of the 4.0 industrial revolution, establishing a digital competency framework for university students in Vietnam is an urgent task needed to be completed. The importance of digital competences in producing high-caliber human resources is highlighted in the study of Tran and Do (2021). These researchers suggest that it is imperative for Vietnamese universities to develop digital competencies for tertiary students in the context of digital transformation. Digital competences, in Tran and Do's opinion, enable students to be creative and inventive in their learning and work processes in addition to assisting them in accessing and using technology efficiently.

2. LITERATURE REVIEW

Digital competence: The capacity to utilize digital technology ethically, critically, and with confidence for learning, working, and social interaction is known as digital competence. Digital competence is the capacity to seek, manage, analyze, and share information as well as communicate, cooperate, and create using digital technologies. It encompasses a variety of skills, knowledge, and attitudes connected to using digital devices, software, and apps. This notion encompasses the capacity to comprehend and adhere to legal, ethical, and security concerns pertaining to digital technology (Carretero et al., 2017).

The role of digital competence: Vuorikari et al. (2016) defines digital competence as the possibility to utilize ICT to deal with problems and tackle tasks in a digital environment. DigComp 2.2 offers a common base of abilities, information, and mindsets required for individuals to engage with digital technologies in a critical, secure, and confident manner (European Commission, 2022).

Digital competency framework: The Digital Competency Framework is an instrument created to assist mold and develop the abilities, knowledge, and attitudes required to utilize digital technology successfully.

Orienting and developing digital skills for people in the digital era is facilitated in large part by the Digital Competency Framework. Consistency and uniformity in the execution of training programs and the development of digital skills are ensured by defining the digital competence framework using a content-based approach, which also contributes to better educational outcomes.

Components of the Digital Competency Framework: The primary components of the Digital Competency Framework include information and data, communication and teamwork, creating digital content, safety, and problem-solving. In accordance with (Carrero et al., 2017), each of these elements has certain criteria to assist in determining the learners' degree of competency. Do et al. (2022) suggested a framework for digital competency that has four primary parts: proficiency in digital communication, analytical thinking and problem-solving, information technology, and self-learning and personal growth.

Specifying the digital competency framework according to the content approach: Specifying the digital competency framework according to the content approach means developing training programs and teaching materials based on the criteria and standards identified in the digital competency framework. This concretization, according to the research of Ferrari (2013), facilitates the assessment and development of digital competences while making it easier for learners to put their knowledge and abilities into practice.

The suggestion of UNESCO (2021) states that inclusivity and fairness in digital education should be the main priorities in the creation and design of the digital competence framework. This involves making certain that everyone in the target demographic, particularly those from underprivileged backgrounds, has access to and the chance to learn digital skills. In order to raise the caliber and efficacy of instruction, UNESCO (2019) additionally highlights the need of artificial intelligence in education and exhorts its member nations to utilize this technology.

Helping students gain the digital competences they need to live, learn, work, and engage in social communication in a proactive, constructive, and secure manner in the digital world is the aim of the digital competency framework. Additionally, the training aids in the development of appropriate attitudes and knowledge on the role of information technology in the ongoing digital transformation. We have developed the five-module course "Digital Technology and Applications" by utilizing unique competence frameworks with specific material, which we compared and studied with current competency frameworks in Vietnam and throughout the world. Upon finishing this module, students are able to:

In terms of knowledge: Recognize the fundamentals of digital technology and the digital world; Be able to interact in a digital setting; Manage and create digital media.

In terms of skills: Utilize one's digital expertise to learn and operate securely and productively; Utilize digital technologies to do simple chores; Understand how to select settings and tools for creating digital material.

In terms of attitude: Accurately assess the place of technology in daily life.

Seventy-five hours are allotted for teaching these five modules, which consist of 15 hours of theory, 60 hours of in-class practice, and 55 hours of self-study.

Module 1 - Digital infrastructure (including 5 contents)

- *Digital devices:* Concept of digital devices; Development and evolution of digital devices; Types of digital devices; Classification of digital devices; Trends of digital devices.

- *Basic network infrastructure:* Concept of computer networks; Network models; Types of network connections; Internet of Things (IoT).

- *Digital software and services:* System software; Application software; Digital services.

- *Digital platforms:* Digitalization; Digital transformation; Digital citizens; Digital identities.

Module 2 - Exploiting information in the digital environment (including 3 contents)

- *Information and Data:* Concept of information; Concept of data; Information in the digital environment.

- *Searching and exploiting information in the digital environment*: Search engines; Search techniques; Information authentication.

- *Storage and sharing*: Organizing local and online storage; Data synchronization; Some online storage tools; Online sharing authorization.

Module 3 - Safe communication in the digital environment (including 4 contents)

- *Digital communication environment*: Communication in the digital environment; Classification of communication in the digital environment; Communication platform in the digital environment; Email; Social network.

- *Behavior in the digital environment*: Community rules; Ethical standards; Behavior in the digital environment.

- *Privacy*: Privacy; Digital identity; Digital footprint.

- *Online safety*: Malware; Passwords; Information authentication; Recognizing signs of fraud; Preventing fraud.

Module 4 - Digital content creation (including 3 contents)

- *Text editing*: Option; Text Format; Watermark, Insert Object; Breaks; SmartArt; Table of Contents; Table of Figures; Footnote; Citation; Cover Page; Mail Merge; Comment, Protect document; Print.

- *Data manipulation*: Option; Function and Formulas; Chart; Sparkline; Consolidate; Pivot Table; What-If Analysis; Sort and Filter data; Protec Workbook; Print.

- *Presentation design*: Format; Graphic object; SmartArt; Chart; Multimedia; Hyperlink; Triggers; Package Presentation; Protect Presentation; Print.

Module 5 - Applying digital skills in study and career (including 2 contents)

- *In study*: Canva; Google Gemini; Microsoft Copilot; Perplexity AI; Adobe Firefly.

- *In career*: Create ECV; Google Apps (Docs, Sheets, Slides, Forms, Calendars).

3. MATERIALS AND METHODS

This research explains the strategy and methods used to define the digital competence framework using the content approach. Based on previously published competency frameworks, this research collects and analyzes data using both qualitative and quantitative methods. The major steps are presented as follow:

1) *Research and synthesis*: We conducted a literature review to identify existing digital competency frameworks and digital competency assessment criteria. The main documents included DigComp 2.2 of European Commission (2022), reports of UNESCO (2021) on digital education, and the digital competency framework of (Do et al., 2022).

2) *Content analysis*: We used content analysis to identify the main components of the digital competency framework and the skills required for citizens in the digital environment. This method

helps to specify the criteria and standards in the digital competency framework according to different skill levels (Carretero et al., 2017).

3) *Survey design*: We designed a questionnaire to collect data from 20 experts in the field of Information Technology. This questionnaire was built based on the criteria and standards identified in the DigComp 2.2 framework (Vuorikari et al., 2016) and the digital competency framework of Do et al. (2022).

4) *Data analysis*: We used statistical methods to analyze the data collected from the survey. This analysis included calculating the average index, standard deviation and using hypothesis testing methods to determine the level of influence of factors on learners' digital competency (Ferrari, 2013).

5) *Evaluation and adjustment*: Based on the results of data analysis, we conducted evaluation and adjusted the digital capacity framework to ensure the appropriate and effective in applying in teaching and learning practice.

6) *Evaluation and adjustment*: Based on the findings of the data analysis, we evaluated and adapted the digital capability framework to guarantee its appropriateness and effectiveness in teaching and learning practice.

7) *Tools*: We used Excel software to analyze quantitative data from the survey questionnaire.

4. RESULTS AND DISCUSSIONS

4.1. Results

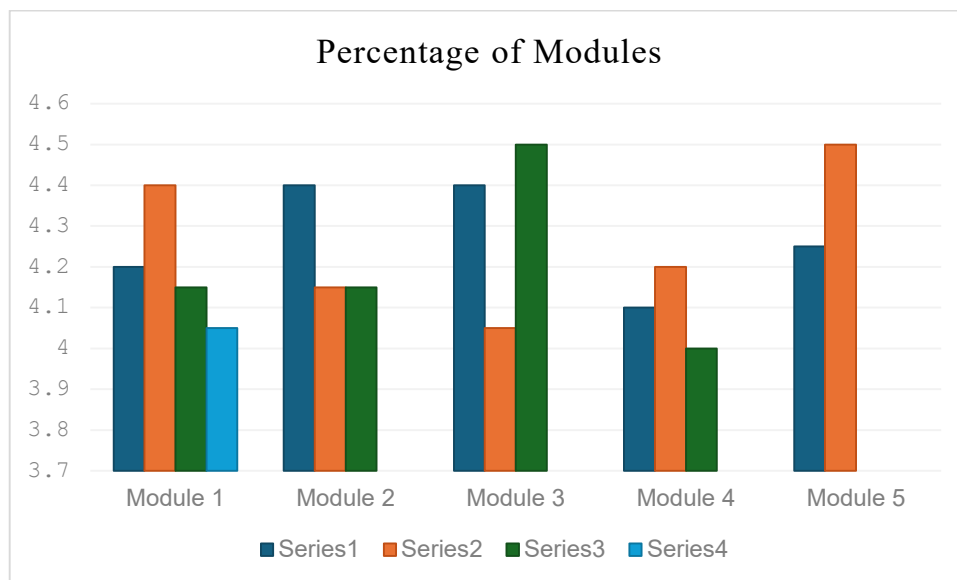


Figure 1. Survey results chart

After collecting the data, we evaluated it and created a pie chart (see Figure 1 below) to display the survey findings. The poll findings revealed that all experts appreciated the parts of the digital competency framework, particularly those linked to fundamental network architecture, information seeking and exploitation, online safety, and using digital abilities in the workplace.

This emphasizes the need of having digital abilities to fulfill the demands of job and school in the digital age.

- Module 1: Digital infrastructure

+ *Digital device (average: 4.20)*: This was highly appreciated with the average mean score of 4.2, showing that experts consider digital equipment to be very important in daily work.

+ *Network infrastructure (average: 4.40)*: This is the highest rated factor in this group, reflecting the importance of a strong and stable network infrastructure to support digital activities.

+ *Digital software and services (average: 4.15)*: This factor also received a high score, emphasizing the need for digital software and services in the workplace.

+ *Digital platform (average: 4.05)*: Although the score is lower than other factors, the digital platform is still considered important with an average score of 4.

- Module 2: Exploiting information in a digital environment

+ *Searching and exploiting information (average: 4.40)*: This is the highest rated skill in this group, showing the importance of searching and processing information in the digital environment.

+ *Storing information (average: 4.15)*: Storing information was also highly rated, emphasizing the need for effective information management.

+ *Sharing information (average: 4.15)*: Sharing information in the digital environment was also rated important, with an average score similar to storing information.

- Module 3: Safe communication in a digital environment

+ *Digital communication environment (average: 4.40)*: The high average score shows that the digital communication environment plays an important role in the work of professionals.

+ *Behavior in the digital environment (average: 4.05)*: Rated at a fairly high level, this reflects the concern for maintaining a culture of behavior in the digital environment.

+ *Privacy (average: 4.40)*: Privacy was rated very highly, showing the emphasis on protecting personal information.

+ *Online safety (average: 4.50)*: This is the highest rated factor in this group, indicating the importance of ensuring safety when using digital technologies.

- Module 4: Digital content creation

+ *Text editing (average: 4.10)*: This was highly rated, demonstrating the need for text editing skills in digital work.

+ *Data manipulation (average: 4.20)*: This skill was also highly rated, stressing the importance of data processing.

+ *Presentation design (average: 4.00)*: Although this was scored lower than other skills, presentation design was still considered important.

- Module 5: Applying digital skills in learning and career

+ *In learning (average: 4.25)*: This skill was highly rated, expressing the importance of applying digital skills in the learning process.

+ *In career (average: 4.50)*: This is the highest rated factor, emphasizing the importance of digital skills in daily work.

4.2. Discussions

Because of the scope of this study, we focus the discussion on interpreting the results in comparison with the two recent studies in the Vietnamese context which are Tran and Do (2021) and Do et al. (2022).

The modules specified in this study are well aligned with those in Tran and Do (2021) and Do et al. (2022).

Module 1: Digital Infrastructure. This module covers the components of digital infrastructure, including digital devices, network infrastructure, digital software and services, and digital platforms. This highlights the need of possessing a secure and resilient digital framework to facilitate digital operations in both professional and educational environments. In line with Tran and Do (2021), the focus on digital infrastructure corresponds to the "Devices and Software Operations" domain in their digital literacy paradigm. Tran and Do emphasize the need of comprehending and utilizing digital technologies and platforms as fundamental skills for students, which are crucial for achieving success in both academic and professional domains. Although not as comprehensive, Do et al. (2022) emphasize the importance of a robust digital infrastructure as a crucial component of the wider digital transformation that affects multiple sectors. This underscores the necessity of strong digital systems in both organizational and societal settings.

Module 2 focuses on the utilization of information in a digital setting. This module encompasses the topics of information retrieval, information exploitation, information storage, and information sharing. The main emphasis is on the capacity to efficiently handle and leverage digital information, which is essential for making informed decisions in professional settings. In congruence with Tran and Do (2021), this is in strong agreement with the "Information and Data Literacy" domain of their paradigm. Tran & Do stress the significance of information management, meticulous assessment of data, and proficient utilization of digital information, all of which are vital proficiencies for students navigating the digital terrain. In their consideration of digital competences, Do et al. (2022) incorporate the notion of information literacy. They emphasize the importance of individuals and organizations cultivating robust information management abilities to successfully navigate digital transformation and ensure the effective and responsible utilization of digital information.

Module 3: Ensuring Secure Communication in a Digital Setting. This module encompasses topics such as digital communication, digital conduct, privacy, and online safety. It emphasizes the significance of implementing secure and responsible communication procedures in the digital realm. In a similar vein with Tran and Do (2021), the "Safety and Wellbeing" and "Communication and Collaboration" aspects of their framework are highly compatible with this curriculum. Tran & Do emphasize the significance of digital safety, privacy, and ethical conduct, along with the skill

to communicate proficiently in digital settings, as fundamental elements of their suggested digital literacy framework. Likewise, Do et al. (2022) also highlight the significance of online safety and secure communication as essential components of the wider range of digital skills needed in the digital era. They emphasize that as digital transformation advances, the capacity to communicate securely and responsibly online becomes more and more crucial.

Module 4: Digital Content Creation. This module covers the skills of editing text, manipulating data, and designing presentations. The program emphasizes the acquisition and administration of digital content creation abilities, which are crucial in numerous professional environments. In accordance to Tran and Do (2021), this is consistent with the "Digital Content Creation" aspect of their framework, which highlights the significance of students possessing the ability to produce, modify, and oversee digital content as a fundamental skill. Tran and Do emphasize the importance of students being skilled in these abilities in order to effectively communicate and articulate their thoughts in the digital realm. Although the main focus of Do et al. (2022) is not specifically on content production, they do emphasize the significance of creativity and innovation in the digital era. They acknowledge that the capacity to generate and control digital content is an essential talent for adjusting to the requirements of a world that has undergone digital transformation.

Module 5, titled "Applying Digital Skills in Learning and Career," explores the practical use of digital skills in both educational and professional settings. The module highlights the significance of these abilities for continuous learning and achieving success in one's career. In line with Tran and Do (2021), their framework's "Digital Learning and Development" and "Career-related Competences" categories closely correspond to this module. Tran and Do emphasize that digital skills are essential not only for achieving academic achievement but also for being well-prepared for careers, enabling students to excel in the digital work environment. Accordingly, Do et al. (2022) also acknowledge the significance of ongoing learning and the utilization of digital skills in the advancement of one's profession. The conversation revolves around the importance of digital competencies for advancing one's career and being adaptable in a quickly evolving digital environment.

In conclusion, the modules outlined in this study are in harmony with the wider frameworks and ideas presented in Tran & Do (2021) and Do et al. (2022). Each module in this study aligns with important aspects in the other two studies, emphasizing shared topics such as the significance of digital infrastructure, information literacy, secure communication, content production, and the utilization of digital skills in education and professional growth. The alignment signifies a mutual comprehension of the fundamental digital skills necessary in contemporary educational and professional settings.

Regarding differences, first, while Tran and Do (2021) and Do et al. (2022) discuss digital competencies in a wide range of contexts, including their impact on society and education, this study specifically concentrate on the specific requirements of the workplace. The disparity shows this study's objective of developing a program that specifically equips students for professional settings. Second, this study employs a content-oriented strategy in the development of their digital competency framework. This approach entails the creation of targeted course content and training

materials that align with established digital competency standards. This method is more detailed and specific compared to the larger, conceptual frameworks outlined by Tran & Do (2021) and Do et al. (2022), which aim to establish a basis for digital literacy in different situations.

5. CONCLUSIONS

This study presents a content-oriented approach for assessing digital competence in higher education. This method is in line with the comprehensive frameworks put forward by Tran and Do (2021) and Do et al. (2022). While it has the same objective as these studies in promoting digital literacy, it distinguishes itself by offering concrete and practical methods for incorporating digital skills into university courses. This approach guarantees that students are thoroughly equipped to fulfill the requirements of the contemporary labor market, making it especially pertinent for colleges seeking to directly match their educational programs with industry expectations.

By utilizing a content-based approach to the digital competency framework, this study improves the caliber of digital education while simultaneously guaranteeing uniformity and efficiency in the implementation of training programs. The study utilizes established digital competency frameworks and worldwide studies, including those conducted by UNESCO, to provide targeted suggestions for the development of the "Digital Technology and Applications" curriculum. This curriculum provides students with the necessary digital skills required to traverse the ever-changing technological environment and fulfill the requirements of the job market. The recommended methodologies and instructional approaches are specifically crafted to make a good impact on Vietnam's educational digital revolution, enabling students to enhance their readiness for the future.

6. ACKNOWLEDGEMENT

We acknowledge the support of time and facilities from Tra Vinh University (TVU) for this study.

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FRACTIONAL MODELING OF ENZYMATIC REACTIONS WITH BI-BI RANDOM MECHANISM

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ABSTRACT

Enzymes are biodegradable proteins that naturally occur in living organisms. They can accelerate biochemical reactions in the metabolism process by reducing the activation energy of reactions. A wide range of enzyme applications has been developed in biotechnology, industry, medicine, pharmaceuticals, food processing, biofuels, etc. Enzymes may play a crucial role in sustainable development. In this paper, we develop a fractional mathematical model that describes the enzymatic reactions with a Bi-Bi random mechanism. The model consists of a coupled system of nonlinear fractional differential equations for species concentrations in the systems. We deploy Python software to obtain numerical solutions for the model. Analyzing the solutions may help gain insights into the model behaviors. Some discussions on the numerical results are provided in detail. Furthermore, the potential utility of the model in assisting experimental studies is briefly indicated. Finally, future potential research avenues are briefly discussed, also.

Keywords: Mathematical model, enzyme, Caputo, Bi Bi random mechanism, glucokinase.

1. OVERVIEW

Enzymes, which are biodegradable catalysts found naturally in living organisms, are essential in cellular metabolism due to their ability to facilitate biochemical reactions under typical biological conditions, such as standard temperatures and pH levels. The rate of enzyme-mediated reactions is significantly higher than that of reactions lacking enzymatic involvement (Nelson & Cox, 2021). Remarkably, even at minimal concentrations, enzymes can dramatically increase the speed of biochemical reactions. Additionally, enzymes are not consumed during these processes, offering a distinct commercial advantage. For any reaction to occur, a certain amount of activation energy is required, whether the reaction is exergonic or endergonic. Enzymes function by lowering this activation energy, thereby accelerating the reaction rate (Frey & Hegeman, 2007; Bugg, 2012).

Enzymes are integral to advancing sustainable development. For a reaction to be catalyzed, an enzyme must interact with a substrate molecule by binding it. The active sites of enzymes are specifically structured to accommodate substrates, facilitating reactions that result in the formation of new compounds. Typically, each enzyme is specialized to catalyze only a limited number of specific reactions. The molecular weight of enzymes generally ranges from 10,000 to 2,000,000 Daltons, making them significantly larger than their respective substrates (Bugg, 2012; Cornish-Bowden, 2012; Frey & Hegeman, 2007; Nelson & Cox, 2021; Radzicka & Wolfenden, 1995).

As previously mentioned, enzymes offer a multitude of advantages. With advancements in science and technology, research on enzymes and their applications has significantly increased (Pettipher & Latham, 1979). The discovery of new enzymes has become more common. Given their critical role in catalysis, enzymes have been extensively studied and developed for various

applications in biotechnology, industry, and medicine (Kirk, Borchert, & Fuglsang, 2002; Okamoto, Hijikata-Okunomiya, Wanaka, Okada, & Okamoto, 1997; Drauz, Gröger, & May, 2012), as well as in pharmaceuticals, food processing, biofuels, and other fields (Chapman, Ismail, & Dinu, 2018). To effectively develop an enzyme-based application, it is essential to gain a deep understanding of the enzyme's kinetic mechanism. In addition to experimental and simulation methods, mathematical models serve as valuable tools for providing insights into the enzyme's kinetic behavior (Edelstein-Keshet, 1987; Mai, 2019; Mai et al., 2018, 2021; Mai & Nhan, 2024).

In this study, we aim to develop a novel fractional mathematical model that characterizes a system of enzymatic reactions following a Bi-Bi random mechanism (Ning, Purich, & Fromm, 1969). To explore the behavior of this mechanism, we will numerically integrate the model and obtain solutions using Python software.

The paper is structured as follows: Section 2 outlines the formulation of the mathematical model and the methods employed in the study. Section 3 presents the numerical solutions and discusses the potential applications of the model. Finally, Section 4 offers concluding remarks.

2. MATERIALS AND METHODS

2.1. The mathematical model

In this section, we construct a minimal fractional-order model to represent enzymatic reactions governed by the Bi-Bi random mechanism, utilizing the Caputo derivative. The fractional derivative of order α in the Caputo sense is defined by the operator $D_t^\alpha f(t)$ such that.

$$D_t^\alpha f(t) = \frac{1}{\Gamma(m - \alpha)} \int_0^t \frac{f^{(m)}(s)}{(t - s)^{\alpha+1-m}} ds, \quad m - 1 < \alpha < m,$$

where $\Gamma(\alpha)$ is the Gamma function defined as follows

$$\Gamma(\alpha) = \int_0^\infty u^{\alpha-1} e^{-u} du, \quad \alpha > 0.$$

For further details, readers are referred to Mathai and Haubold (2017). In this study, we utilize $\alpha \in (0,1)$. We begin by outlining the kinetic mechanism on which the model is based.

The Kinetic Mechanism. Figure 1 provides a graphical representation of the enzymatic reactions associated with the Bi-Bi random mechanism. This mechanism is illustrated by the following set of chemical equations (Ning et al., 1969).

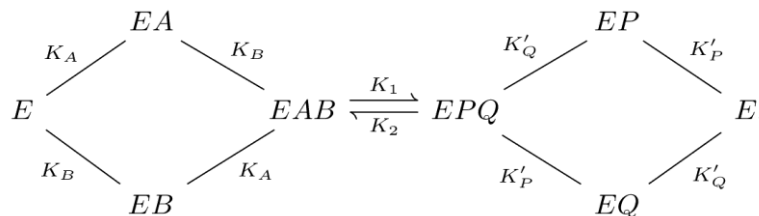


Figure 1. Schematic representation of the Bi-Bi random mechanism. In this scheme, E denotes an enzyme molecule, A and B represent substrate molecules, and P and Q correspond to the product molecules. Further, K_X and K'_X are the dissociation constants for $X = A, B, P,$ and Q in each respective stage. Finally, K_1 and K_2 refer to the reaction rates of the reversible reactions.

In the model, the enzyme molecule contains two binding sites for substrates. The interaction of each substrate molecule with the enzyme occurs randomly. Once the substrate-enzyme complex EAB is formed, the enzyme catalyzes the conversion of substrate molecule A into product P and substrate B into product Q . Subsequently, the two product molecules and one free enzyme molecule are released. For simplicity, this study focuses on the streamlined kinetic mechanism depicted in Figure 2.

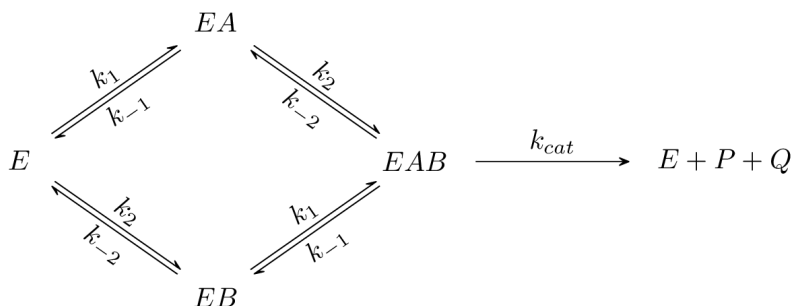


Figure 2. Diagram of the simplified Bi-Bi random mechanism. In this schematic, E represents the enzyme molecule, A and B denote the substrate molecules, while P and Q are the product molecules. The forward and reverse rate constants for substrate A are k_1 ($\text{mM}^{-1}\text{s}^{-1}$) and k_{-1} (s^{-1}), respectively. For substrate B , the forward and reverse rate constants respectively are k_2 ($\text{mM}^{-1}\text{s}^{-1}$) and k_{-2} (s^{-1}). Additionally, k_{cat} (s^{-1}) denotes the catalytic rate constant of the enzyme.

Figure 3 provides a diagram that depicts the simplified scheme shown in Figure 2.

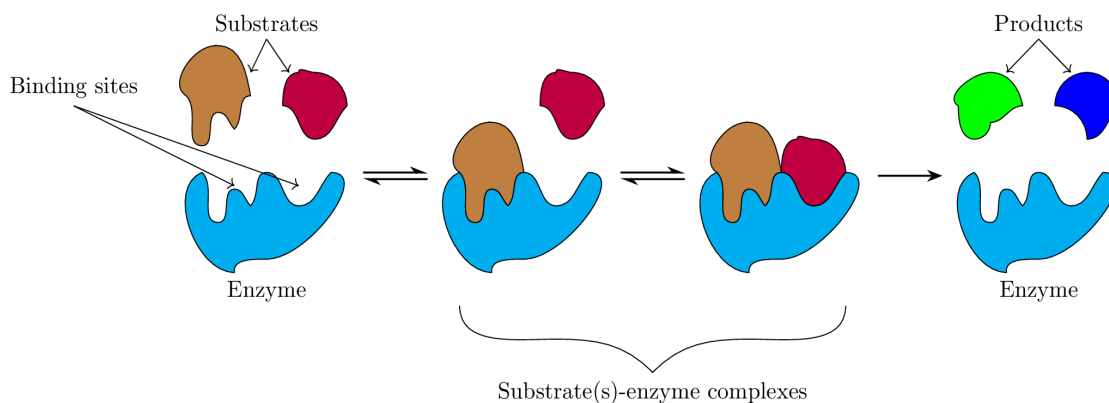


Figure 3. Diagram illustrating the simplified Bi-Bi random mechanism.

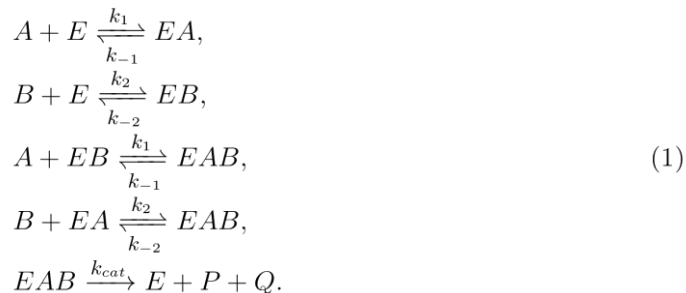
(a) The substrate-enzyme mixture is well-stirred, allowing us to ignore diffusive effects. Consequently, the concentrations of the species are functions of time alone, and the system evolution can be described by a set of coupled nonlinear fractional differential equations, negating the need for a partial differential equations model (Kangro & Kalis, 2018; Mai, Vo, & Meere, 2018; Mai, 2019).

(b) Mass action kinetics are assumed, meaning that the reaction rate is proportional to the product of the reactant concentrations. It is noted that more complex expressions, such as the Michaelis–Menten equation for enzyme-catalyzed reactions, can be derived from these basic mass

action principles under certain simplifying conditions (Mai et al., 2018; Mai, 2019; Voit, Martens, & Omholt, 2015).

(c) The binding of one substrate molecule does not influence the affinity of the enzyme binding site for another substrate molecule.

Construction of the Governing Fractional Differential Equations. For modeling convenience, we can reformulate the chemical reactions depicted in Figure 3 as follows.



Applying the law of mass action under the aforementioned assumptions, the governing fractional differential equations for the model are given by.

$$D_t^\alpha[E] = -k_1[E][A] - k_2[E][B] + k_{-1}[EA] + k_{-2}[EB] + k_{cat}[EAB], \tag{2a}$$

$$D_t^\alpha[A] = -k_1[E][A] - k_1[EB][A] + k_{-1}[EA] + k_{-1}[EAB], \tag{2b}$$

$$D_t^\alpha[B] = -k_2[E][B] - k_2[EA][B] + k_{-2}[EB] + k_{-2}[EAB], \tag{2c}$$

$$D_t^\alpha[EA] = -k_{-1}[EA] - k_2[EA][B] + k_1[E][A] + k_{-2}[EAB], \tag{2d}$$

$$D_t^\alpha[EB] = -k_{-2}[EB] - k_1[EB][A] + k_2[E][B] + k_{-1}[EAB], \tag{2e}$$

$$D_t^\alpha[EAB] = -(k_{-2} + k_{-1} + k_{cat})[EAB] + k_2[EA][B] + k_1[EB][A], \tag{2f}$$

$$D_t^\alpha[P] = k_{cat}[EAB], \tag{2g}$$

$$D_t^\alpha[Q] = k_{cat}[EAB], \tag{2h}$$

Where $[X]$ (mM) is a function of time that represents the concentration of a species X .

A detailed discussion of all these equations is not necessary here. Instead, we provide brief discussions of two of them to illustrate the construction of the model equations. We start by examining the equation for A , which is given by.

$$D_t^\alpha[A] = \overbrace{-k_1[E][A]}^a \overbrace{-k_1[EB][A]}^b + \overbrace{k_{-1}[EA]}^c + \overbrace{k_{-1}[EAB]}^d,$$

Where:

a - this term represents the decrease in A concentration resulting from its binding to the enzyme.

b - the decrease in A concentration due to its binding to the enzyme-substrate complex EB .

c - the increase in A concentration as a result of the enzyme dissociating from the complex EA .

d - the increase in A concentration due to the dissociation of the substrate from the complex EAB .

Next, we consider the equation for the enzyme E given by.

$$D_t^\alpha[E] = \overbrace{-k_1[E][A]}^\alpha \overbrace{-k_2[E][B]}^\beta + \overbrace{k_{cat}[EAB]}^\gamma + \overbrace{k_{-1}[EA]}^\delta + \overbrace{k_{-2}[EB]}^\epsilon,$$

Where:

α - this term accounts for the decrease in enzyme concentration due to the enzyme binding to substrate A .

β - the reduction in enzyme concentration resulting from its binding to substrate B .

γ - the increase in enzyme concentration as the enzyme catalyzes the complex EAB , leading to the release of the free enzyme, along with products P and Q .

δ - the increase in enzyme concentration due to the enzyme dissociating from the complex EA .

ϵ - the increase in enzyme concentration as a result of enzyme unbinding from the complex EB .

The remaining equations listed in (2) are interpreted in a similar manner.

Initial Conditions. The model equations presented in (2) are solved with the following initial conditions:

$$\begin{aligned} [E](t=0) &= e_0, & [A](t=0) &= a_0, & [B](t=0) &= b_0, & [P](t=0) &= 0, \\ [EA](t=0) &= 0, & [EB](t=0) &= 0, & [EAB](t=0) &= 0, & [Q](t=0) &= 0, \end{aligned}$$

where e_0 , a_0 , and b_0 represent the constant initial concentrations of enzyme, substrate A , and substrate B , respectively. The initial concentrations of all enzyme complexes were set to zero. Further, the initial concentrations of all other species were also assumed to be zero.

Conservation Laws. By summing equations (2a) + (2d) + (2e) + (2f), (2b) + (2d) + (2f) + (2g), (2c) + (2e) + (2f) + (2h), and applying fractional integration, we obtain

$$\begin{aligned} [E] + [EA] + [EB] + [EAB] &= e_0, \\ [EA] + [EAB] + [A] + [P] &= a_0, \\ [EB] + [EAB] + [B] + [Q] &= b_0. \end{aligned}$$

These correspond to the conservation laws for the enzyme, substrate A , and substrate B , respectively.

2.2. Computational methods

This section outlines the computational tools utilized for analyzing the model equations. The software developed for this study was implemented using the Python programming language (Python, n.d.).

Numerical Method for Solving Fractional Differential Equations. The system of fractional differential equations was numerically solved using the fodeint solver, along with the SciPy and NumPy libraries (Aburn, 2019; SciPy, n.d.; NumPy, n.d.). SciPy (SciPy, n.d.) is an open-source Python library (Python, n.d.) that provides numerical routines for scientific and engineering applications.

Model Parameter Values. Table 1 lists some of the parameter values used for numerically integrating the model equations. Typically, these parameter values are scarce in the literature, with only a few exceptions.

Table 1. Some model parameter values.

Parameter	Value	Unit
k_1	11.0	$mM^{-1}s^{-1}$
k_{-1}	5.5	s^{-1}
k_2	10.0	$mM^{-1}s^{-1}$
k_{-2}	4.0	s^{-1}
k_{cat}	63	s^{-1}

3. RESULTS AND DISCUSSION

3.1. Numerical solutions

The Methods section introduced the mathematical model and detailed the computational approaches deployed for integrating the model equations, including a discussion on the numerical methods, parameter choices, and initial conditions. In the current section, we present numerical results based on specific initial conditions $e_0 = 1.0 \text{ mM}$, $a_0 = 6.0 \text{ mM}$, and $b_0 = 8.0 \text{ mM}$.

The primary aim of these numerical solutions is to gain insights into the kinetic mechanism. We start with constant initial concentrations for the species and monitor their subsequent changes due to enzymatic reactions. Note that the derivative order used here is $\alpha = 0.6$. Given the properties of the fractional derivative, as α approaches zero, the computation time increases significantly.

Figure 4 illustrates the numerical solutions of the model for the specific initial conditions and parameter values. Each curve represents the concentration of a particular species over time t . Below, we discuss these numerical results in detail.

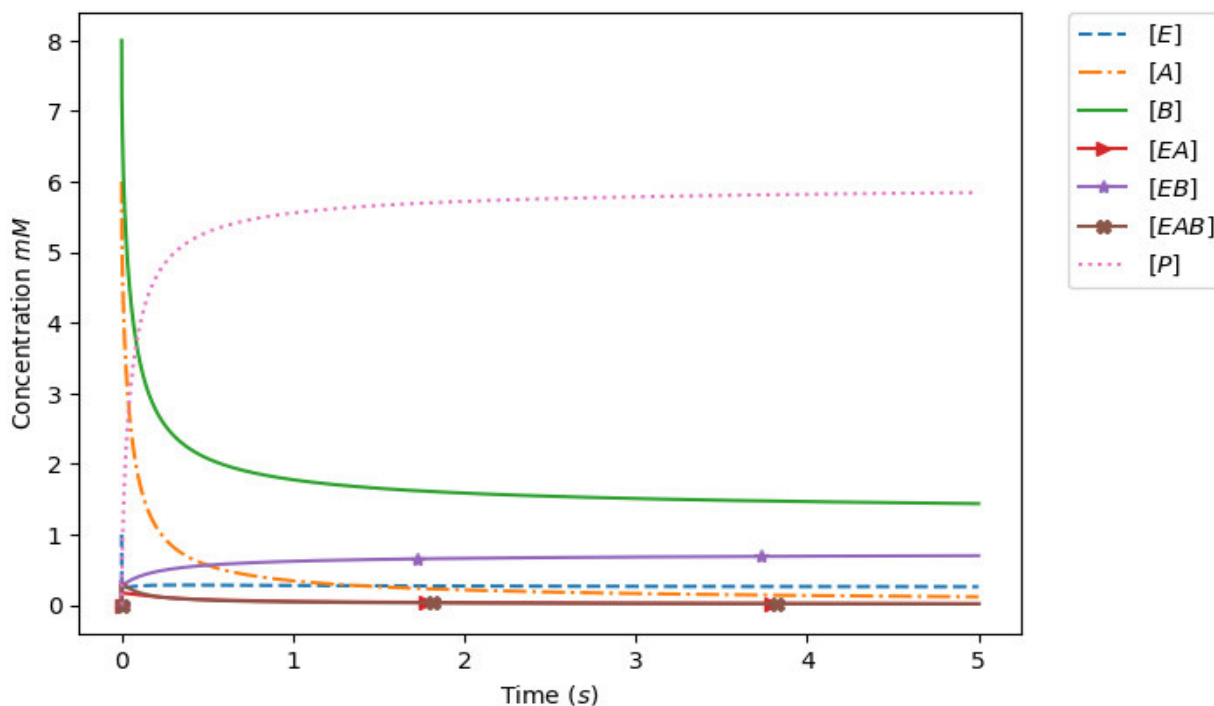


Figure 4. Numerical solutions of the fractional model. Each curve represents the concentration of a specific species in the mixture as a function of time t . The parameter values used in the model are detailed in the main text

- The blue dashed curve (----) represents the concentration of enzyme throughout the process. Initially, the enzyme concentration drops rapidly as substrates bind to form the substrate-enzyme complexes EA and EB . As time progresses, the substrate-enzyme complex emerges, and the enzyme catalyzes the conversion of substrates into products. This reaction decreases the substrate concentrations while the product concentrations continuously increase. Consequently, the enzyme concentration rises and eventually stabilizes at a steady level by the end of the process. It is important to note that the steady-state concentration of the enzyme remains lower than its initial concentration because substrate B is not fully depleted.

- The orange dashed-dotted curve (-.-.-) represents the concentration of substrate A . Initially, its concentration declines rapidly and approaches depletion by the end of the process. This outcome occurs because substrate A is completely converted to product P .

- The green curve (—) shows the concentration of substrate B . Initially, the concentration drops quickly due to the substrate binding with the enzyme. Eventually, the concentration of substrate B stabilizes at a steady level. This occurs because the concentration of B is higher than that of A , and once substrate A is fully consumed, the enzyme can no longer convert B into product Q .

- The red triangle curve (→△) represents the concentration of the substrate-enzyme complex EA . Initially, the concentration rises rapidly but then declines just as quickly, reflecting the nature of the process. Substrate A molecules rapidly bind to free enzyme molecules to form the EA complexes. Subsequently, either a substrate B molecule binds to these EA complexes to form EAB complexes or the substrate A molecule unbinds from EA . As substrate A is fully converted into product P by the end of the process, the concentration of EA approaches zero.

- The purple asterisk curve (→*) displays the concentration of the substrate-enzyme complex EB . First, the concentration increases rapidly but decreases quickly then. Eventually, it stabilizes at a steady level, which is lower than the initial concentration of substrate B . This outcome is consistent with the process dynamics since the concentration of B is greater than that of A .

- The brown cross line (→×) indicates the concentration of the complex EAB . The concentration rises sharply initially due to the binding of substrates A and B to the enzyme E to form the EAB complex. It then quickly decreases as the enzyme catalyzes the conversion of this complex into products P and Q , which are subsequently released. By the end of the process, the concentration of EAB approaches zero as substrate A is fully depleted.

- The dotted curve (.....) shows the concentration of product P . Initially, the concentration increases rapidly as the enzyme catalyzes the conversion of complex EAB into products P and Q . It approaches the initial concentration of A by the end of the process, reflecting the complete conversion of substrate A into product P . This behavior is consistent with the fact that the conversion of complex EAB to products P and Q is an irreversible reaction.

Note that the concentration of Q is the same as that of P . So, we omitted it here.

3.2. Potential utility of the model

We now propose an application of the model to a real biological system: the phosphorylation of glucose by the enzyme glucokinase. This process represents the initial step in glucose glycolysis, a critical pathway for energy production in cells (Katzen & Schimke, 1965; Stocchi, Magnani, Canestrari, Dacha, & Fornaini, 1982).

The glucokinase system is well-suited for the application of our model. In this system, glucokinase acts as the enzyme with two binding sites --- one for ATP and another for glucose. The phosphorylation products are ADP and glucose-6-phosphate. The glucokinase enzyme operates according to a Bi-Bi random mechanism (Massa, Gagliardino, & Francini, 2011; Pollard-Knight & Cornish-Bowden, 1982; Wilson, 2006; Gerber, Preissler, Heinrich, & Rapoport, 1974).

To effectively model the glucose phosphorylation catalyzed by glucokinase, the species mixture must align with the model assumptions. In this context, the glucokinase enzyme corresponds to E in the model, ATP is substrate A ; glucose (G) is substrate B , and the enzyme-substrate complexes $EATP$, EG , and $EATPG$ correspond to EA , EB , and EAB , respectively. The products ADP and glucose-6-phosphate correspond to P and Q . Integrating the model with suitable in-vitro experimental data may aid in identifying the predominant biological mechanism among a set of biological mechanisms.

4. CONCLUSIONS

In this paper, we have developed a fractional mathematical model to describe enzymatic reactions following a Bi-Bi random mechanism. By analyzing the numerical solutions of the model, we gain insights into how the concentrations of various species evolve. This study represents the first instance of a fractional mathematical model synthesizing these concepts, despite the existing biological evidence used in the modeling. Combining this model with suitable in-vitro experimental approaches could help identify the predominate biological mechanism among various possibilities. The model was numerically integrated using the **fodeint** routine and the SciPy Python library, and the results were consistent with established behaviors of the kinetic mechanism.

Although the model has been thoroughly investigated, there is potential for further refinement and future research. For instance, applying the model to appropriate enzymes could be a promising direction for future work. Additionally, the mathematical aspects related to the positivity of the model solutions remain to be addressed (Boulares, Ardjouni, & Laskri, 2017).

5. ACKNOWLEDGMENT

The author would like to thank Thu Dau Mot University for its financial support.

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A MATHEMATICAL ANALYSIS FOR UNIREACTANT ENZYMATIC REACTIONS WITH NONCOMPETITIVE INHIBITION

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ABSTRACT

Enzymatic inhibition, a critical regulatory mechanism in cellular metabolism, notably includes the phenomenon of noncompetitive inhibition. This form of inhibition plays a significant role in modulating enzymatic activities within the cells. In the present study, we formulate a mathematical model to describe noncompetitive inhibition in a unireactant enzyme system. This model is represented by a system of coupled nonlinear ordinary differential equations that pertain to the relevant biochemical species. Using nondimensionalization analysis, we straightforwardly derive a clear expression of the rate of product formation associated with this inhibition mechanism. Further examination of this expression provides valuable qualitative insights into key parameters such as the maximal reaction velocity and the apparent Michaelis-Menten constant. We perform numerical integration of the model to explore how variations in model parameters influence the system's behavior. Additionally, we briefly discuss potential applications of the model in real-world enzymatic systems, highlighting its relevance and utility in practical scenarios.

Keywords: Mathematical model, enzyme, noncompetitive inhibition, apparent Michaelis-Menten constant.

1. OVERVIEW

Enzymes are crucial in cellular metabolism due to their ability to catalyze biochemical reactions under standard biological conditions, such as typical temperatures and pH. The reaction rates with enzyme involvement are markedly faster compared to those without enzymes (Nelson & Cox, 2005; Radzicka & Wolfenden, 1995). Notably, even in small amounts, enzymes can significantly accelerate biochemical reactions and remain unchanged after the process, making them highly valuable in commercial applications (Frey & Hegeman, 2007; Bugg, 2012).

Enzymes play a vital role in promoting sustainable development by catalyzing reactions through substrate binding. Their active sites are uniquely shaped to fit specific substrates, facilitating the formation of new compounds. Typically, each enzyme is specialized to catalyze a select number of reactions. With molecular weights ranging from 10,000 to 2,000,000 Daltons, enzymes are significantly larger than the substrates they act upon (Frey & Hegeman, 2007; Bugg, 2012).

As highlighted earlier, enzymes offer numerous benefits. Advances in science and technology have spurred significant growth in enzyme research and their applications (Pettipher & Latham, 1979). The discovery of new enzymes has become increasingly common, and due to their vital role in catalysis, they have been widely studied and developed for applications in biotechnology, industry, and medicine, etc. (Drauz, Gröger, & May, 2012; Chapman, Ismail, & Dinu, 2018). A thorough understanding of an enzyme's kinetic mechanism is crucial for developing effective enzyme-based applications. Besides experimental and simulation techniques, mathematical models are valuable for providing insights into enzyme kinetics (Edelstein-Keshet, 1987; Mai, 2019; Mai et al., 2018, 2021; Mai & Nhan, 2024).

In this study, we aim to develop a mathematical model to describe a system of unireactant enzymatic reactions with a noncompetitive inhibitor (Kenakin, 2012). We will numerically integrate the model and analyze the solutions using Python software to explore the mechanism's behavior. Additionally, we will perform a nondimensionalization analysis to derive a formula for the rate of product formation. The model's application to a real enzyme system will also be discussed.

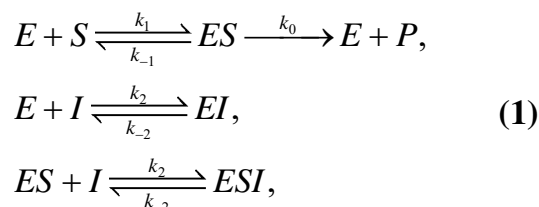
The paper is structured as follows: Section 2 outlines the formulation of the mathematical model and the methods employed in the study. Section 3 presents the numerical solutions and nondimensionalization analysis, and discusses the potential applications of the model. Finally, Section 4 offers concluding remarks.

2. MATERIALS AND METHODS

2.1. The mathematical model

In this section, we construct a minimal mathematical model representing enzymatic reactions with noncompetitive inhibition. We start by outlining the kinetic mechanism on which the model is based.

The Kinetic Mechanism. In the model, the enzyme molecule contains two binding sites, one for the substrate and another for the inhibitor. Once an inhibitor molecule binds to the noncompetitive site of an enzyme molecule, it suppresses the activity of the enzyme molecule. A minimal set of chemical reactions for this system are.



Where E , S , I , and P denote a free enzyme molecule, a substrate molecule, an inhibitor molecule, and a product molecule, respectively. The complexes ES , EI , and ESI have an obvious interpretation. A double arrow represents a reversible reaction, and a single arrow indicates an irreversible reaction. Additionally, the forward and reverse rate constants for substrate are k_1 ($mM^{-1}s^{-1}$) and k_{-1} (s^{-1}), respectively. For inhibitor I , the forward and reverse rate constants are k_2 ($mM^{-1}s^{-1}$) and k_{-2} (s^{-1}), respectively. Furthermore, k_0 (s^{-1}) denotes the catalytic rate constant of the enzyme.

The Modeling Assumptions. We use the law of mass action for the model. As the complexity introduced by the number of enzyme binding sites, several assumptions are made for modeling:

(a) The substrate-enzyme mixture is well-stirred, allowing us to ignore diffusive effects. Consequently, the concentrations of the species are functions of time alone, and the system evolution can be described by a set of coupled nonlinear ordinary differential equations, negating

the need for a partial differential equations model (Kangro & Kalis, 2018; Mai, Vo, & Meere, 2018; Mai, n.d.).

(b) Mass action kinetics are assumed, meaning that the reaction rate is proportional to the product of the reactant concentrations. It is noted that more complex expressions, such as the Michaelis–Menten equation for enzyme-catalyzed reactions, can be derived from these basic mass action principles under certain simplifying conditions (Mai et al., 2018; Mai, n.d.; Voit, Martens, & Omholt, 2015).

(c) The binding of one substrate molecule does not influence the affinity of the enzyme binding site for inhibitor molecules.

Construction of the Governing Ordinary Differential Equations. Applying the law of mass action under the aforementioned assumptions, the governing ordinary differential equations for the model are given by

$$\frac{d[E]}{dt} = -k_1[E][S] - k_2[E][I] + (k_0 + k_{-1})[ES] + k_{-2}[EI], \quad (2.1)$$

$$\frac{d[S]}{dt} = -k_1[E][S] + k_{-1}[ES], \quad (2.2)$$

$$\frac{d[I]}{dt} = -k_2[E][I] - k_2[ES][I] + k_{-2}[EI] + k_{-2}[ESI], \quad (2.3)$$

$$\frac{d[ES]}{dt} = -(k_0 + k_{-1})[ES] - k_2[ES][I] + k_1[E][S] + k_{-2}[ESI], \quad (2.4)$$

$$\frac{d[EI]}{dt} = -k_{-2}[EI] + k_2[E][I], \quad (2.5)$$

$$\frac{d[ESI]}{dt} = -k_{-2}[ESI] + k_2[ES][I], \quad (2.6)$$

$$\frac{d[P]}{dt} = k_o[ES], \quad (2.7)$$

Where: $[X]$ (mM) is a function of time that represents the concentration of a species X .

It is not necessary to discuss all these equations in detail here. Instead, we briefly discuss two to illustrate how the model equations are constructed. We start by considering the equation for the enzyme E , which is given by

$$\frac{d[E]}{dt} = \underbrace{-k_1[E][S]}_a - \underbrace{k_2[E][I]}_b + \underbrace{k_0[ES]}_c + \underbrace{k_{-1}[ES]}_d + \underbrace{k_{-2}[EI]}_f,$$

Where:

a - this term represents the decrease in the concentration of E resulting from its binding to the substrate S .

b - the decrease in the concentration of E due to the inhibitor binding to the enzyme E .

c - the increase in the concentration of E as the enzyme catalyzes the complex ES and subsequently releases the free enzyme E and product P .

d - the increase in the concentration of E as a result of the dissociation of the substrate from the complex ES .

f - the increase in the concentration of E due to the dissociation of the inhibitor from the complex EI .

We now turn our attention to the equation for the enzyme E , which is given by

$$\frac{d[S]}{dt} = \underbrace{-k_1[E][S]}_{\alpha} + \underbrace{k_{-1}[ES]}_{\beta},$$

Where:

α - this term accounts for the decrease in the concentration of S as a result of its binding to enzyme E .

β - the increase in the concentration of S as the substrate dissociates from the complex ES .

The remaining equations listed in (2.3) to (2.7) are interpreted in a similar manner. Next, we introduce the initial conditions with which the model equations are solved.

Initial Conditions. The model equations presented in (2.1) to (2.7) are solved subject to the following initial conditions:

$$[E](t=0) = E_0, \quad [S](t=0) = S_0, \quad [I](t=0) = I_0,$$

$$[ES](t=0) = 0, \quad [EI](t=0) = 0, \quad [ESI](t=0) = 0, \quad [P](t=0) = 0.$$

where E_0 , S_0 , and I_0 represent the constant initial concentrations of enzyme, substrate S , and inhibitor I , respectively. The initial concentrations of all enzyme complexes were set to zero. Finally, the initial concentration of product was also assumed to be zero.

Conservation Laws. Calculating (2.1) + (2.4) + (2.5) + (2.6), (2.2) + (2.4) + (2.6) + (2.7) and (2.3) + (2.5) + (2.6), then integrating both sides, we obtain

$$[E] + [ES] + [EI] + [ESI] = E_0, \quad (3)$$

$$[S] + [ES] + [ESI] + [P] = S_0, \quad (4)$$

$$[I] + [EI] + [ESI] = I_0. \quad (5)$$

These correspond to the conservation laws for the enzyme, substrate S, and inhibitor I, respectively.

2.2. Computational methods

This section outlines the computational tools utilized for analyzing the model equations. The software developed for this study was implemented using the Python programming language (Python, n.d.).

Numerical Method for Solving Ordinary Differential Equations. The system of ordinary differential equations was numerically solved using the odeint solver, along with the SciPy and NumPy libraries (SciPy, n.d.; NumPy, n.d.). SciPy (SciPy, n.d.) is an open-source Python library (Python, n.d.) that provides numerical routines for scientific and engineering applications.

Model Parameter Values. Table 1 lists some of the parameter values used for numerically integrating the model equations. Typically, these parameter values are scarce in the literature, with only a few exceptions.

Table 1. Some model parameter values.

Parameter	Value	Unit
k_1	5.0	$mM^{-1}s^{-1}$
k_{-1}	0.1	s^{-1}
k_2	4.0	$mM^{-1}s^{-1}$
k_{-2}	0.2	s^{-1}
k_0	2.0	s^{-1}

3. RESULTS AND DISCUSSION

3.1. Numerical solutions

In the Methods section, we introduced the mathematical model and outlined the computational techniques used for numerically integrating the model equations. This included a discussion of the numerical methods, parameter selections, and initial conditions. In this section, we present numerical results based on the specific initial conditions $E_0 = 0.2 mM$, $S_0 = 5.0 mM$, and $I_0 = 0.01 mM$.

The main objective of these numerical solutions is to understand how minor variations in model parameters affect the model's behavior. To achieve this, we performed numerical integrations with different values of a specific k_i while keeping other parameters constant and using the same initial conditions. For example, we solved the model with k_i , $1.1k_i$, and $0.9k_i$. The resulting solutions for product concentration were analyzed to assess the impact of these parameter variations.

Figure 1 shows the numerical solutions of the model with small variations in k_0 . It is evident that as k_0 increases, the rate of product formation accelerates. Moreover, the differences between the curves are substantial, indicating that even small changes in k_0 have a significant impact on the model's behavior.

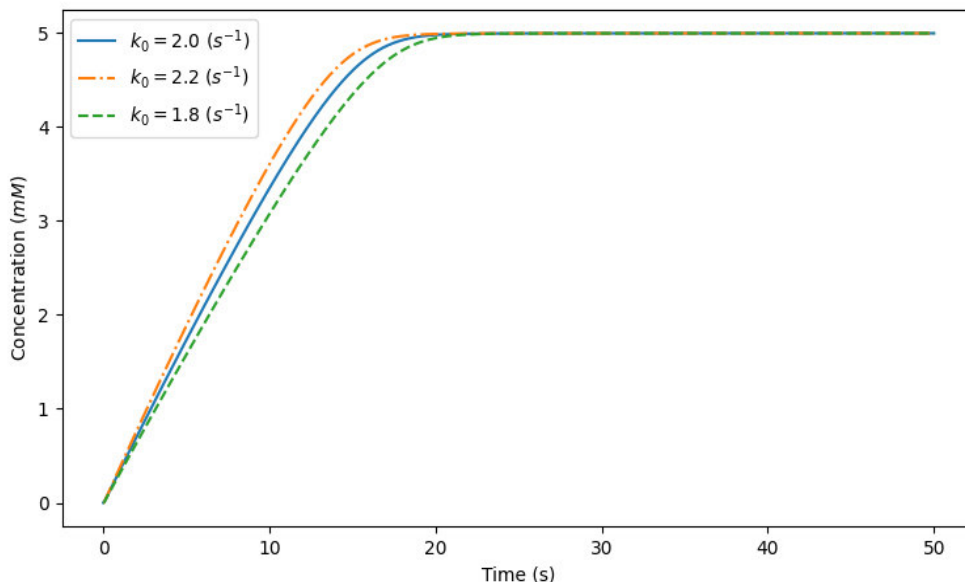


Figure 1. Numerical solutions of the model for product concentrations with small variations in k_0 . The dashed-dotted curve corresponds to $k_0 = 2.2 \text{ (s}^{-1}\text{)}$, the solid curve to $k_0 = 2.0 \text{ (s}^{-1}\text{)}$, and the dashed curve to $k_0 = 1.8 \text{ (s}^{-1}\text{)}$. The values of other parameters are listed in Table 1.

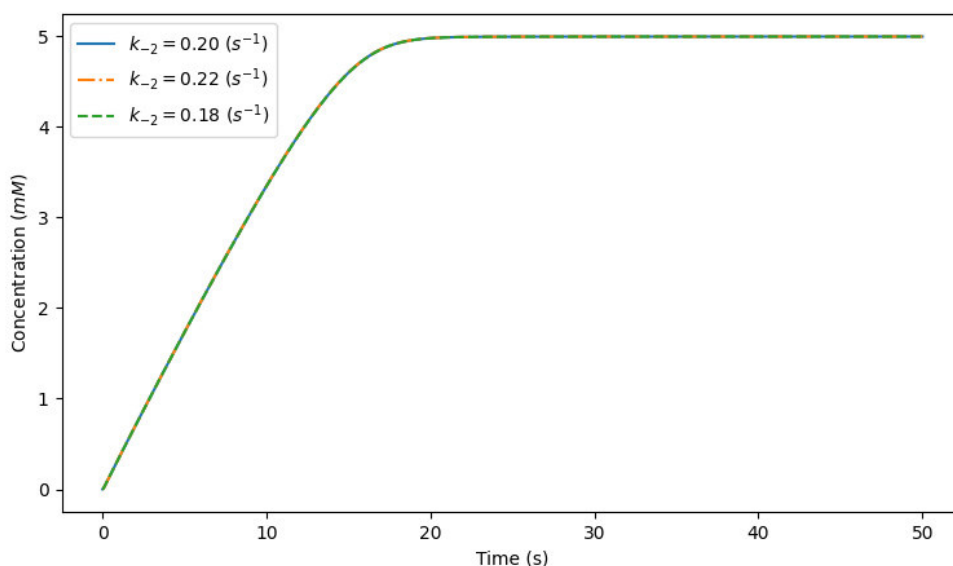


Figure 2. Numerical solutions of the model for product concentrations with small variations in k_{-2} . The dashed-dotted curve corresponds to $k_{-2} = 0.22 \text{ (s}^{-1}\text{)}$, the solid curve to $k_{-2} = 0.20 \text{ (s}^{-1}\text{)}$, and the dashed curve to $k_{-2} = 0.18 \text{ (s}^{-1}\text{)}$. The values of other parameters are listed in Table 1.

Figure 2 displays the numerical solutions of the model with small variations in k_{-2} . The differences between these curves are minimal, suggesting that small changes in k_{-2} have a negligible impact on the model's behavior.

3.2. Nondimensionalization analysis

Now, we nondimensionalize the model by introducing the following dimensionless quantities:

$$e = \frac{[E]}{E_0}, \quad c_1 = \frac{[ES]}{E_0}, \quad c_2 = \frac{[EI]}{E_0}, \quad c_3 = \frac{[ESI]}{E_0}, \quad s = \frac{[S]}{S_0}, \quad p = \frac{[P]}{S_0}, \quad i = \frac{[I]}{I_0}, \quad \tau = E_0 k_1 t$$

to obtain the dimensionless equations:

$$\frac{ds}{d\tau} = k_{-1}c_1 - (1 - c_1 - c_2 - c_3)s, \quad (6.1)$$

$$\delta \frac{di}{d\tau} = k_{-2}(c_2 + c_3) - (1 - c_2 - c_3)i\delta k_2, \quad (6.2)$$

$$\varepsilon \frac{dc_1}{d\tau} = (1 - c_2 - c_3)s + k_{-2}c_3 - (s + k_{-1} + k_2\delta i + k_o)c_1, \quad (6.3)$$

$$\varepsilon \frac{dc_2}{d\tau} = (1 - c_1 - c_3)k_2\delta i - (k_{-2} + k_2\delta i)c_2, \quad (6.4)$$

$$\varepsilon \frac{dc_3}{d\tau} = k_2\delta c_1 i - k_{-2}c_3, \quad (6.5)$$

$$\frac{dp}{d\tau} = k_o c_1, \quad (6.6)$$

Where:

$$k_0 = \frac{k_0}{k_1 S_0}, \quad k_{-1} = \frac{k_{-1}}{k_1 S_0}, \quad k_{-2} = \frac{k_{-2}}{k_1 S_0}, \quad k_2 = \frac{k_2}{k_1}, \quad \delta = \frac{I_0}{S_0}, \quad \varepsilon = \frac{E_0}{S_0}$$

are dimensionless parameters.

We have omitted the equation for e because this can be determined from the dimensionless form for (3), given by.

$$e + c_1 + c_2 + c_3 = 1.$$

These equations are solved to the initial conditions.

$$e(t=0)=1, \quad s(t=0)=1, \quad i(t=0)=1, \\ c_1(t=0)=0, \quad c_2(t=0)=0, \quad c_3(t=0)=0, \quad p(t=0)=0.$$

Under typical conditions, the amount of substrate initially present greatly exceeds the enzyme present, so that $E_0 \ll S_0$, or $\epsilon \ll 1$. Taking the limit $\epsilon \rightarrow 0$ in the equation (6), we obtain.

$$e + c_1 + c_2 + c_3 = 1, \\ (1 - c_2 - c_3)s + k_{-2}c_3 - (s + k_{-1} + k_2\delta i + k_o)c_1 = 0, \\ (1 - c_1 - c_3)k_2\delta i - (k_{-2} + k_2\delta i)c_2 = 0, \\ k_2\delta ic_1 - k_{-2}c_3 = 0. \tag{7}$$

Directly solving (7) yields.

$$c_1 = \frac{sk_{-2}}{(k_{-2} + k_2\delta i)(s + k_{-1} + k_o)},$$

Substituting this expression of c_1 into (6.6) gives.

$$\frac{dp}{d\tau} = k_0c_1 = k_0 \frac{sk_{-2}}{(k_{-2} + k_2\delta i)(s + k_{-1} + k_o)}. \tag{8}$$

Reverting to dimensional variables, the rate of product formation is now defined by:

$$v = \frac{d[P]}{dt} = k_1E_0S_0 \frac{dp}{d\tau}, \tag{9}$$

and using (8), this leads to:

$$v = \frac{d[P]}{dt} = \frac{V_{\max}}{1 + \frac{[I]}{K_i}} \cdot \frac{[S]}{[S] + K_m}, \tag{10}$$

Where:

$$K_i = \frac{k_{-2}}{k_2}, \quad K_m = \frac{k_0 + k_{-1}}{k_1}, \quad V_{\max} = k_0E_0.$$

Here $V_{\max} = k_0E_0$ is the maximal production rate for the enzyme. The formula here is concise to the one in Chapter 6, Kenakin (2012).

It follows from (10) that the apparent Michaelis-Menten constant for the system is K_m , that is

$$v([S] = K_m) = \frac{1}{2} \left(\frac{V_{max}}{1 + [I]/K_i} \right).$$

Furthermore, the formula (10) can be rewritten as follows.

$$\frac{1}{v} = \frac{(1 + [I]/K_i)K_m}{V_{max}} \frac{1}{[S]} + \frac{1 + [I]/K_i}{V_{max}}$$

the higher the concentration of the inhibitor is, the higher the intersection point between the line for it and 1/v-axis is. This implies that the presence of the inhibitor reduces the maximal rate of product formation.

3.3. Applications of the model

The formula (10) for the maximal rate of product formation has been applied in experimental studies involving real enzymes such as Nicotinamide Phosphoribosyltransferase (Hasmann & Schemainda, 2003), bovine carbonic anhydrase (Kenakin, 2012; Pocker & Stone, 1968), cationic enzymes (Tomita & Shiraki, 2011), and α -glucosidase (Tu et al., 2023), among others. This suggests that our model may be useful in identifying parameters for specific enzymes.

The model can also be applied to a biological system comprising α -glucosidase, p-nitrophenyl glucopyranoside (PNG), and *Lentinula edodes* polysaccharides (LEP). In this context, α -glucosidase acts as the enzyme (*E*), LEP as the inhibitor (*I*), and PNG as the substrate (*S*). For more detailed information, readers can refer to Tu et al. (2023).

4. CONCLUSIONS

In this paper, we developed a mathematical model to describe unireactant enzymatic reactions in the presence of a noncompetitive inhibitor. Through numerical analysis, we explored how small variations in model parameters impact the system's behavior. Notably, slight changes in the values of k_0 significantly affect the model's output, while variations in k_{-2} have a more modest impact. We also derived a formula for the rate of product formation using nondimensionalization analysis, revealing that the apparent Michaelis-Menten constant is identical to the enzyme's Michaelis-Menten constant. Additionally, we briefly discussed the model's application to real enzyme systems.

While our investigation provides a thorough analysis, there is room for further refinement and future research. For example, exploring analytical solutions for the model using the homotopy analysis method could be a valuable area of study (Liao, 2004).

5. ACKNOWLEDGMENT

The authors would like to thank Thu Dau Mot University for its financial support.

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POLICY FOR PROMOTING THE BIG DATA IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT IN VIETNAM

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ABSTRACT

The paper provides an overview of policies for promoting big data development in the context of sustainable development in Vietnam. It emphasizes the key role of big data in improving the resource management, addressing the climate change, and optimizing the production. Additionally, the paper discusses current government policies focused on developing technical infrastructure, training human resources, and enhancing the legal framework. Despite notable progress, Vietnam still encounters significant challenges in implementing the big data, including inconsistent infrastructure, workforce shortages, and legal hurdles. The paper calls for an urgent need for a comprehensive, scientific, and systematic strategy to fully harness the potential of big data, contributing to digital transformation and sustainable development in Vietnam.

Keywords: Big Data; Digital Transformation; Policy; Sustainable Development; Technical Infrastructure

1. INTRODUCTION

Under the influence of the Fourth Industrial Revolution, the Big Data has become a crucial factor in driving the economic growth (Sharma, A., & Pandey, H., 2019)¹, providing the opportunities to address the social challenges (Can, U., & Alatas, B., 2017)², and significantly contributing to environmental sustainability (Li, Y., et al., 2020)³. In line with this global trend, Vietnam's application of Big Data not only brings outstanding economic value but also plays a vital role in achieving the sustainable development goals. The integration and utilization of Big Data can support the governmental agencies and enterprises in making informed policy decisions, optimizing the resources management, and improving the operational efficiency, thereby minimizing negative environmental impacts and enhancing the quality of life for the citizens.

However, to fully harness the potential of Big Data, the development and implementation of supportive policies are essential (Giest, S., & Ng, R., 2018)⁴. The Vietnamese government has

¹ Sharma, A., & Pandey, H. (2019). Big Data and Analytics in Industry 4.0. , 57-72. https://doi.org/10.1007/978-3-030-14544-6_4.

² Can, U., & Alatas, B. (2017). Big Social Network Data and Sustainable Economic Development. Sustainability, 9, 2027. <https://doi.org/10.3390/SU9112027>.

³ Li, Y., Dai, J., & Cui, L. (2020). The impact of digital technologies on economic and environmental performance in the context of industry 4.0: A moderated mediation model. International Journal of Production Economics, 229, 107777. <https://doi.org/10.1016/j.ijpe.2020.107777>.

⁴ Giest, S., & Ng, R. (2018). Big Data Applications in Governance and Policy. Politics and Governance. <https://doi.org/10.17645/PAG.V6I4.1810>.

recognized the importance of this technology and has begun promoting specific measures and policies aimed at effectively leveraging Big Data across various sectors, including agriculture, healthcare, transportation, and environmental management. The alignment of information technology policies, administrative reforms, and digital transformation efforts is shaping the future of Vietnam's digital economy (Chuc, N., & Anh, D., 2023)⁵.

In this article, the author focuses on analyzing the policies that promote the Big Data in Vietnam, highlighting the benefits which the Big Data brings to sustainable development, as well as the challenges the country faces in implementing and utilizing this technology...

2. LITERATURE REVIEW

To better understand the role and impact of big data in sustainable development, as well as the policies promoting the application of this technology, reviewing prior research is indispensable. Studies on big data and sustainable development have been conducted in many countries worldwide, providing critical theoretical and practical foundations. In Vietnam, some studies have addressed the application of big data in areas such as environmental management, digital economic development, and improving administrative efficiency. However, to provide a more comprehensive perspective, this article focuses on synthesizing relevant research to clarify both global and local contexts, as well as the research gaps this study aims to address.

2.1. Roles of big data in sustainable development

The international studies highlight the crucial role of big data in sustainable development, particularly in smart agriculture, management of water resources, renewable energy, and environmental protection. According to a UN report (2019), the big data can help the nations achieve Sustainable Development Goals (SDGs) by optimizing production processes, reducing greenhouse gas emissions, and improving disaster risk management (UN DESA, 2019)⁶. The role of big data in sustainable development is further affirmed and clarified in the study of Gaurav Tripathi et al. (2024). (2024). The authors emphasize that the big data, artificial intelligence (AI), and data analytics play key roles in climate change research, supporting global sustainable development goals. These technologies not only enhance forecasting capabilities but also foster the development of sustainable policies (Tripathi et al., 2024)⁷. In particular, in the context of Vietnam, the Big Data has the potential to provide important analytics to optimize solutions for energy, environment and resources management...

In Vietnam, the recent studies have also pointed to the potential of big data applications in promoting the sustainable development solutions across the industries, fields. The study

⁵ Chuc, N., & Anh, D. (2023). Digital Transformation in Vietnam: Policies, Results and Recommendations. *Journal of Southeast Asian Economies (JSEAE)*, 40, 127 - 144.

⁶ United Nations Department of Economic and Social Affairs (UN DESA). (2019). The Sustainable Development Goals Report 2019. United Nations. <https://unstats.un.org/sdgs/report/2019/>

⁷ Tripathi, G., Shakya, A., Kanga, S., Singh, S. K., & Rai, P. K. (Eds.). (2024). Big data, artificial intelligence, and data analytics in climate change research: For sustainable development goals (1st ed.). Springer Singapore. <https://doi.org/10.1007/978-981-97-1685-2>

"Genomics and Big Data: Research, Development and Applications" discusses the application of big data in key sectors such as healthcare, agriculture, and environmental protection in Vietnam. It underscores the role of big data in advancing genetic technologies and large-scale data analysis to support sustainable development fields in Vietnam (Hien et al., 2021)⁸. Similarly, the study "Integrating Master Planning for Urban Development on the Intelligent Transport System in Vietnam" focuses on smart transportation systems and urban planning in Vietnam, where the big data plays a crucial role in optimizing and planning the modern transportation and urban systems (Nguyen, 2020)⁹... These studies highlight the potential of big data in enhancing the urban planning, traffic management, and sustainable agricultural development in Vietnam.

2.2. Importance of policies in promoting the big data

Many studies have addressed the importance of developing key enablers to harness the potential of big data in the context of sustainable development. The World Bank has stressed the need for clear legal frameworks and policies to maximize the benefits of big data while ensuring the data protection and privacy. In the World Development Report, 2021: Data for Better Lives, the World Bank discusses the need for comprehensive data governance systems that allow the use and reuse of data for public benefit while protecting against misuse. The report suggests that the governments should build their robust frameworks that balance data access with privacy protection, including policies regulating personal data based on human rights principles (World Bank, 2021)¹⁰. In Vietnam, the national digital transformation policies and e-government development strategies have facilitated the application of big data in both the public and private sectors.

Author Pham Thai Binh (2021) also pointed out that developing and implementing the big data policies can help the nations, including Vietnam, achieve the sustainable development goals by 2030. These policies serve as the foundation for guiding big data development, ensuring environmental and social sustainability (Pham, 2021)¹¹. The policies that encourage investment in technology infrastructure, protect data privacy and security, and encourage public-private sector collaboration are key.

In earlier studies, the role of policy in big data was also affirmed. Misuraca et al.'s (2014) study on the use of Big Data in public administration has shown that, for the Big Data to be truly effective, the governments need to apply appropriate supporting policies. They emphasized that data openness policies and the provision of digital infrastructure were necessary to promote the

⁸ Hien, L., Van, N., Oanh, K., Ton, N., Hue, H., Duong, N., Hằng, P., & Ha, N. (2021). Genomics and big data: Research, development and applications. *Vietnam Journal of Biotechnology*. <https://doi.org/10.15625/1811-4989/16158>.

⁹ Nguyen, H. (2020). Integrating master planning for urban development on the intelligent transport system in Vietnam. *Humanities and social sciences*, 8, 781-788. <https://doi.org/10.18510/hssr.2020.8194>.

¹⁰ World Bank. (2021). *World Development Report 2021: Data for Better Lives*. Washington, link: <https://wdr2021.world>

¹¹ Pham, T. B. (2021). *Big Data for the Sustainable Development Goals, 2030: International Experiences*. University of Economics Ho Chi Minh City. <https://digital.lib.ueh.edu.vn/handle/UEH/62515>

Big Data as a useful tool in public policy making and environmental management (Misuraca et al., 2014)¹². Similarly, Gennaro et al.'s (2016) study also showed that the policies that encouraged the development of Big Data in transport could help Europe achieve its goals of reducing emissions and sustainable development (Gennaro et al., 2016)¹³.

Thus, it can be seen that the policy plays an essential role in guiding and developing the potential of big data, particularly in achieving sustainable development goals. Developing the robust legal frameworks not only ensures the effective use of big data but also protects data privacy and security, laying a solid foundation for public-private cooperation in key sectors such as public governance, environment, and transportation.

2.3. Some basic challenges in promoting the big data development in Vietnam

According to author Bach Thi Nha Nam (2023), significant challenges remain concerning data security and privacy in Vietnam, particularly as data governance regulations are not fully developed and synchronized. Current regulations on data security in Vietnam focus primarily on cybersecurity and leave vulnerabilities in personal data protection¹⁴. For example, the study "Digital Transformation in Vietnam: Policies, Results and Recommendations" discusses the digital transformation in Vietnam and the challenges faced by the enterprises, including a shortage of high-quality human resources, technical infrastructure, and data management issues. While the government has made efforts to improve infrastructure and human resources, many technical and financial barriers persist (Nguyen Dinh Chuc & Dao Tung Anh, 2023)¹⁵... These studies clearly outline the major challenges Vietnam faces in developing and applying the big data to promote sustainable solutions, including infrastructure and data security issues.

In conclusion, the application of big data in sustainable development has been shown to have significant potential, especially in areas like agriculture, resources management, and urban planning. However, to fully leverage this technology, the strong policy support from the Vietnamese government is necessary, including infrastructure reform, enhanced data management capabilities, and specialized workforce development. These articles have provided initial foundations for further study on how big data-driven policies can contribute to sustainable development in Vietnam.

¹² Misuraca, G., Mureddu, F., & Osimo, D. (2014). Policy-Making 2.0: Unleashing the power of big data for public governance. *Bridging Communities for Next Generation Policy-Making*, 171-188. https://doi.org/10.1007/978-1-4614-9563-5_11

¹³ Gennaro, M., Paffumi, E., & Martini, G. (2016). Big data for supporting low-carbon road transport policies in Europe: Applications, challenges and opportunities. *Big Data Research*, 6, 11-25. <https://doi.org/10.1016/j.bdr.2016.04.003>

¹⁴ Nam, B. (2023). Addressing the Challenges of Data Privacy Protection Law in Vietnam. *VNU Journal of Science: Legal Studies*. <https://doi.org/10.25073/2588-1167/vnuls.4413>.

¹⁵ Chuc, N., & Anh, D. (2023). Digital Transformation in Vietnam: Policies, Results and Recommendations. *Journal of Southeast Asian Economies (JSEAE)*, 40, 127 - 144.

3. METHODOLOGY

This study employs the systematic review method in combination with the PRISMA model (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to analyze and evaluate the policies promoting big data in the context of sustainable development in Vietnam. PRISMA is chosen for its ability to organize and present the study processes in a clear and systematic manner, ensure the transparency and high accuracy in data collection and literature analysis. The PRISMA process is conducted as follows:

- Define inclusion and exclusion criteria:

+ Inclusion criteria: Include articles, research papers, and reports related to big data policies and sustainable development in Vietnam, in the fields such as the environment, economy, and public management.

+ Exclusion criteria: Exclude documents that lack specific data on Vietnam or do not address the relationship between big data and sustainable development.

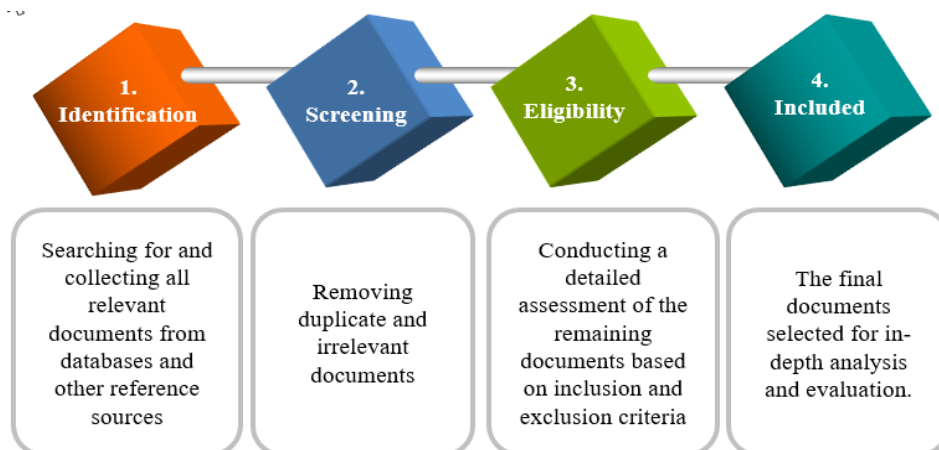
- The data collection process is carried out in three main steps:

+ Document search: Use major scientific databases such as Google Scholar, Scopus, Web of Science, reports from international organizations like the World Bank and the United Nations, and official government websites in Vietnam... Keywords include "big data policy," "sustainable development," "Vietnam," "data governance," and "digital transformation," etc.

+ Document screening: Use the PRISMA model, documents obtained from the search are screened based on the defined criteria. Firstly, duplicate documents and irrelevant studies are removed. Then, the remaining documents are thoroughly reviewed to ensure they meet the inclusion criteria.

+ Document analysis: After screening, the documents are evaluated based on accuracy, reliability, and relevance to the topic. This analysis process involves coding the contents related to big data policies, their impacts on sustainable development, and the challenges/recommendations from the studies.

- Four-stage PRISMA model



- Data analysis

After sufficient data has been collected, the analysis process will focus on identifying key trends in policies promoting the big data in Vietnam. The data compiled from the documents will be coded and categorized into topics such as policy reform, technological infrastructure, data security and privacy, and the impact of big data on sustainable development.

- Results and discussion

The results from the analysis will provide an overview of the current state and potential of policies related to the big data in the context of sustainable development in Vietnam. The discussion will focus on evaluating the existing policies, identifying the challenges, and offering the recommendations for improvement based on the study findings.

- Limitations of the study

Some limitations of this study method include the restricted availability of sources specifically related to Vietnam and the diversity in approaches to big data policies across different countries.

4. RESULTS AND DISCUSSION

4.1. Big Data – A Significant Solution with Numerous Challenges in Vietnam’s Sustainable Development

In the context of globalization and the rapid development of information technology, the Big Data has become an important factor in promoting the sustainable development. The ability to collect and analyze massive amounts of data from various sources helps the organizations and governments optimize the resources management, reduce negative environmental impacts, and enhance economic efficiency and social welfare. In Vietnam, the use and application of Big Data is contributing to sustainable development, though the challenges remain in infrastructure, human resources, and policy.

4.2. Roles of big data in sustainable development in Vietnam

The Big Data provides technological solutions to support Vietnam in managing natural resources, responding to climate change, and optimizing the production and urban management processes. The key areas where the Big Data plays an important role are as follows:

For water and land resources management, the Big Data is helping Vietnam monitor and manage these resources more effectively, particularly in areas vulnerable to climate change impacts, such as the Mekong Delta. For example, the Water Information System for the Mekong Delta (WISDOM) project uses the data from sensor systems and satellites to monitor water level and quality in key areas. According to a WISDOM report (2014)¹⁶, this system offers early warnings of droughts and floods, helping the resources managers distribute water more efficiently. This is particularly important as Vietnam faces drought and salinity intrusion in the Mekong Delta, one of the country’s most important agricultural regions.

¹⁶ WISDOM Project Website. wisdom.eoc.dlr.de. Accessed on Friday, October 31, 2014

In addition, the Big Data also supports the monitoring and conservation of forest resources in Vietnam. The data from satellites and GIS (Geographic Information System) technology helps track changes in land use and forest resources... According to a study by Tran et al. (2017)¹⁷, this technology has contributed to reducing deforestation and monitoring critical mangrove areas.

When it comes to responding to climate change, the climate change poses a major challenge to Vietnam's sustainable development, with increasingly severe impacts such as storms, floods, and landslides. The Big Data plays a crucial role in addressing these challenges. Modern meteorological stations collect and analyze large volumes of meteorological data, improving forecasting capabilities and risk zoning. According to the Ministry of Natural Resources and Environment's report (2023)¹⁸, the Big Data has significantly improved the accuracy of extreme weather predictions, helping mitigate the damage caused by the natural disasters.

Vietnam has also implemented the international cooperation to share climate change data and utilize modern technologies to monitor the environmental conditions. This not only helps improve quick response to natural disasters but also contributes to the development of more appropriate environmental management policies.

In terms of optimizing production and energy savings, the Big Data is being actively applied by Vietnamese enterprises to optimize production processes, reduce resource waste, and save energy. The companies like VinGroup and Masan have utilized the Big Data to analyze consumer behavior, forecast product demand, and adjust inventory levels. According to Le Phan (2019)¹⁹, the use of predictive models based on Big Data has helped these companies minimize both product shortages and excess inventories, thereby improving production efficiency and reducing environmental impact.

In the energy sector, the Big Data supports energy consumption monitoring and optimization. According to the Vietnamese government (2024)²⁰, a National Energy Consumption Data Center has been established to monitor and analyze the energy consumption from various sources, helping the authorities implement effective energy-saving measures. This contributes to reducing greenhouse gas emissions, one of Vietnam's key sustainable development goals.

4.3. Challenges in big data development in Vietnam

Despite its increasing importance, Vietnam still faces numerous challenges in the

¹⁷ Tran, Bao, Nguyen, Loi & Nguyen, Khang. (2017). Application of GIS and Remote Sensing in Analyzing the Current State and Evaluating the Evolution of Forest Resources in Vinh Cuu District, Dong Nai Province, *Journal of Forestry Science and Technology*, Issue 6-2017

¹⁸ Ministry of Natural Resources and Environment. (2023). Report on Climate Change Situation and Response Measures in Vietnam in 2023. Hanoi, Vietnam: Ministry of Natural Resources and Environment

¹⁹ Le Phan. (2019). Customer Data - An Invaluable Asset That is Not Safe, *Online Finance Magazine*, link: <https://tapchitaichinh.vn/du-lieu-khach-hang-nguon-tai-san-vo-gia-dang-khong-an-toan.html>

²⁰ Government of Vietnam. (2024). Efficient and Economical Use of Energy - A Responsibility for All Society, link: <https://media.chinhphu.vn/su-dung-nang-luong-tiet-kiem-hieu-qua-trach-nhiem-cua-toan-xa-hoi-102240529083315171.htm>

development and application of the Big Data. According to Le Phuong Hoa and Phan Cao Quang Anh (2022), the main challenges include:

Inadequate technical infrastructure: Although there have been significant improvements, Vietnam's technical infrastructure still does not meet the demand for processing large amounts of data. The lack of data centers and robust broadband networks limits the ability to collect, process, and analyze the Big Data.

Limited human resources: Vietnam faces a shortage of highly skilled employees in the areas such as data analysis, data science, and artificial intelligence. This reduces the efficiency in using the potential of big data.

Incomplete legal framework: The legal framework related to the Big Data is still underdeveloped, leading to the inconsistencies in data sharing and protection among different agencies and organizations.

4.4. Policies for promoting big data's initial response to the practical requirements of Vietnam's sustainable development process

Vietnam, a country in the process of digital transformation, still faces challenges in fully harnessing the potential of the Big Data. Issues such as inadequate technical infrastructure, limited human resources, and an incomplete legal framework hinder the comprehensive development in the application of Big Data. To address these issues, the Communist Party of Vietnam and the government have implemented several important policies to build and promote the development of the Big Data. From infrastructure investment to strategies for high-quality human resources development and legal framework improvements, Vietnam is gradually creating favorable conditions for the Big Data to become a core element in sustainable development.

4.5. Policies for promoting the development of technical infrastructure

Although Vietnam has made significant progress in building technical infrastructure, including data storage networks and systems, technical challenges remain considerable. To address this issue, the Government has issued several decisions aimed at developing technical infrastructure to support the Big Data, notably Resolution No. 175/NQ-CP, issued in 2023, approving the National Data Center Scheme²¹. This demonstrates a commitment to building a strong digital infrastructure system, serving the collection, processing, and storage of large volumes of data.

Current digital infrastructure policies focus on encouraging private sector participation in investing in storage systems and server networks, as well as deploying new technologies such as cloud computing and artificial intelligence (AI). The Government has introduced measures such as Decree No. 47/2020/ND-CP, regulating the management and sharing of digital data among the state agencies, facilitating more efficient data application and usage²². However, the deployment

²¹ Government (2023), Resolution No. 175/NQ-CP: Approving the National Data Center Scheme, issued on October 30, 2023

²² Government (2020), Decree No. 47/2020/ND-CP dated April 9, 2020 on management, connection and sharing of digital data of the state agencies

of information technology infrastructure needs to be further enhanced to meet the demands of Big Data, especially in remote areas.

4.6. Policies for training and developing high-quality human resources

The development of human resources has also been prioritized, with specialized training strategies in Big Data fields, particularly data science and artificial intelligence. Decision No. 142/QĐ-TTg in 2024 approved the national data strategy by 2030²³, clearly identifying the development of deep expertise in data science and information security as a key factor for the strategy's success.

The Government is also implementing the human resources and training development programs, prioritizing the training of specialists in data processing and the application of advanced technologies such as artificial intelligence. Universities and research institutes are encouraged to establish their laboratories and research centers focused on the Big Data to meet future human resource needs. However, the number of specialized personnel in data science and data analysis remains limited. Furthermore, human resource training requires stronger coordination between the state, enterprises, and international organizations to improve both quality and quantity.

4.7. Policies for completing the legal framework

The legal framework related to the Big Data in Vietnam still has many shortcomings, particularly in terms of data privacy protection and data sharing between the agencies and organizations. Although legal documents, such as Decree No. 13/2023/ND-CP²⁴ on personal data protection, have been issued, this framework remains incomplete and lacks sufficient detail to effectively regulate the activities related to Big Data.

The management, collection, and sharing of data still face many legal barriers, leading to delays in the implementation of Big Data-related projects. The Government has recognized this issue and is working to build and supplement legal documents to facilitate better data application and usage. To better meet the practical needs, the legal system must be flexible and aligned with international standards to promote the development of Big Data while ensuring the cybersecurity and data privacy for the citizens.

4.8. Some implications of policies for promoting the development of Big Data in sustainable development in Vietnam

The policy system for promoting the big data in Vietnam has achieved some remarkable results, especially in developing technical infrastructure, training human resources and international cooperation. However, there are still many limitations in synchronizing the legal framework, expanding data applications in many fields and solving the problem of technical infrastructure in remote areas. These initial achievements are an important foundation, but not

²³ Prime Minister (2024), Decision No. 142/QĐ-TTg, approving the national data strategy by 2030, dated February 2, 2024

²⁴ Government (2023), Decree No. 13/2023/ND-CP dated March 17, 2023 on personal data protection

enough to fully exploit the potential of the big data. Therefore, it is necessary to quickly build and complete a comprehensive, systematic and scientific big data development strategy associated with sustainable development for Vietnam. To be able to do that, in the immediate future, the big data policy in Vietnam needs to ensure the following requirements:

Firstly, promote investment in technical infrastructure in remote areas: The Government needs specific policies to attract private sector investment in technical infrastructure projects in rural and remote areas. This helps reduce infrastructure disparities among the regions and ensures all regions have access to Big Data technologies. In addition, the policies should be introduced to accelerate the nationwide deployment of 5G, not only in urban areas but also in disadvantaged regions, ensuring comprehensive connectivity across the country.

Secondly, increase support for research and development of new technologies: The policies to encourage and provide financial support for the enterprises and research organizations to develop new technologies such as cloud computing, artificial intelligence (AI), Internet of Things (IoT), and blockchain should be proposed and issued. This will help improve the data processing capabilities and optimize resource use in the country's development process. Moreover, the government and responsible ministries and agencies need to promote international cooperation to transfer advanced technology and techniques in the field of data infrastructure, helping Vietnam quickly catch up with developed countries.

Thirdly, develop green and sustainable energy infrastructure for the big data industry: The Government must ensure energy supply for large data centers through the development of renewable energy sources such as solar and wind power. Furthermore, the policies should be introduced to encourage the enterprises to invest in green energy infrastructure to reduce emissions and energy costs for large data processing systems. The policies should also be developed to encourage the enterprises and state agencies to use advanced technologies that optimize and reduce energy consumption in data servers and infrastructure.

Fourthly, perfect the legal framework for building and managing data infrastructure: Detailed regulations on secure and long-term data storage, ensuring data security and protection from cybersecurity threats while aligning with international data management standards, need to be supplemented and completed as soon as possible. Moreover, Vietnam should develop the policies that support the sharing of data infrastructure between state agencies and private organizations to reduce the costs and optimize infrastructure use. This will help avoid data and resource fragmentation.

Fifthly, expand training policies and develop technical human resources: Human resource training policies in data infrastructure should include additional programs focused on building and operating data infrastructure for the technicians and experts in this field. In addition, partnerships with international training institutions should be fostered to improve the skill levels of domestic human resources. Vietnam could also apply the policies to attract international talent by creating favorable conditions and attractive policies to draw experienced professionals in developing and managing Big Data infrastructure, helping the country quickly enhance its capacity.

5. CONCLUSIONS

Big Data plays a core role in the sustainable development and digital transformation of Vietnam. However, to fully unlock this potential, consistent policies regarding infrastructure, human resources, and legal frameworks are necessary. The Government should continue to invest strongly in technical infrastructure, develop high-quality human resources, and complete the legal framework to ensure the data security and privacy, thereby promoting comprehensive development in the field of Big Data.

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ENGLISH PHRASAL QUANTIFIERS AND THEIR EQUIVALENTS IN VIETNAMESE: A STUDY ON SYNTACTIC FEATURES

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ABSTRACT

According to Carter, R., & McCarthy, M. (2006) [2], quantifiers can be divided into two categories, namely the closed class of quantifiers and the open class of quantifiers. Quirk et al (1985) [10] also mentions these classes when he discusses postdeterminers and emphasizes the existence of a large open class of phrasal quantifiers. The purpose of this study is to clarify the concept of phrasal quantifiers and analyse the syntactic features of English phrasal quantifiers and their equivalents in Vietnamese. The methods used in this study consist of descriptive method and contrastive analysis method with the aim of searching for the syntactic features of English phrasal quantifiers and their Vietnamese equivalents. After careful analysis and discussion, it has been determined that phrasal quantifiers in the English language are formed according to the syntactical structure with *of*-PP, which is not grammatically correct in Vietnamese. This study is expected to aid learners of English in grasping the differences between English phrasal quantifiers and their equivalents in Vietnamese. By doing so, learners can prevent involved errors caused by negative language transfer.

Keywords: phrasal quantifiers, quantifiers, quantitative nouns, syntactic features

1. INTRODUCTION

In English, there is a commonly used part of speech that has a high frequency of use in both speaking and writing. It is determiners. Determiners are the words that appear at the beginning of noun phrases, preceding any adjectives. From a grammatical perspective, determiners can be categorized into two primary groups. The initial category comprises articles, possessives, and demonstratives. The second one is quantifiers, which are used to indicate the amount or number of a specific noun, depending on whether it is countable or uncountable. The utilization of quantifiers in English and Vietnamese demonstrates numerous similarities and differences, notably in relation to syntactic features. Both English and Vietnamese mention the characteristics of quantifiers. Studying is crucial in order to identify the similarities and distinctions between them. Furthermore, it is important to note that the author does not address the elements of morphology and semantics, but instead focuses on those of syntactics. Quantifiers can be the open class such as *plenty of, a lot of, large amounts of, a bottle of, three loaves of, ...* or closed class such as *all, some, many, much, few, little, several, enough, ...* (Carter, R., & McCarthy, M., 2006) [2]. The study concentrates on analyzing the syntactic features of the open class of quantifiers. This class consists of multiword phrases called phrasal quantifiers (a quantifier or a quantificational noun with an *of*-PP) by Yu Kyoung Shin (2012) [16] and Quirk et al (1985) [10].

The phrasal quantifier is a characteristic feature that highlights the common similarities and contrasts in quantifiers between English and Vietnamese, which might lead learners to easily make mistakes. This study aims to elucidate the similarities and differences in syntactic features of English phrasal quantifiers and their Vietnamese equivalents. Furthermore, quantifiers can be used in three syntactic functions, such as before nouns, instead of nouns, and with *of*-phrases. The structure of quantifiers with *of*-phrases is the one the author would like to focus on. This study centers around the primary theory and utilizes several quotations from textbooks and journalistic materials as illustrations to elucidate these resemblances and disparities. This research is crucial for learners to prevent making complex mistakes and for teachers to effectively teach students about English phrasal quantifiers. Based on the analyses conducted during the study, the author would like to answer two research questions:

- What is a phrasal quantifier in English?
- What are the syntactic features of English phrasal quantifiers and their equivalents in Vietnamese?

2. LITERATURE REVIEW

Quantifiers in English are a very important word class, and there have been many studies related to quantifiers. The word "quantifier" has been used in multiple textbooks for many years (Faye, 2016) [4]. As defined in the Universal Dictionary, a quantifier is an operator that links one or more variables to a quantity or number. Vietnamese also includes references to the quantifiers. The quantifiers are linguistic expressions that denote a definite or indefinite quantity or number of something or someone. They consist of two kinds, namely definite quantifiers (*numerals*) and indefinite quantifiers (*a lot of, a large number of, many of, a few, little, some ...* in English and *những, các, ít, mỗi, mọi ...* in Vietnamese) (Cao Xuan Hao et al., 2005) [1].

From a semantic standpoint, the term "quantifier" consists of two important components. First and foremost, the term "quantify" refers to the action of assigning a numerical value to something or to an individual. Furthermore, the noun "quantity" specifically denotes the numerical measurable value. Nevertheless, due to the presence of these two concepts inherent in the term "quantifier", it can be precisely described as an operator that denotes something that can be readily quantified or enumerated, namely a number or a quantity. Moreover, quantifiers, as defined by Richards & Schmidt (2010) [11] and Yule (2019) [15], are the terms that express quantity, for example: *most, much, many, several, few, little, a piece of, a lot of, two kilogrammes of, a loaf of, a litre of ...* It is important to acknowledge that quantifiers belong to the category of determiners. In Swan's (2016) [13] work, the term "determiners" is defined as words that occur at the start of a noun phrase, preceding adjectives. Swan categorises them into two distinct groups based on a grammatical viewpoint: the initial group encompasses articles (*a/an and the*), possessive adjectives (*my, your, his, etc.*), and demonstrative pronouns (*this, that, etc.*); the subsequent group comprises quantifiers used to discuss quantity (*all, much, many, some, most, etc.*). Moreover, quantifiers may function as adjectives, modifiers, or the words that indicate the quantity and provide either approximate or precise responses to enquiries such as "*how many*" or "*how much*" (Jespersen, 1970) [6]. Quantifiers are not only in the form of single words but also in

the form of phrases. Roger (1997) [12] defines quantifiers as a set of words used to describe quantity for people or things. Additionally, quantifiers should be acknowledged as the words that can be followed by “*of*” and a collection of definite nouns. Yu Kyoung Shin (2012) [16] referred to the word “phrasal quantifier” when investigating the utilisation of quantifiers by English children. This term has been used in the context of studying the organised application of determiners in quantifier phrases. Yu Kyoung Shin observed in the study that a phrasal quantifier is formed by combining a quantifier or a noun signifying quantity with the preposition “*of*” (that is, “*of + noun*”). In addition, Quirk et al (1985) [10] also discussed phrasal quantifiers, for example: *plenty of teachers, a lot of houses, a large number of workers, schools of fish, heaps of money ...* These quantifiers have a structure that consists of a noun indicating quantity followed by “*of*” often preceded by an indefinite article, such as *a lot of dogs, lots of dogs, a great number of teachers*. Thus, we can see that phrasal quantifiers in English are used quite commonly. However, further research is needed on their syntactic features, compared with equivalents in Vietnamese.

3. METHODOLOGY

In the study, the author employed the descriptive method and contrastive analysis approach as the research methodologies. The descriptive method was used to examine the syntactic properties of phrasal quantifiers in English and their Vietnamese equivalents. In addition, the contrastive analysis method was also utilized to examine English phrasal quantifiers by evaluating a selection of quotes from textbooks and journalistic writings. This study adhered to the guidelines of applied contrastive analysis. Consequently, it focused on the translation of phrasal quantifiers from English to Vietnamese. Additionally, the data were enhanced using the findings derived from the British National Corpus (BNC), which was utilized to examine quantifiers in English. The dataset comprises 100 million words of text spanning several genres, including spoken language, magazines, newspapers, books, fiction, and academic publications.

4. RESULTS

4.1. English noun phrases and phrasal quantifiers

It is essential to understand that a noun phrase, also known as a noun group or nominal group, is a linguistic group consisting of the words that function as the subject, complement, or object of a clause or as the object of a preposition (Collins Cobuild, 1992) [3]. Moreover, an English noun phrase consists of a noun or pronoun as its head. The heads are usually common nouns. When learners talk about noun phrases, the following terms to describe the constituents of a noun phrase are certainly mentioned such as head nouns, determiners and nominals. The various components served distinct syntactic functions, therefore determining the status of the noun phrase in the sentence. The determiners, notably quantifiers, are indispensable elements. As stated above, the determiners can be articles, possessive adjectives, demonstrative pronouns, or quantifiers. Yule (2019) [15] stated that quantifiers are the words such as *both, most, several, one, two, three ...* and the phrases (or phrasal quantifiers) such as *a little, a lot of, a few, all of, most of, plenty of, ...* which we use when we are expressing numbers (how many) or amounts (how much).

In the context of language, the terms "phrase" or "phrasal" refer to a collection of words that do not form a complete clause. The study concentrates on the analysis of phrasal quantifiers, which are groups of words used to signify numbers and amounts.

In English, a phrasal quantifier is a lexical category consisting of a quantifier or a quantitative noun followed by "of-PP". Collins Cobuild (1992) [3] calls this combination quantifiers for short. The analysis of the following example can enhance the understanding of the structure of phrasal quantifiers in the English language: *Many of the cars*.

In the above example, *Many* is a quantifier. The prepositional phrase consists of the preposition "of" and the determiner phrase "the cars". In this determiner phrase, "the" is a definite article and "cars" is a noun phrase. This can be more easily illustrated by the following tree diagram:

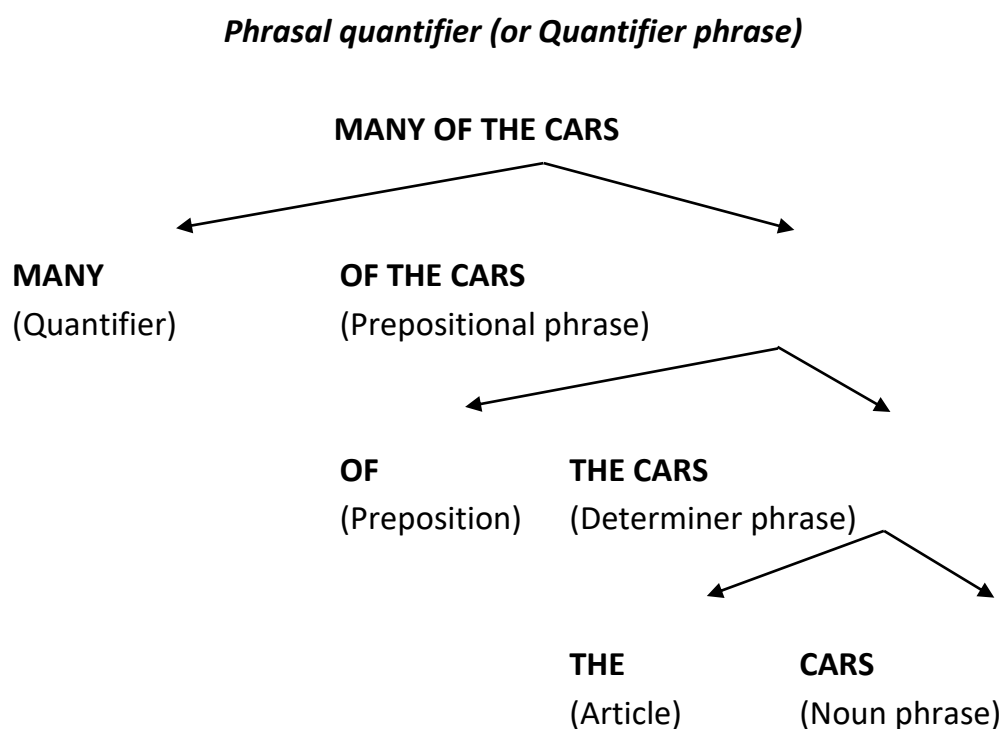


Diagram 1. Many of the cars

However, in Vietnamese, the phrasal quantifier is typically expressed using the structure "quantifier + unit noun + noun", for example: *mười con mèo* (ten cats) ... Nguyễn Hiến Lê (2006) [8] also mentioned this structure, but he called "unit noun" "classifier". Actually, in Vietnamese, unit nouns can be called classifiers (such as *con, cái, chiếc, hòn, viên, cục* ...) (Nguyễn Thiện Giáp, 2016) [9]. This framework also establishes the number of individuals, items, and occurrences.

Syntactic features of English phrasal quantifiers and their equivalents in Vietnamese:

4.2. Quantifiers in the structure of phrasal quantifiers

Quantifiers, also known by various names such as quantitative determiners or quantifying adjectives, are the words that indicate quantity, such as: *some, any, many, much, several, all, both,*

most, every, a few, few, a little, little. Typically, in English noun phrases, quantifiers precede and agree with the head noun in terms of grammatical forms, countability and uncountability, singular and plural forms, for example: more hours (nhiều giờ hơn), many books (nhiều sách), few monuments (rất ít/hầu như không có đài kỷ niệm), Do you watch much television? (Bạn có xem nhiều Ti Vi không?), some problems (một vài vấn đề) ...

Thus, the basic structure of English noun phrases with quantifiers can be modeled as follows: Quantifier + Head (countable/uncountable nouns), for instance: *some teachers, any food, many gates, much water* ...

In English, when considering quantifiers in the structure of phrasal quantifiers, in terms of morphological syntax, the noun that precedes "of" in this structure serves as the fused head, which is the main element before "of," and after "of" there is a definite noun phrase. That is, the noun phrase following "of" in this quantifier structure must satisfy two conditions: first, it must have the same meaning as the implied noun (ellipted head) preceding "of"; second, it must go with a definite determiner such as *the, this, these, those, my, her, his, our, ...* etc.

Eg:

Many/All/Some OF the/these/my/her/our ... students

MuchOF the/my/her/our ... information

When the author examined the frequency of the phrasal quantifier "*many of*" (as a typical example for using the quantifiers in the structure of phrasal quantifiers) in 1000 contexts/tokens from spoken and written texts sourced from the BNC (British National Corpus) context lookup website [12], the results were as follows:

Table 1. Frequency of lexical items "MANY OF" (11 types and 1000 tokens)

No	Lexical items (11 types)	No of occurrences	Percentage
1	Many of THE	630	63%
2	Many of THESE	115	11.5%
3	Many of HIS	61	6.1%
4	Many of THOSE	50	5%
5	Many of OUR	42	4.2%
6	Many of ITS	32	3.2%
7	Many of THEIR	25	2.5%
8	Many of MY	21	2.1%
9	Many of HER	14	1.4%
10	Many of YOUR	9	0.9%
11	Many of A	1	0.1%

From table 1, it is obvious that the use of a determiner immediately after the phrasal quantifier "*many of*" in particular, and using the quantifiers in the structure of phrasal quantifiers in general, is necessary and correct regarding the syntactic structure in English. However, in Vietnamese, it is not necessary to have determiners accompanying nouns, and the preposition "*of*" does not exist in Vietnamese for linking the parts in phrasal quantifiers; it is sufficient to have a quantifier accompanying the noun.

Eg: Tất cả giáo viên trong trường này (All OF THE teachers in this school)

Một vài du khách trong căn phòng kia (Some OF THE tourists in that room)

Quantitative nouns in the structure of phrasal quantifiers:

In English, there are some nouns that, besides referring to objects, also indicate quantity, such as: *box, liter, carton, cup, basket, loaf, bar, bowl, portion* ... Therefore, they are also called quantitative nouns or they are also known as partitives, which are the words like “*pint*”, “*portion*”, “*loaf*” ... which are used before “*of*” to indicate quantity (Collins Cobuild, 1992) [3]. Thus, these nouns indicating quantity do not stand alone in a sentence but precede the *of*-prepositional phrase (that is, they consist of “*of*” followed by the noun). In this structure, the noun indicating quantity serves as the head, while the prepositional phrase that follows acts as a complement to complete the meaning of the head. Let's consider the following example:

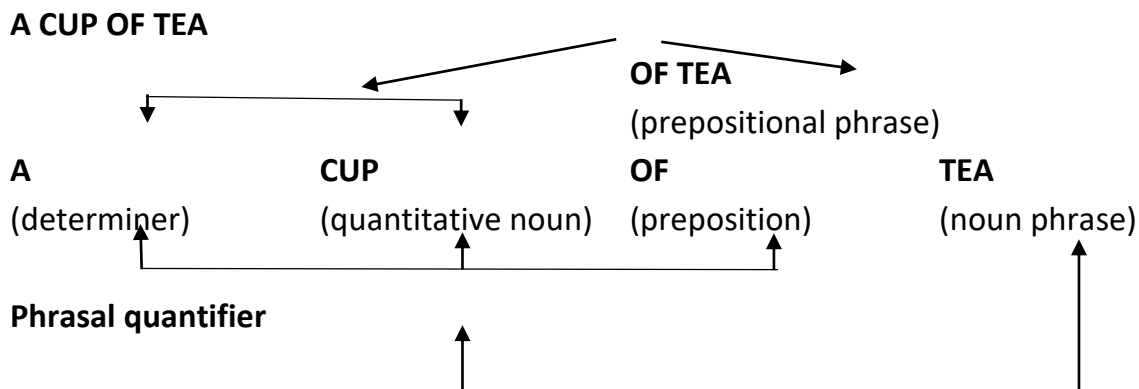


Diagram 2. A Cup Of Tea

In diagram 2, it can be seen that this structure clearly has two noun phrases: one is the container phrase with the head noun being quantitative nouns (also known as partitives) such as *spoon, cup, group, heap, load, ton, lot, kilo, number* ... and the other is the lower phrase whose head is plural countable noun or uncountable noun preceded by a zero article after the preposition “*of*” while the head noun of the container phrase is a countable noun that refers to an individual unit of measurement and can be preceded by the determiners such as: *a/an*, a cardinal number (*one, two, three* ...) or some quantifiers (*many, some, any* ...).

There are many quantitative nouns. They can express groups of things, animals or people. To illustrate further, the following lists show which words are typically used to refer to a group of animals of a particular kind and a group of people or things of a particular kind:

Table 2. A group of animals, people or things of a particular kind

No	English	Vietnamese equivalents
1	A herd of elephants	Một đàn voi
2	A gaggle of geese	Một bầy ngỗng
3	A herd/flock of goats	Một đàn dê
4	A pack of hounds	Một bầy chó săn
5	A swarm/colony of insects	Một đàn ong
6	A litter of kittens	Một lứa mèo con
7	A pride of lions	Một đàn sư tử
8	A troop of monkeys	Một đàn/bầy khỉ

No	English	Vietnamese equivalents
9	A little of puppies	Một lứa chó con
10	A flock of sheep	Một đàn cừu
11	A pack of wolves	Một đàn chó sói
12	An army of ants	Một đàn kiến
13	A swarm of bees	Một đàn ong
14	A flock/flight of birds	Một đàn chim
15	A herd of cattle	Một đàn gia súc
16	A litter of cubs	Một lứa con (con thú)
17	A herd of deer	Một bầy hươu
18	A school of dolphin	Một đàn cá heo
19	A school/shoal of fish	Một đàn cá
20	a pack/deck of cards	Một bộ bài
21	A clutch of eggs	Một ổ trứng
22	A team/panel of experts	Một nhóm chuyên gia
23	A sum of money	Một số tiền
24	A bunch/bouquet of flowers	Một bó hoa
25	A bunch/cluster of grapes	Một chùm nho
26	A bunch of keys	Một chùm chìa khóa
27	A spate of rumors	Một lượng lớn tin đồn
28	A party of tourists	Một nhóm khách du lịch
29	A bunch of bananas	Một buồng chuối
30	A clump of trees	Một bụi cây

Table 1 contains a list of phrasal quantifiers formed from quantitative nouns followed by “*of*” with the lower phrases. It can be seen that, like in section 4.2.1, in English there is a structure with “*of*” while in Vietnamese there is not. Furthermore, when wanting to express the quantity of a group of things, animals, or people, English has many nouns that indicate quantity for each kind, while Vietnamese seems to be more limited in this regard.

5. CONCLUSIONS

In Vietnamese, there are various groups and types of words that can be used to represent quantitative information. These words can vary in their level of specialization or support, and include numerals, adverbs, adjectives, pronouns, nouns, and verbs. Quantifiers refer to a set of words that indicate the quantity of something or someone. They are employed in a specific pattern, where they are followed by “*of*” and then a noun phrase. From the analyses involved in a syntactic perspective above, the study shows that phrasal quantifiers in English are quite diverse, but in summary, they mainly concentrate on two types of structures: the first type is the quantifiers in the structure of phrasal quantifiers, and the other is the quantitative nouns in the structure of phrasal quantifiers. If comparing the first type with the second type is carried out, the similarity between them is that both include two components connected by the preposition “*of*” and have a main-subordinate relationship, with the noun phrase after “*of*” completing the meaning of the noun phrase that precedes it. However, the fundamental difference is that in the structure with quantitative nouns, it is mandatory to have two nouns before and after “*of*” where the head noun before “*of*” is a quantitative noun (*cup, bottle, lot, number, kilo ...*). On the contrary, the structure

of the quantifiers in the structure of phrasal quantifiers does not require a noun before “*of*” but only a quantifier (*many, much, some, all, few ...*) placed immediately before “*of*” and the noun phrase that follows “*of*” must be a definite noun phrase. From the syntactic features, the author observes that in Vietnamese, there is no structure indicating quantity with “*of*” as in English. This is also the reason why Vietnamese people learning English may make mistakes when using phrasal quantifiers in speaking and writing due to negative language transfer. Therefore, learners need to pay attention to the fact that when using phrasal quantifiers in English, there will be “*of*” to link them. In the case of phrasal quantifiers formed by quantitative nouns, learners do not use a noun before “*of*” and the noun after “*of*” must be different from the quantitative noun and refers to an undefined thing. In contrast, with phrasal quantifiers formed by quantifiers with *of*-PP, the noun after “*of*” must be a definite noun.

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DEVELOPING THE FORM OF LITERARY TOURISM IN VIETNAM TODAY: A CASE STUDY ON THE LITERARY HERITAGE OF TUYEN QUANG PROVINCE

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ABSTRACT

Although literary tourism is not new, in Vietnam it has not really received enough attention. With a rich, diverse and valuable literary heritage system, Vietnam has a lot of potential to plan, exploit and develop this unique type of tourism for tourists. domestic and foreign travel. As a form of cultural tourism, literary tourism is based on the journey of visiting and attending places and events related to literary resources (including literary works and literary authors). Literary tourism is experiential tourism about literature, needs to be envisioned as a tourism product, aiming to exploit literary values to introduce and explain the destination and at the same time needs to be planned and served. Build relevant literary tourism models and institutions. Tuyen Quang is a mountainous province in the Northern midland and mountainous region, with many unique literary heritages, from folk literature to medieval and modern literature. Surveying and interpreting the relative value of the province's literary heritage resource system, thereby proposing models, institutions and ways to exploit literary tourism, is necessary has scientific and practical significance, contributing to promoting the development of tourism in the coming time for Tuyen Quang.

Keywords: Literary tourism; literary heritage; travel resources; cultural tourism; Tuyen Quang.

1. INTRODUCTION

Literature is part of the superstructure, representing the sphere of thought and the spiritual life of a community, nation, or ethnic group. It can be viewed as an independent field but also understood as a component of culture, a distillation of cultural values. Along with the formation, movement, and development of various aspects of social life, national literature evolves almost simultaneously with the social history of its people, reflecting and embodying the immense spiritual values of that nation or community. Over time, the literature of any nation, ethnic group, or community reflects and refracts the beauty of the people and the human ecological space from which it originates. Recognizing literature within the context of national cultural expression, and more importantly, placing it within the practical life context to enhance its value in today's environment, is a necessary endeavor with both scientific significance and practical applications. By placing literature in a dynamic (developmental) state, we also ensure its preservation within the historical and cultural continuum of the nation, especially in the current context of global integration and internationalization.

Tuyen Quang is a province with a long history of formation and development, rich in cultural traditions. Its cultural diversity has been shaped by multiple river systems (Lo River, Gam River,

Pho Day River, Chay River), spanning from high mountainous headwaters to interwoven valleys and plains. The cultural layers of Tuyen Quang are inherently rich and diverse, making them an attractive subject for many researchers over the years. The cultural allure of this ethnically rich land has resulted in a substantial body of research. In the field of literature, from folklore to modern literature, Tuyen Quang boasts many distinctive works that can be harnessed to promote the development of literary tourism in particular and cultural and artistic tourism in general.

2. OVERVIEW OF RESEARCH SITUATION

As of now, based on our observations, there appears to be no research specifically addressing the development of literary tourism in Tuyen Quang. Therefore, in this overview, we will refer to several studies related to literary tourism in Vietnam in general, which serve as suggestions for our interpretation of the literary heritage of Tuyen Quang. These works include articles such as “*Developing Literary Institutions in the Era of Popular Culture: Korean Experiences as Suggestions for Vietnam (The Case of the Literary Museum)*” (Phan Thị Thu Hien, 2014); “*The Formation, Development, and Spectrum of Literary Tourism Forms (from the practical experiences of European, American, and Korean Countries)*” (Phan Thị Thu Hien, 2015); “*Literary Tourism and the preservation and promotion of Nguyen Du’s literary heritage*” (Phan Thị Thu Hien, 2020); “*The tale of Kieu as a cultural phenomenon*” (Tran Thị An, 2020); and “*Developing literary and artistic tourism in Hue city today*” (Le Vu Truong Giang, 2022)... These articles have addressed and analyzed related concepts such as literary tourism, cultural tourism, and artistic tourism, and have applied them to the exploitation of regions rich in literary heritage (such as Ha Tinh or Hue). Additionally, several articles have appeared in public media introducing the development of literary tourism in other provinces (such as Quang Ninh, Hai Duong, Bac Giang, Quang Binh, Binh Dinh, Ben Tre and Ha Tien). These suggestions are essential for us to complete this research.

3. RESEARCH METHODS

To complete this report, we employed a combination of several familiar methods in literary studies (such as the methods of literary history; the systematic method; the typological method of literary studies; the approach to literature from a cultural perspective; and the comparative method, among others) and integrated them with field survey methods at several tourist sites containing the literary heritage of Tuyen Quang (specifically at key locations: the Mạc Dynasty Citadel in Tuyen Quang City; the Nan Na Lua relic site, Tan Trao banyan tree, Hong Thai communal house in Son Duong; and Na Hang Lake in Na Hang). By combining these approaches, we gained deeper insights into the literary heritage of Tuyen Quang province.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Literary tourism in the context of current tourism development

Tourism, known as a green economy or a smokeless industry, has long been regarded by many countries and territories as a key economic sector prioritized in the overall socio-economic

development. Vietnam, a country rich in tourism potential, has seen its tourism industry develop under the right guidelines, policies, and orientations set by the Party, State, and Government. While there are lessons to be learned regarding the planning, model building, organization, service provision, and management of various forms of tourism in Vietnam over the past few years, the achievements are undeniable. Tourism has contributed to a completely new landscape for the overall economy.

Focusing on sustainable development that does not damage or ignore ecological factors, and exploiting resources at a pace aligned with the regeneration of those resources, has become a priority in tourism development today. Therefore, tourism must be emphasized as a cultural action. The exploration, expansion of knowledge, and attention to the local characteristics, customs, and practices of a destination influence the perspectives, thoughts, feelings, and choices of travelers. In this context, literary tourism, as a component of cultural tourism, always plays a crucial role in the development of the tourism industry. Literary tourism and cultural tourism, from a historical perspective, have long been established, covering a wide geographic range and always containing sustainability. They offer the potential to meet diverse needs and appeal to visitors.

Cultural and literary tourism can generate services while also contributing to the preservation and promotion of cultural identity. In this sense, cultural and literary tourism become invaluable treasures when utilized effectively to serve development.

Literature and culture are closely intertwined. They can be visualized as smaller and larger subsets, but they do not purely represent this small-large model. Literature is embedded in culture, belonging to culture, yet manifesting outwardly as culture, distilling and preserving culture. As such, while cultural tourism has been thoroughly exploited, literary tourism, despite early global interest, still remains in an underdeveloped state, like an untapped vein of potential. The methods for implementing and utilizing literary tourism, therefore, remain fragmented and do not correspond with the rich potential of many nations, including Vietnam.

Literary tourism can be broadly understood as *“a form of tourism in which the primary motivation for visiting certain areas is related to an interest in literature. This may involve visiting the past or present homes of authors (living or deceased), real or fictional locations described in literature, or areas whose reputation is tied to literary characters and events. These regions, closely connected to authors, can be marketed following this trajectory”* (Tran Nho Thin, 2014). Another more comprehensive definition states: *“Literary tourism is a form of cultural tourism, based on journeys to visit and participate in locations and events related to literary resources (including literary works and their authors), providing literary information, experiences, and emotions, meeting the needs of tourists with varying levels of knowledge and interest in literature.”* (Phan Thị Thu Hien, 2015). There may be other interpretations, but fundamentally, literary tourism is closely associated with the elements of authors and their creations, the literary works themselves, historical sites, landmarks, and locations that form part of the literary world, which are presented as experiential models for tourists.

At this point, it is also necessary to distinguish between literary tourism as a form of tourism and travel literature. Travel literature refers to literary works written on the topic of tourism (rivers,

mountains, seas, historical sites, festivals, customs, traditions, etc.). Meanwhile, literary tourism is a sector within the tourism industry, based on the exploitation of literary tourism resources. Literary tourism may include elements of travel literature, but its primary focus is on utilizing the literary resources of one or multiple authors, literary figures, and the geographic and ecological spaces connected with their lives and works, possibly encompassing the artistic world of their literary creations. In relation to tourist destinations, literary tourism precedes travel literature, while travel literature follows afterward. This marks a key difference between literary tourism and travel literature. However, in practice, when planning, building models, and developing mechanisms to promote literary tourism in Vietnam, we can still incorporate travel literature to add diversity and appeal to visitors.

4.2. Awareness of the issue of Vietnamese literary tourism resources

To date, as observed by us, there has yet to be a systematic and methodical research project or reference book addressing the issue of literary resources in tourism development or literary tourism in a comprehensive manner. Most books discussing tourism resources in general, or specifically about cultural tourism and related forms such as experiential tourism, have only briefly touched upon the topic of literary tourism resources and the application of literary heritage in tourism development. Below, we will review some relevant works:

In his articles on tangible tourism resources in Ha Nam Ninh, researcher Đinh Trung Kiên, when discussing tangible heritage, has referenced proverbs, folk songs, legends, and anecdotes related to describe and affirm the value of heritage in tourism development. Although he has not paid much attention to literature as a resource, his insights are invaluable: *“Here, the verse has been passed down: ‘Resting on Mount Đọi / Legs stretching to Tuần Vường / The rise of kingship / Transmitted for eternity. Mount Đọi is also a place visited by many kings, gentlemen, and poets... In the 15th century, the famous King Le Thánh Tông, head of the ‘Tao Đàn Nhị Thập Bát Tú,’ visited here and wrote: ‘From atop, the eyes overlook a vast expanse / A green sea of trees fades into the mist.’ Mount Đọi also once welcomed Nguyen Phi Khanh and Nguyen Khuyen...”* (Đinh Trung Kiên, 2006, pp. 132-133). In his work, Đinh Trung Kiên also mentioned the ancestral house of poet Nguyen Khuyen (p. 138) and the historical legends related to the ancient capital of Hoa Lu (Ninh Binh) (pp. 158-159), etc.

In the section on intangible cultural tourism resources in Vietnam, researcher Võ Văn Thanh has compiled in subsection 2.6. of Chapter 3 (Vietnam’s tourism resources) a list titled “Poetry and folk literature” as follows: *“Vietnam possesses a diverse and rich treasure trove of poetry and folk literature. Many regions have become famous thanks to their association with poetry and folk literature, such as the legend of Ha Long Bay; An Ky Son (Yen Tu Mountain); Chu Dong Tu and Tien Dung (Dạ Trạch Swamp - Hung Yen); the ancient mulberry tree, Phat Mau Man Nuong, and the legend of the Four Laws; Từ Thức meeting a fairy (Thanh Hóa); the legendary turtle (Hoan Kiem Lake - Hanoi); Sơn Tinh - Thủy Tinh (Ba Vi); Deo Ngang linked to Ba Huyen Thanh Quan, and the story of Thiên Hậu for the Chinese community,...”* (Võ Văn Thanh, 2015, p. 97). This section directly touches upon two important topics: first, the literary resource heritage (though the

researcher has only mentioned poetry and folk literature, and not Vietnamese literature as a whole) and, second, the sacredization of destinations.

In the section on the supply of cultural tourism products in Vietnam, Assoc. Prof. Dr. Lại Phi Hung mentioned art forms such as *tuồng, chèo, cải lương, châu văn*, etc. Specifically, he referenced folk songs and poetry (a form of literature); or the *lục bát* poetry of Nguyen Khuyen, Nguyen Binh, Tan Đa, Tu Xuong, ... which are often used as lyrics for Xam performances (Hung, 2016), etc.

Assoc. Prof. Dr. Duong Văn Sáu, in his Cultural Tourism Textbook, in subsection 2.3.2. “*Cultural tourism and the creation of unique tourism products of localities*” (part of Chapter 2), although not focusing much on literature, offers significant suggestions, especially in proposing unique tourism products such as Building the Heart of Ba Đình; the Resonance of Ba Đình; The Successor is Coming; Pure Nghe Villages; Battlefield Nights - a brand for Dien Bien Phu as a destination (Sau, 2019). In elaborating on these images, the researcher has somewhat referenced folk literature (such as folk songs and historical legends). We believe that this suggestion by Assoc. Prof. Dr. Duong Văn Sáu could certainly be supplemented with relevant literary illustrations to make these unique tourism products even more compelling and attractive.

In the research project Cultural Tourism by Assoc. Prof. Dr. Nguyen PHam Hung, in the section on intangible cultural heritage in tourism development, the researcher mentioned literature and folk art in tourism development. Although the focus was not placed on literature and tourism, the mention does highlight the important presence of Vietnamese literary values in the provision of related tourism products in general (Nguyen PHam Hung, 2022).

The work that systematically and most consciously addresses the issue of Vietnamese literary resources in tourism development is Tourism Resources by Bùi Thị Hai Yen and PHam Hong Long. In this book, the two researchers classified Vietnamese literature as a type of humanistic resource and offered some specific insights into poetry and folk literature (Section 2.5. Poetry and Folk Literature of Chapter 5, from pp. 271-274). Many places have been embellished, made more beautiful and attractive through folk songs, folk literature, stories, and historical legends passed down through generations. These include Ha Long Bay, Yen Tu Mountain, Ba Be Lake, Co Loa Citadel (Hanoi), ... as well as the scenic beauty of West Lake, Long Đồi Mountain, and Deo Ngang. From these specific examples, the researchers have generalized: “*Beautiful natural landscapes and picturesque sites have inspired many artistic and literary masterpieces by renowned folk artists and poets, captivating travelers. Many mythical, fascinating, and intriguing stories have been created by folk artists and passed down by the people about many scenic spots and historical relics, creating astonishment and wonder for tourists (...). Many poetic masterpieces by artists and poets have added soul and enhanced the value of scenic spots and historical relics... Researching and understanding the poetic and folk literary values associated with landmarks and cultural and historical relics is essential for tourism activities, contributing to the allure of tourist destinations for visitors. This is also one of the solutions to effectively preserve and promote traditional cultural values of the nation.*” (Yen & Long, 2011).

Thus, it can be affirmed that awareness of tourism resources in previous research works exists. Specific identification of what constitutes literary resources and the classification of literary resources into cultural (and humanistic) tourism resources, as well as how literary values are exploited and applied in tourism development, have been addressed, though still somewhat scarce. There are two dimensions of scarcity:

First, the systematic overview of literary resources in tourism development. Previous works have only mentioned folk songs, folk literature, medieval poetry, and some folk literary genres, without addressing other literary forms, such as narrative genres or lyrical forms. They have only mentioned poetry and medieval poetry, without referring to modern poetry or other lyrical forms like essays, prose, or dramatic genres.

Second, the application of literary resource values in tourism development. Most previous studies have only addressed how literature (poetry and folk literature) enhances destinations, relics, and landscapes, making them more sacred and appealing to tourists. However, the methodological principles, approaches, and the establishment of models or literary mechanisms to support the development of literary tourism in the current period remain underexplored.

4.3. Literary tourism resources in Tuyen Quang

With the advantage of being a land rich in revolutionary history, fertile and beautiful, home to 22 ethnic groups including Kinh, Tày, Dao, Sán Chay, Mông, Nùng, Sán Dìu, Hoa, Pà Thẻn, the literature of Tuyen Quang, from folk to medieval and modern literature, is quite diverse and abundant. In the field of folk literature, there are numerous legends, folktales, proverbs, and folk songs that refer to famous landmarks, which are also attractive tourist destinations here. Some notable examples include stories that explain natural phenomena, the topography, and landmarks in Tuyen Quang, such as “The Legend of Ao Trờì” (Heaven’s Pond), “The Legend of Thác Mưa Roi” (Falling Rain Waterfall), and “The Legend of Đầm Mây” (Cloud Pond). Many of Tuyen Quang’s folktales reflect the perceptions and explanations of the people of Tuyen Quang in ancient times regarding place names, geography, and river and mountain shapes in many areas of Tuyen Quang, particularly the Na Hang region with its majestic mountains, reflecting the deep connection between the people and the land. Storytellers attempted to explain to later generations natural phenomena such as the shape of Pắc Tạ Mountain, resembling a large wine gourd once granted by the king to a heroic war elephant of the past, or the images of human figures etched into the rocks of Nang Tien Chú Khách Mountain, along with an eternal tale of scorn. The incomplete Heaven’s Pond in Na Hang, left unfinished due to the curiosity of the goddess Then, and the names of mountain passes recalling tragic love stories or the famous traditional weaving craft of Thượng Lâm,... Many of these stories are sorrowful, but there are also tales of heroism and wit, imbued with the essence of the forested mountains, reflecting the rich and refined spiritual life of the people of ancient Tuyen Quang.

In modern literature, notable works include those by To Huu, particularly in *Viet Bac* and *Following Uncle Ho’s Footsteps*, which mention historical revolutionary sites in Tuyen Quang such as the Lo River, Hong Thai Communal House, and Tan Trao Banyan Tree:

*Mình về, còn nhớ núi non
Nhớ khi kháng Nhật, thuở còn Viet Minh
Mình đi, mình có nhớ mình
Tan Trao, Hong Thai, mái đình cây đa?*

(Viet Bac, 1954)

(When you leave, do you still remember the mountains?/ Remember the days of resisting Japan, when the Viet Minh prevailed?/ As you go, do you remember me?/ Tan Trao, Hong Thai, the communal house, the ancient banyan tree?)

Other prominent authors include Phù Ninh with his novels, plays, and memoirs: *Tan Trao on the Dawn of Independence*, *Tan Trao in the Year of Ất Dậu*, *Returning to Tan Trao*, *President Hồ's Journey Abroad from Tan Trao*; writer Trịnh Thanh Phong with his short story *Under the Starfruit Tree in Làng Chương*; author Cao Xuân Thai with the memoir *Tan Trao: A Place to Return*; writer Tran Huy with the biographical work *Living by Uncle Hồ's Teachings...* The poetry of authors such as Nguyen Ngọc Hiệp with works like *Lullabies Caught in the Wind*, *Tassels on the Mountains*, *Waiting for the Moon*, *The Sound of Leaves in the Forest*, *Flowers of the Heart*; Đinh Công Thủy with *Listening to My Child Sing: As if Uncle Hồ Were There*, *The Dream of a Grain of Rice*; Nguyen Tuấn with *The River Sings*; Tạ Bá Hương with *Motherland*, *Eyes of Longing*, *The River Runs Through the City*; Cao Xuân Thai with *Rain over Thanh Tuyen*, *Sunlight on the Lo River*, and others.

Overall, Tuyen Quang's literary heritage is quite rich, spanning the flow of history and closely tied to the beauty of the land and people of Tuyen. It is fully suitable for analysis and exploitation to serve the development of literary tourism in the current period.

4.4. Proposed approaches for developing literary tourism in Tuyen Quang

To develop literary tourism in Tuyen Quang to its full potential, we propose several key actions as follows:

- Organize systematic and large-scale research and fieldwork on the entire literary heritage of Tuyen Quang, from folk literature to modern literature (focusing on key tourism sites closely associated with literary works). This is the first step to gaining a comprehensive view of the overall landscape of Tuyen Quang's literary tourism resources.

- Identify the system of issues related to the cultural and ecological space that produced the literary authors and works; the hometowns and families of the literary authors; the system of tangible heritage (if still extant), and the famous landmarks or monuments associated with the artistic world of the literary works. This is the second step to create a literary tourism map for Tuyen Quang.

- Develop infrastructure to support the growth of literary tourism. Specifically, this would include a literary tourism map, literary heritage exhibition houses (which Tuyen Quang currently lacks), and possibly establishing a literary park (with miniature landscapes, character sculptures, paintings, etc., such as the setting of Lán Na Lua or the space of Hong Thai Communal House).

Collaboration with local cultural and art groups (from commune, district, and provincial levels) could support literary performances for tour groups. Additionally, restoration efforts could include plaques or carved inscriptions of iconic literary works at tourist sites (if appropriate).

- Research and create literary tourism product packages: for example, tours focused on the life of a literary figure. Tours could visit the birthplace, hometown, family, ancestral temple (from the family lineage), workplace, and especially the locations that the author visited, which may be reflected in their works. Another option could be literary tourism linked to the settings described in the author's works, offering experiential tourism where participants can engage in re-enacting specific events or details from the literature. This approach holds great potential, especially when tied to revolutionary historical sites from the anti-French resistance period in Tuyen Quang.

- Provide training for personnel to support the development of literary tourism. This is both an urgent and long-term task. Most tourism faculties today do not place sufficient emphasis on literature (in fact, many tourism programs do not even include Vietnamese literature courses in their curricula). Therefore, in the short term, local authorities and/or relevant business leaders could organize training programs in literary knowledge and professional skills for Tuyen Quang's literary tour guides. In this step, the involvement of experts and collaboration with educational institutions is crucial. We emphasize the importance of mobilizing literary experts familiar with Tuyen Quang's tourism sector to participate in this phase.

In the reality of tourism development, it is clear that cultural tourists, especially literary tourists, tend to be selective, and their spending behavior differs from that of tourists engaged in other forms of tourism. Cultural tourists, and potentially future literary tourists, are likely to spend more, as they favor slower journeys, deeper experiences, and longer stays in local areas. Tuyen Quang may need to further invest in the development of tourism in general, and literary and cultural tourism in particular. This can be achieved through strategic planning, policies, infrastructure development, restoration efforts, training programs, product provision, diversification of services, and by combining literary tourism with eco-tourism and culinary tourism, while also mobilizing the diverse resources of the local ethnic communities in Tuyen Quang.

5. CONCLUSION

From an objective perspective, it can be affirmed that literary tourism is not new to the world, but it remains a relatively novel field in Vietnam. The literary tourism resources of Vietnam in general, and Tuyen Quang in particular, are relatively rich, unique, and valuable. Analyzing the literary values of Tuyen Quang is highly significant in developing models and structures to support the growth of related literary tourism. Many literary regions and literary spaces in Tuyen Quang, connected with relevant tourist destinations, remain dormant or are being exploited rather spontaneously. Literary exhibition houses and various models and mechanisms to support the development of literary tourism need to be built and supplemented to become experiential spaces for tourists, as we have suggested in this report. With the collaboration of local authorities, the participation of researchers, and tourism businesses, the literary tourism sector in Tuyen Quang will undoubtedly experience significant advancements and breakthroughs, becoming a valuable reference for other provinces and cities across the country in the near future.

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APPLICATION OF MINDMAP IN LEARNING TO ENHANCE UNIVERSITY EDUCATION QUALITY FOR SUSTAINABLE DEVELOPMENT - A STUDY AT TRADE UNION UNIVERSITY

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ABSTRACT

Mind Map, or mind mapping, is essentially a technique for enhancing note-taking. Instead of using written text to describe the entire detailed structure of a subject through paragraphs and essays, a mind map represents the subject using two-dimensional images. By employing schematic diagrams, the overall issue is depicted in the form of an image. With this approach, students' learning, especially in the context of digital transformation, can be more efficient. Knowledge and data are remembered and perceived more easily and quickly. This form of note-taking has shown its benefits, positively impacting work in general and academic results in particular. Consequently, it is increasingly being used in various fields of life, particularly in education. In this article, the author will provide an overview of mind maps: what mind maps are, their benefits, how mind maps can be applied to learning, and how to draw mind maps. Additionally, by surveying 324 students from the Faculty of Finance and Banking at Trade Union University, the author will present the current state of mind map usage among these students. The survey results indicate that the application of mind maps has a very positive effect on students' learning processes, as reflected in their academic results, study time, and knowledge retention ability. Based on these findings, the author proposes solutions for applying mind maps to enhance the academic performance of students in the Faculty of Finance and Banking at Trade Union University specifically, and for students in general.

Keywords: mind map, mind mapping, application of mind mapping in learning, Trade Union University

1. INTRODUCTION

The Labor Market in the Banking Sector Amidst Automation and Artificial Intelligence Trends. In response to the trend of automation and artificial intelligence application, the labor market in the banking sector will shift towards a reduction in branch and teller positions, while there will be an increase in demand for highly qualified professionals who are proficient in both financial, banking expertise, and IT. To meet the transition to modern technological models, in addition to investing in technology infrastructure, most banks in Vietnam are seeking high-quality human resources to accurately and efficiently operate this infrastructure in the coming time.

Furthermore, the nature of jobs in the digital economy in general and in the digital banking sector specifically relies on big data, the Internet of Things, and artificial intelligence. As a result, the demand for personnel in the banking industry has evolved, requiring banking employees not only to have a deep understanding of financial and banking operations but also to possess knowledge of IT applications and software. Moreover, they must be capable of analyzing, exploiting, managing, and utilizing data.

In addition to these technical skills, banking employees must be proficient in foreign languages, have knowledge of marketing, consultancy, sales, and professional communication, to enhance the customer experience throughout their engagement with banking products and services.

Therefore, while still in university, students need to develop effective study methods to ensure they can meet the demands of the labor market in this era of digital transformation. Observations and research indicate that utilizing mind maps during the learning process is one of the strategies that can help students acquire the knowledge, skills, and attitudes needed to meet job requirements in the digital transformation training period.

2. THEORETICAL BASIS

2.1. Concept of Mind Mapping

Mind mapping, also known as a mind map, refers to a technique for quickly recording information by listening, understanding, and using images, thereby systematizing that information into a diagram. By organizing information through memorization and encoding it with vivid and visual images, we can enhance our ability to remember, thereby maximizing learning and working efficiency.

A mind map is a powerful tool that takes advantage of the brain's capacity for image recognition. It is a way to remember details, synthesize, or analyze a problem into a branching diagram. Unlike computers, which often store information in a linear fashion (such as remembering events in a specific sequence like the progression of a story), the human brain has the ability to associate and link different pieces of data together. This method leverages both capabilities of the brain.

According to Tony Buzan, the pioneer who researched and developed the mind map concept, "A mind map is a form of note-taking that uses colors and images to expand and deepen ideas. At the center of the mind map is a central idea or image. This central idea or image is developed through branches that represent key ideas, all of which are connected to the central idea. With this approach of expanding from the center outwards, mind maps cause the brain to function similarly. As a result, human ideas will develop."

Mind maps are defined as "non-linear visual representations" of ideas and the relationships between them. A mind map consists of a network of concepts that are interconnected and related. In a mind map, any idea can be connected to another idea. The free-form, spontaneous thinking process is essential when creating a mind map, with the goal being to find creative connections between these ideas. Hence, mind maps are essentially diagrams that combine basic elements together.

In essence, mind mapping is a technique to enhance note-taking. Instead of using linear text to describe the structure of a subject through paragraphs or essays, mind maps represent that subject with two-dimensional images, where concepts are connected by lines. Mind maps illustrate the form of the subject, the mutual relationships between related concepts (or ideas), and how they connect within a broader issue. This method makes it easier and faster to memorize and recognize information.

Thus, the most general definition of a mind map is: "A mind map is a form of note-taking aimed at exploring, deepening, and expanding an idea, systematizing a subject or a flow of knowledge by combining the simultaneous use of images, lines, colors, and text with active thinking."

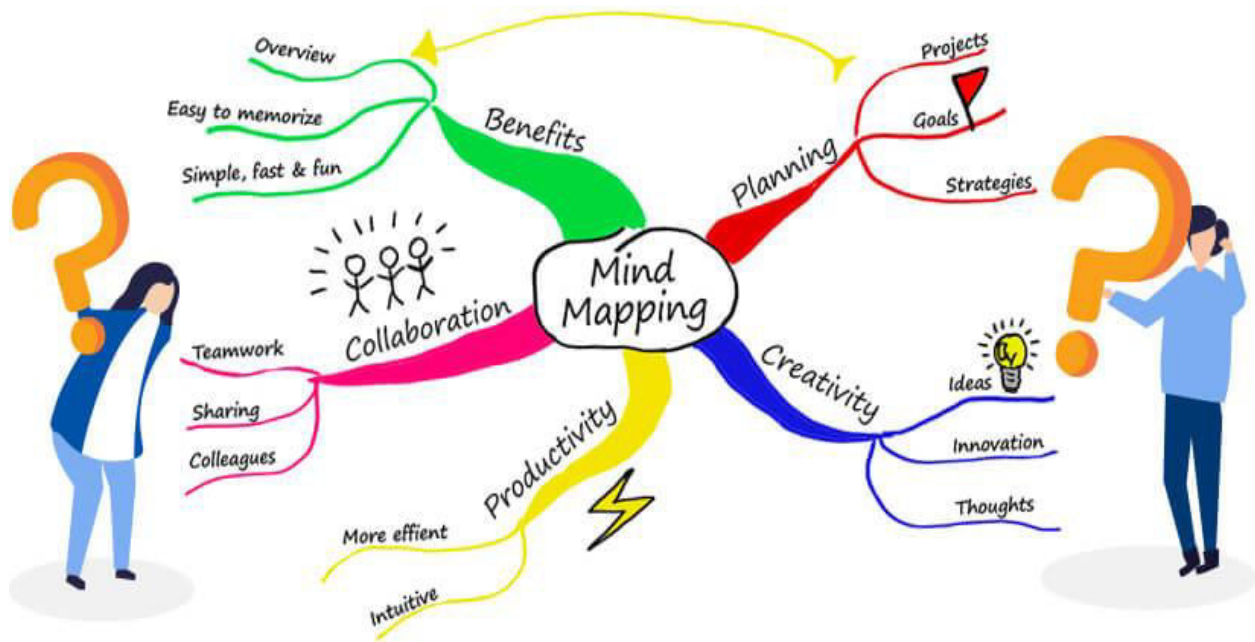


Figure 1. Concept of Mind Mapping

2.2. The Benefits of Applying Mind Mapping

Humans possess two hemispheres of the brain: the right and the left. The right hemisphere is inclined towards abstract thinking, perceiving images and colors, while the left hemisphere excels in logical thinking, memorizing numbers, and analyzing data. Most people primarily engage their left hemisphere for work, while the right hemisphere is only activated when exposed to beautiful images or during relaxation. The use of mind mapping helps engage both hemispheres of the brain simultaneously.

The beauty of a mind map lies in its openness—it doesn't require strict proportions or precise details like geographic maps. It can be adjusted by adding or removing branches, with each person creating their own version using different colors, images, or descriptive phrases. This allows each individual to "express" the same subject in their own unique way. Therefore, the creation and application of mind maps maximize each person's creativity.

Mind maps enable us to remember information longer, grasp problems faster, and be more creative. For this reason, mind maps are known as a "universal tool for the brain"—a highly creative note-taking method currently used by hundreds of millions of people worldwide, producing astonishingly effective results.

Mind maps help us plan and manage information effectively, thereby improving each individual's chances of success. Those who integrate mind mapping into their daily lives and

regularly review their progress often report feeling confident that they are on track to achieve their goals.

Additionally, mind maps are valuable tools for gathering and organizing information, identifying key terms and events from books, newspapers, the Internet, lectures, research notes, work meetings, minutes, conversations, and lists. With mind maps, people can generate an almost unlimited number of ideas and arrange them alongside related ideas. This makes mind maps a powerful tool for drafting articles and reports when ideas need to be recorded quickly. Later, sentences or paragraphs can be expanded based on the identified keywords.

A typical example is reading books or conducting scientific research. Instead of simply reading, one can use a mind map while reading, adding important or interesting points to the appropriate places in the diagram. After finishing the book, the reader will have a summary page containing all the key points. Additional ideas can also be added as they arise during reading. This method enhances the quality of knowledge absorption from the book. If someone wishes to fully grasp the data they've read, they can redraw the mind map from memory a few times.

Scientific research has proven that a brain cell can process incoming information and transmit it in just fractions of a second. Thus, the human brain is the most miraculous machine on the planet, and humans never fully utilize its capabilities. Using mind maps not only generates unique ideas but also helps organize written documents, presentations, and improves comprehension and efficiency when reading or researching lengthy texts.

3. APPLICATIONS OF MIND MAPPING

Mind maps can be applied across any area of life, serving various purposes. Examples include:

In the workplace: brainstorming, time management, project development, team building, presentations, negotiations, planning, and goal setting.

In specialized fields: managing sales teams, strategic marketing planning, market research, product development, business management, and establishing corporate culture.

In the household: prioritizing tasks, planning for both work and life, shopping, managing household chores, and organizing events.

In social settings: tracking important appointments, remembering names and locations, planning vacations, and organizing social gatherings.

In education: Mind mapping can be an incredibly beneficial tool for both teachers and students. Teachers can use mind maps to present concepts clearly, focus on key points, and provide a comprehensive overview of a topic. For students, instead of writing down all the content, they can create their own mind maps for each topic learned. This transforms learning into something visually engaging, easy to remember, and understand. Additionally, using images and colors during note-taking stimulates creativity, igniting students' interest in learning and maximizing their brain's memory potential.

Given these benefits, mind mapping should gradually replace traditional note-taking methods that rely on rote memorization. It leads to more effective learning and encourages comprehensive cognitive development in students. Mind maps can be applied throughout the learning process—planning, listening to lectures, taking notes, completing assignments, and self-study. Below are the key methods for incorporating mind mapping into study:

a. **Study Planning Method** Before each semester, academic year, course, or subject, students should create a mind map for both their studies and extracurricular activities. Within each area, they can set general goals for the term and specific objectives for each course. Based on these goals, students can detail the methods and steps they'll use to achieve them. This planning process gives students an overview of their goals and allows for timely adjustments during the execution phase.

b. **Note-Taking Method** Traditional note-taking can be boring, causing students to lose focus in class. Many students, following the "teacher reads, students write" approach, end up writing extensively without focusing on listening or asking questions. A notebook full of text is hard to remember, and finding a specific concept or formula often requires flipping through multiple pages, wasting time. Most students don't know how to analyze and filter information, so their notes tend to be lengthy and unclear.

Mind maps, however, encourage note-taking using only keywords, linking ideas and knowledge in a visually intuitive way. All information is displayed on a single page, offering a complete picture of the subject. After class, students can quickly review their notes at a glance.

c. **Presentation Method** For students, presentations are essential since they often need to research and present topics in class. Successful presentations help students succeed academically and develop skills needed for future careers in management, business, or research.

Without careful preparation, a presentation full of lengthy text can cause the presenter to lose confidence and feel anxious, leading to forgetfulness. The longer the presentation, the more the anxiety builds.

By choosing mind maps as a presentation tool, students avoid the monotony of reading slides. Instead, they can use mind maps to record keywords and images, which activates their speaking and memory skills. This approach makes the presentation flow more naturally and allows for better audience interaction.

d. **Reading Method** Books and documents represent a vast reservoir of knowledge passed down through generations. They are vital for everyone, especially intellectuals, including students. Success often results from a combination of personal effort and the knowledge gained from teachers, life experiences, and books. However, without a method to summarize the content, readers may quickly forget the knowledge they've acquired.

Mind maps help readers condense and extract key points from the text in a structured and concise manner.

e. **Group Study Method** Group study is a learning method where members collaborate closely to solve a specific problem, aiming for a common goal. The group's output reflects collective intelligence.

Researchers have asserted that “regardless of the subject matter, students working in small groups tend to learn more and retain information longer than with other teaching methods.”

Group study not only increases students' knowledge but also fosters teamwork and creativity, which are valuable for their future careers. Using mind maps in group study enhances productivity. Starting with a major task, group members can solve problems by adding branches and refining the map. The branching structure of mind maps allows ideas to flow freely, helping students organize and arrange key points efficiently. By focusing entirely on the task at hand, students can generate new ideas and knowledge from each member, leading to highly effective group study sessions.

f. **Study Guide Preparation Method** Study guides help consolidate and systematize knowledge from an entire course or program. They play a crucial role in improving students' academic performance. Without a good guide, exams can become a source of stress. Students often need to absorb a large amount of information before an exam, making mind maps a powerful tool for reviewing content efficiently. By using mind maps early in the year, students can add key points and important information to their maps. Reviewing the mind map regularly helps students retain knowledge and stay well-prepared for exams.

g. **Self-Study Method** Self-study is essential to mastering knowledge independently. Initially, students may struggle, but these challenges drive them to think critically and find solutions. Over time, they develop competence, ask questions, identify issues, and pursue research topics.

The Education Law emphasizes: "The university education method should focus on cultivating the ability for self-study, self-research, fostering creativity, and practical skills, as well as encouraging participation in research and application."

3.1. How to Draw a Mind Map

Drawing a mind map for topics, subjects, or any issues involves some variation, but generally follows these steps:

Step 1: Define the topic or theme of the mind map

Write or draw the main topic in the center of the paper, and enclose it in a prominent shape. Use bright colors to highlight the topic, with clear images or concise keywords. The text should be large and bold for clarity.

Step 2: Draw major ideas branching out from the main theme

Identify the key ideas that stem from the central topic. Draw branches from the center to connect each idea to the main topic.

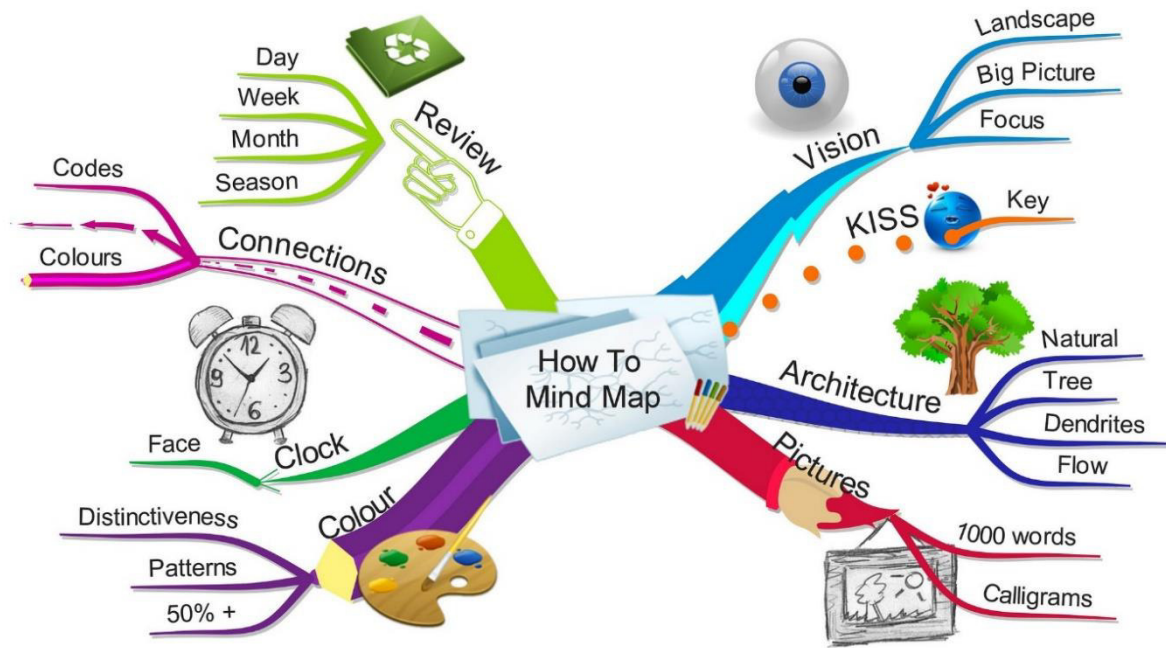


Figure 2. How to Draw a Mind Map

Step 3: Develop the mind map by expanding on the branches

From each major idea, draw additional branches to smaller supporting ideas. Continue expanding the branches with more detailed information until the topic is thoroughly covered. Ensure that all branches align with the central theme.

Step 4: Add illustrations and finalize the mind map

Once the content and ideas are outlined, enhance the mind map with colors, images, and illustrations to improve understanding and retention. Visuals and emotions impact the brain positively, helping with memory retention.

In addition to traditional paper-and-pencil drawing, you can use free online tools to create mind maps with pre-designed templates. Here are some popular tools:

- **Mindmapple:** A free, user-friendly software with simple features and an attractive interface. It is lightweight, so installing it won't slow down your computer. Despite its small size, Mindmapple has all the necessary features for creating a standard mind map.
- **Coggle:** Highly customizable software that allows you to format subheadings with basic attributes like bold, italics, icons, images, and links. It runs on a web-based platform, creating vibrant and colorful mind maps. With an ID account, you can access all of Coggle's features.
- **X-mind:** A professional tool for creating mind maps, suitable for developing ideas or managing projects.

- **Mondomo:** This software allows for collaborative online mind mapping, where multiple users can work on the same mind map simultaneously.
- **Edraw Mindmap:** A free software offering beautiful templates and examples, making it easy for users to start creating mind maps.
- **Blumind:** If you're not confident in using other free mind mapping software, Blumind offers a simple and user-friendly interface. It has convenient features like saving, pasting, searching, changing font colors, and adding branches. You just need to create the main topic, right-click to add sub-branches, and proceed to expand the map.

3.2. The Current Status of Mind Map Application in the Learning Process of Students in the Faculty of Finance and Banking at Trade Union University

According to the attached appendix at the end of the paper, a survey conducted on 324 students from the first to the fourth year of the Faculty of Finance and Banking at Trade Union University revealed that only a very small number, 3 students (0.9%), had never heard of mind maps (SDTD), while 245 students (75.6%) had used mind maps, and 76 students (23.5%) were aware of mind maps but had never used them.

Among the 245 students who had used mind maps, the frequency of use (measured by the average value) is as follows:

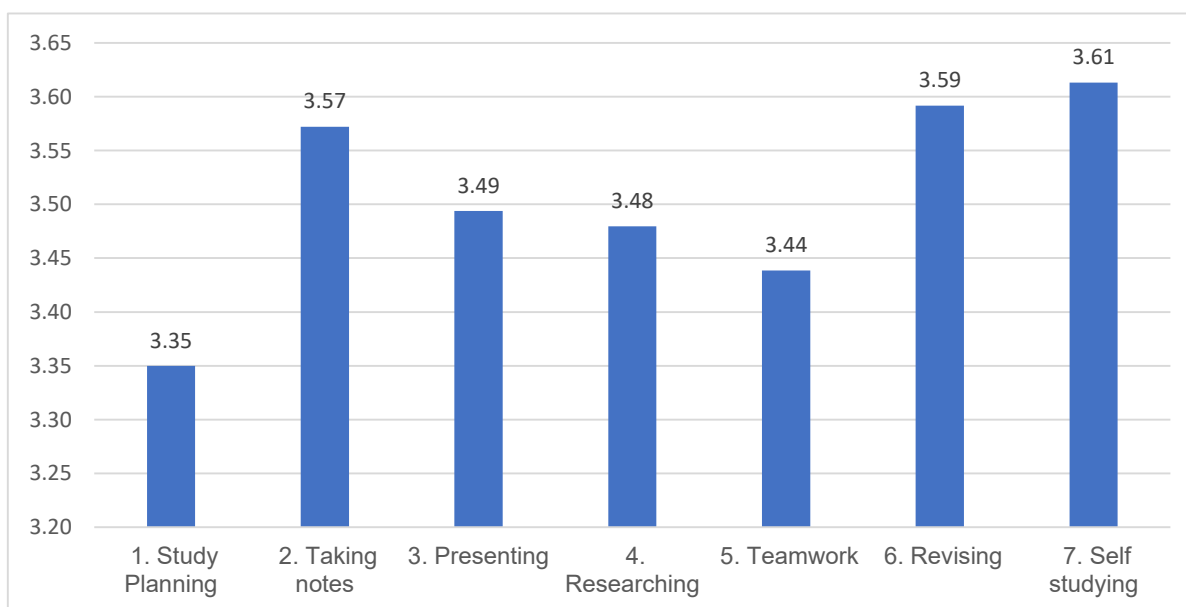


Figure 3. The Usage of Mind Maps in Students' Learning Methods

The self-learning method is utilized the most by students, scoring 3.61, followed by using mind maps for creating study outlines, while it is least utilized for learning planning (3.35) and group study (3.44). The research results also address the question of how the use of mind maps affects students' academic performance and study time.

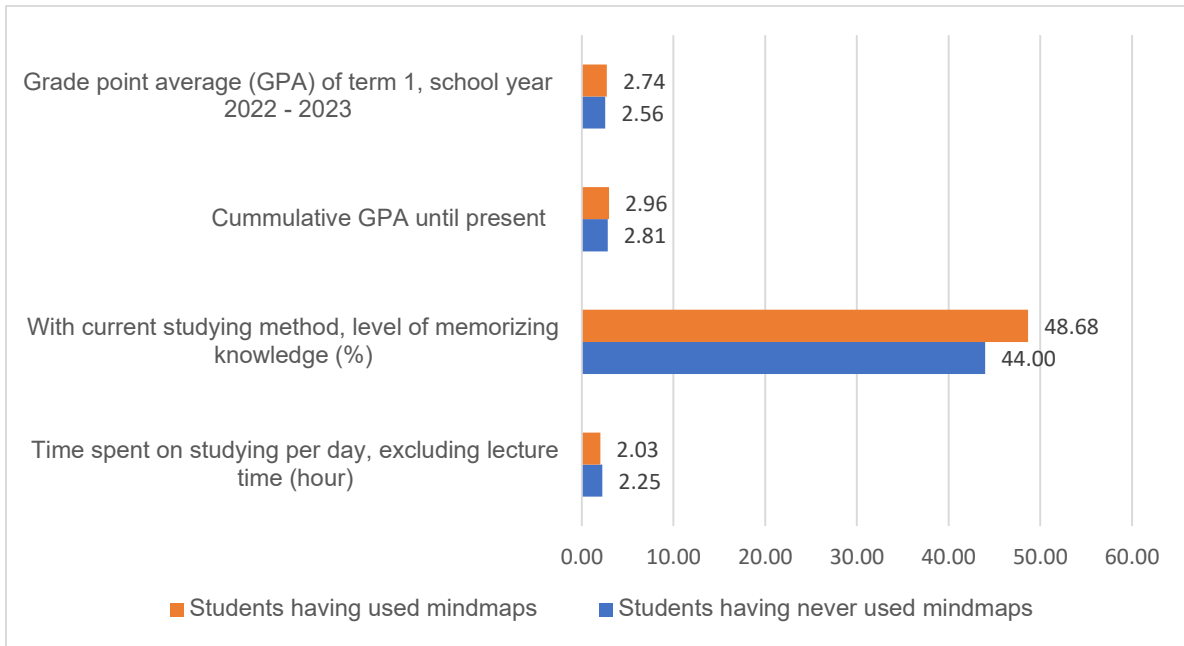


Figure 4. The application of mind maps affects students' academic performance and study time

The survey results indicate that the application of mind maps has a very positive impact on the learning process of students, reflected in their academic performance, study time, and ability to retain knowledge. Specifically:

- For the group of students who use mind maps, the average scores across subjects in the previous semester (2.74) are higher than those of students who are unfamiliar with and have never used mind maps (2.56). This trend is also consistent when comparing the cumulative academic performance of students from the beginning of the course to the present (2.96 and 2.81, respectively).
- The level of knowledge retention after studying reported by students who use mind maps is about 48.68%, while those who have not used mind maps achieve around 44%.
- The study time allocated by students who use mind maps outside of class is less than that of students who do not use them (2.03 hours compared to 2.25 hours).

The research team has identified several issues regarding the current study methods and the application of mind maps among students in the Finance and Banking Department at Trade Union University:

Regarding study methods: In addition to students who actively engage in their studies, a portion of students still does not pay attention to basic study methods. For instance, 28.4% of students seldom or never participate in presentations, 25% do not regularly plan their study schedules, and 19.5% have not engaged in group studies.

Regarding the application of mind maps in learning: There remains 23.5% of students who, despite being aware of mind maps, have never used them, which somewhat affects their academic results.

Based on the analysis and evaluation of the current situation, the research team has also identified the fundamental causes affecting the use of mind maps in students' studies:

From the students' perspective:

Many students are not yet accustomed to studying with mind maps. Their habits of learning through traditional methods have deeply influenced their ability to transition to studying with mind maps.

The learning environment of students has little influence from mind mapping techniques. Many students only apply traditional study methods, and teachers seldom use mind maps in their teaching. Peers also do not use or share methods for employing mind maps in their studies. Consequently, students form habits that exclude mind map usage. Additionally, teachers invest little time in designing lessons using mind maps.

Students have yet to recognize the utility of mind maps in their studies, such as helping them memorize content faster, presenting issues logically, reducing barriers in the learning environment and personal disposition, and fostering creativity in employing this learning method.

Students lack knowledge on how to use mind maps, how to design them, and how to arrange their study content systematically.

From the instructors' perspective:

Many instructors still employ limited teaching methods. Traditional passive teaching methods, such as lecturing and one-way knowledge transmission, remain the dominant teaching approach for many instructors. Learning activities tend to be monotonous, where the teacher talks and students listen and take notes, with assessments focused on memorization and reproduction, rather than practical application in both theoretical and practical teaching.

Some instructors are hesitant to innovate their teaching methods. The knowledge and skills of some instructors regarding teaching methodologies are still limited. The program, course content, and volume of knowledge conveyed are substantial compared to the class time available.

The design of lecture slides lacks creativity, often filled with text and failing to engage students' attention and creativity. A portion of instructors is still unfamiliar with using mind maps in their teaching.

From the university's perspective:

The technical facilities for supporting students' learning are inadequate. The university library has improved significantly, but the number of available materials is still limited, and the computer system for student research does not meet the demands for research and study.

The volume of knowledge for students is relatively heavy: there are few specialized courses, minimal hands-on practice, and a low number of students engaging in scientific research, which does not attract many students.

The university has not organized many workshops or meetings focused on developing effective study and teaching methods for instructors and students.

The policies for encouraging and rewarding students who achieve high academic results are not genuinely appealing or motivating to students in their studies and training.

3.3. Proposed Solutions and Recommendations

To enhance the application of mind maps in the learning process of students at the Finance and Banking Department of Trade Union University, the following solutions and recommendations are proposed:

1. Training and Workshops:

- Organize training sessions and workshops for both students and faculty to familiarize them with mind mapping techniques. These workshops can demonstrate the benefits of mind maps in enhancing learning and retention.

- Invite experts in mind mapping and educational psychology to conduct these training sessions, providing practical examples and interactive exercises.

2. Integration into Curriculum:

- Integrate mind mapping as a compulsory tool within the curriculum for various subjects, encouraging students to use it in their study plans and group assignments.

- Provide specific assignments that require the use of mind maps, helping students to practice and understand their utility in organizing thoughts and knowledge.

3. Resource Availability:

- Ensure that sufficient resources and materials related to mind mapping techniques are available in the library and online platforms. This can include books, articles, and access to mind mapping software.

- Create a dedicated section on the university website where students can access mind mapping resources, tutorials, and software recommendations.

4. Collaborative Learning Environments:

- Encourage the formation of study groups where students can collaboratively use mind maps to explore subjects together. This can foster a supportive learning environment and promote peer learning.

- Establish study circles or clubs that focus on innovative learning methods, including mind mapping, allowing students to share their experiences and strategies.

5. Faculty Engagement:

- Encourage faculty members to incorporate mind mapping in their teaching strategies. This can include using mind maps during lectures to summarize key points or visualize complex concepts.

- Provide training for faculty on effective teaching methods, emphasizing the importance of engaging students in active learning through visual tools like mind maps.

6. Continuous Assessment and Feedback:

- Implement a system of continuous assessment that includes feedback on students' use of mind maps in their studies. This can help gauge the effectiveness of mind mapping and encourage students to improve their skills.

- Regularly review the academic performance of students using mind maps compared to those who do not, and share the findings to motivate wider adoption among students.

7. Institutional Support:

- The university administration should actively promote the use of innovative teaching and learning methods, including mind mapping, as part of its educational policy.

- Allocate funding and resources for developing infrastructure that supports the use of mind mapping, such as software licenses, classroom technology, and training programs.

- By implementing these solutions and recommendations, Trade Union University can significantly enhance the learning experience of its students, foster creativity, and improve academic performance through the effective use of mind mapping techniques.

4. CONCLUSION

Learning methods play a crucial role for both faculty and students at universities, enabling the effective transmission and acquisition of knowledge. The use of mind mapping has emerged as one of the active learning techniques, assisting students in note-taking, presentations, group work, self-study, and reading materials effectively, while also proving beneficial in their daily tasks. In the context of education, mind mapping enhances students' interest in learning and stimulates their continuous creativity, leading to improved academic outcomes.

The research results indicate that the application of mind mapping among students at the Finance and Banking Department of Trade Union University has contributed to higher academic performance. The study also identifies several positive factors influencing students' adoption of mind mapping, including the support from faculty and peers. These factors serve as a foundation for developing solutions aimed at promoting the practical application of mind mapping, particularly in learning. By adopting appropriate learning methods, students can achieve better academic results and more easily adapt to the digital transformation landscape while still in university, as well as in their future careers.

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APPENDIX

What do you know about mind maps?

		Quantity	Percentage %
Valid	I don't know it	3	.9
	I know it (content, usage, benefits, ...) but have never use it	76	23.5
	I have use it	245	75.6
	Total	324	100.0

Do you frequently use the following learning methods?

	Very infrequent	Infrequent	Average	Frequent	Very frequent
	Row N %	Row N %	Row N %	Row N %	Row N %
1. Study Planning	7.1%	17.9%	39.2%	26.2%	9.6%
2. Taking notes	3.7%	4.3%	19.8%	41.0%	31.2%
3. Presenting	5.6%	22.8%	40.1%	22.8%	8.6%
4. Researching	2.8%	8.3%	38.9%	36.7%	13.3%
5. Teamwork	5.9%	13.6%	35.8%	33.6%	11.1%
6. Revising	4.0%	10.5%	31.5%	39.8%	14.2%
7. Self studying	3.7%	7.7%	35.2%	38.0%	15.4%

How often do you use mindmaps in these learning methods

	Very infrequent	Infrequent	Average	Frequent	Very frequent
	Row N %	Row N %	Row N %	Row N %	Row N %
1. Study Planning	4.5%	11.5%	38.3%	35.8%	9.9%
2. Taking notes	3.7%	6.6%	34.6%	39.1%	16.0%
3. Presenting	2.9%	9.9%	34.2%	41.2%	11.9%
4. Researching	2.5%	9.8%	36.1%	40.6%	11.1%
5. Teamwork	2.5%	14.3%	30.3%	42.6%	10.2%
6. Revising	2.9%	10.8%	25.4%	45.8%	15.0%
7. Self studying	3.3%	6.6%	31.7%	42.4%	16.0%

The effects of using mindmaps on learning time and students' learning outcomes

	Not familiar with or have not used mind maps.		I have use it		Total	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Please indicate the time you spent studying per day besides classes (hours)	2.25	1.07	2.03	1.12	2.24	1.12
With the current learning method, what percentage (%) is the level of knowledge memorization after learning	44.00	19.71	48.68	18.27	47.54	18.71
Please indicate your CPA until now	2.81	.44	2.96	.43	2.92	.44
Please indicate your academic results in 2022 - 2023 1 st semester	2.56	.59	2.74	.56	2.69	.57

SCIENTIFIC RESEARCH IN HIGHER EDUCATION – SOME ISSUES

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ABSTRACT

International integration is an inevitable trend that requires all sectors and fields to participate in the process of globalization, and higher education is no exception. In order for higher education to accomplish the mission of training high-quality human resources, besides elements such as facilities, teaching staff, etc., scientific research also plays a vital part, as "Science and technology development is truly the key driving force of rapid and sustainable development" (Documents of the 11th Party Congress). Scientific research supports lecturers to enhance their expertise and knowledge and apply them to their teaching work. It also helps students cultivate the ability to think creatively, broaden their horizons and gain experience. In this article, the author focuses on a number of issues: First, Scientific research in higher education and its role; Second, The reality of scientific research in university education in our country today; Third, solutions to improve the quality of scientific research in higher education in the country today.

Keywords: Higher education, scientific research, lecturer, student.

1. RATIONALE

Today, the brisk development of science and technology towards the goal of globalization and international integration is calling for high-quality human resources to meet requirements of the innovation cause. In order to catch up with this trend and fulfill the responsibility of training human resources, higher education needs to not only uphold teaching quality but also pay attention to scientific research, as this is one of the criteria used to evaluate and rank higher education institutions. Scientific research helps researchers strengthen their creative thinking, research capacity and scientific working style. Despite being identified as one of the key factors in higher education, scientific research activities still have many shortcomings, and thus solutions need to be taken to improve the quality of higher education in Vietnam in the current period.

2. CONTENT

2.1. Scientific research in higher education and its role

Scientific research plays a huge role in social life, especially in the process of international integration. The results of scientific research become scientific knowledge to solve problems that arise in practice. Scientific research is a condition and premise for lecturers to fulfill their teaching tasks well because along with teaching activities, scientific research also holds a key position in higher education.

Scientific research in higher education currently has a strong impact on lecturers and students because they are the main actors involved in the research at universities. Among scientific research activities, the ones conducted by students are under the guidance of lecturers, and the success of a

research project not only proves the capacity of students but also confirms the quality and qualifications of their instructors. This requires lecturers to have good scientific research methods and experience.

2.1.1. The role of scientific research for lecturers

Scientific research contributes to boosting lecturer qualifications. Along with teaching activities, it improves the reputation of lecturers and affirms the position of higher education institutions. Through scientific research, lecturers are able to gain new knowledge, link theory and practice, contribute to technology transfer, and make new findings with profound values that can be applied in real life. Scientific research also helps lecturers form a scientific working style and method, and scrutinize issues with a dialectical approach as well as a realistic and objective point of view.

Through these activities, lecturers can explore, expand and grasp in-depth professional knowledge, thereby promptly consolidate their understanding and add more contents to their lectures to keep pace with practical situations. This is proof of the reciprocal relationship between scientific research and teaching: they connect and support each other so that lecturers can properly fulfill their duties and tasks in providing higher education.

Additionally, scientific research allows lecturers to foster their competencies and research skills, strengthen professional knowledge and acquire interdisciplinary knowledge. Likewise, it boosts their creative thinking skills as well as allows them to explore their potentials and build the ability to work both independently and in group settings. Therefore, lecturers will be more confident in doing scientific research and also in teaching because they have mastered their knowledge.

Besides, scientific research also aids lecturers in collecting knowledge from many different sources of information and materials to enrich and deepen their volume of specialized knowledge, and broaden out their understanding of interdisciplinary knowledge content to better serve their teaching work.

Through scientific research, knowledge is regularly updated, and thus teaching quality is enhanced. Moreover, lecturers will develop and perfect the skills needed for teaching and research as well as some soft skills needed for, for example, analyzing and summarizing information; critical thinking skills; judgment skills, etc., thereby improving their teaching quality while affirming the position, prestige and brand of the higher education institution they are working for.

Meanwhile, scientific research allows lecturers to better understand their profession and fields of expertise, and at the same time cultivates and fosters love for the profession, so that lecturers can be more proactive and enthusiastic in teaching and doing scientific research.

2.1.2. The role of scientific research for students

Scientific research is an intellectual activity designed to help students apply research methods to the learning process in many different forms such as essays, internship reports, and theses or research done annually. Through these works, students can develop the abilities to think creatively and critically, research, read and collect documents, gather and evaluate information; as well as refine their planning skills and acquire experience in independent work and team work.

With the results gained from scientific research activities, students can thoroughly understand a subject and apply this knowledge to solve problems posed in practice.

On one hand, as scientific research requires students to be more active and flexible as well as to have more scientific methods for research and work arrangements, it serves as an opportunity for students to communicate and present their ideas and to interact and work with leading experts and teachers (instructors), thereby to learn a lot from them in terms of spirit, attitude, responsibility, ideas, experience and methods in the research process.

On the other hand, scientific research also provides students with deeper understanding of their majors and fields of study; through which, their fire of passion for their profession will burn brighter and they will have more love for and belief in their career choice.

2.2. The reality of scientific research in university education in our country today

As large-scale globalization and international integration are taking place at an increasingly fast pace, it is a must for education to have appropriate innovations. Especially, for higher education, guidelines and methods must be in place to adapt to the new situation. In recent years, scientific research activities done by lecturers and students at higher education institutions have earned significant achievements and made significant contributions to education quality, affirming the reputation and position of educational institutions and improving the overall achievements in science, both domestically and internationally. Some results of scientific research works have been applied in practice, contributing to promoting socio-economic development.

2.2.1. Current scientific research situation of teaching staff at educational institutions

Although scientific research has been paid more attention by universities and higher education institutions compared to the past, this activity still has not really received the needed investment. It can be seen that, unlike teaching activities, lecturers still experience difficulties conducting scientific research due to a number of reasons, such as: The State's policies for scientific research are not really attractive; Higher education institutions are yet to have policies to support and encourage scientific research activities, which is manifested in the assignment of too much teaching work to lecturers, causing them to have less time for scientific research; Some lecturers have yet been adequately aware of the importance of scientific research to higher education, thus they are indifferent to or reluctantly engage in it with a lack of enthusiasm, resulting in the research having low effectiveness and little practicality.

This reality proves that the teaching staff at universities and colleges is still limited both in quantity and quality, and have yet met the requirements of teaching, training and scientific research tasks. Also, scientific research activities at higher education institutions still have many shortcomings, namely: Many research works have no practical value and cannot be applied to production as well as to the process of building and developing the country; The fact of doing research with a half-hearted spirit is still seen in many lecturers; Research quality is low due to the lack of enthusiasm of lecturers for the problems being studied; Many research works focus on topics that are completely not included in the lecturers' majors; Scientific research activities are not associated with teaching tasks.

Another fact that is worth noting is that lecturers with active participation in scientific research at higher education institutions are often those of old age with high titles and advanced academic degrees. Meanwhile, young lecturers are barely engaged in this work, and if they are, they also don't put the required effort and energy into it due to their limited capacity for conducting scientific research as well as their inadequate awareness of how this type of research will benefit their own teaching work, the institution they are working for and society.

2.2.2. Current situation of conducting scientific research of Vietnamese students

Through the acquisition of knowledge from lectures, mass media, social networks, etc., students have more or less recognized the significance of knowledge economy in social development. Therefore, in order for their homeland to develop, students have not been afraid to search for ideas and conduct scientific research to apply their findings to life.

With youth and passion, students now are joining in many forums focusing on different topics, including scientific research. Conducting research helps student be more confident and hone their skills to study and collect information as well as to work independently and in group settings. Therefore, they always strive to participate in the scientific research works of their schools and have achieved remarkable and valuable results in terms of both theory and practice.

However, due to a handful of reasons, students encounters many obstacles when conducting scientific research, including: Lack of funding from family and school; lack of time for doing research as they have to spend too much time to study in class; low priority policy for students' research, which does not encourage their participation and makes the work less attractive; instructors are not enthusiastic or have limited research capability; students' understanding of the field of research is not extensive as they have not been fully updated with the relevant information; and lack of specialized and interdisciplinary knowledge, which incapacitates students and prevent them from being able to decently conduct a scientific research. Due to not being properly aware of the importance and role of scientific research in the learning process, some students register their research topics following a hunch and fail to reach to the depth of it, causing a waste of time and effort.

Moreover, there is also a lack of balance between majors when it comes to scientific research. Most of students' scientific research focuses on branches of natural sciences, since they are more practical and more applicable. On the other hand, the research works in social sciences are still just for show - most of them are not really in-depth and lack persuasion, partly due to limited research capability and partly due to their little practicality as well as the low demand of society. This has inadvertently diminished the passion of students for scientific research, and thus reduced their professionalism and work quality.

2.3. Solutions to improve the quality of scientific research in higher education in Vietnam today

2.3.1. The top priority in university education is scientific research

Scientific research is one of the two tasks of higher education. Along with teaching, scientific research also has a certain position and role in deciding the prestige and position of higher

education institutions. It is too a means for lecturers and students to develop scientific research and work methods; to master professional and interdisciplinary knowledge; to put research results into practice; to supplement and support high-quality teaching, and thus to take lecturers and students to a new level to meet requirements of the cause of innovation.

Additionally, scientific research assists lecturers in refreshing their knowledge and updating their lectures, thus they can convey such knowledge to students in the best and most effective way. Therefore, lecturers need to see scientific research as equally vital as teaching work, and that it holds an indispensable position in higher education.

Meanwhile, the State and higher education institutions are also recommended to have appropriate, directional and normative mechanisms and policies in place for scientific research activities. Take the regulations on lecturers conducting scientific research (Article 5 of Circular 20) as an example: Lecturers must spend at least one third of their total working time in one academic year on scientific research tasks. This proves that scientific research has become an essential and compulsory activity in higher education, having a hand in enhancing quality of training institutions.

2.3.2. Favorable policies and environment to encourage scientific research activities

The State and higher education institutions need to promulgate appropriate policies and mechanisms to encourage scientific research activities with rewards in kind and in spirit for research works with highly practical results, so that researchers have more motivation and enthusiasm to continue their work in order to improve training quality and create high-quality human resources.

There is also the need for a democratic environment aided by frank and constructive criticism for scientific research to achieve the best results. Doing scientific research should also be used as a criterion in the annual evaluation of officials, so that everyone has better awareness of its importance and thus is more responsible in doing their tasks.

Besides, higher education institutions providing training programs in the same majors can coordinate and cooperate with each other to hold scientific seminars, creating opportunities for their lecturers and students to learn and exchange experience in doing scientific research. Thereby, it is also possible for scientific research to avoid duplication, and lecturers and students also have more research opportunities.

Since each higher education institution has strengths in certain areas of expertise, the State needs to work closely with them to maximize such strengths. Meanwhile, urgent and practical research needs in each period should be outlined by the State for higher education institutions to select seminar topics in accordance with the actual situation.

2.3.3. Higher education institutions should organize annual scientific research seminars and strengthen inspection and supervision work in conducting scientific research

It must be admitted that scientific research is one of the two basic tasks of higher education; therefore, higher education institutions should hold annual scientific seminars to attract lecturers and students of the institution itself as well as those from other institutions across the country to

participate in the work. This is the foundation to create conditions for each lecturer and student to have the opportunity to do scientific research; through which, not only teaching quality is strengthened, but also the name of the higher education institutions is promoted and its position affirmed in the country and the world.

In order to achieve this goal, leaders of higher education institutions along with the staff of science departments need to regularly check and remind lecturers of their scientific research plan, especially those who register for research projects from the beginning of the academic year.

Furthermore, higher education institutions need to issue documents regulating scientific research activities for lecturers to complete their scientific research tasks in each academic year as prescribed (the number of hours doing scientific research is specified according to the specific job title and position). In addition, it is recommended that these institutions have regulations on compensating standard teaching hours for lecturers who fail to complete their assigned scientific research tasks; at the same time, lecturers may be evaluated and categorized based on their scientific research achievements.

3. CONCLUSION

Scientific research is an important task in higher education, which contributes to improving the teaching quality of lecturers and affirms the reputation and standing of higher education institutions on national and international rankings. However, current scientific research activities at higher education institutions still have many shortcomings and have not lived up to their full potential. Therefore, it is necessary to have appropriate solutions to overcome these limitations in order to enhance the quality of scientific research in higher education, so that it truly becomes a key factor in the construction and development of the education sector in Vietnam.

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SOME MEASURES FOR USING DONG HO FOLK PAINTINGS TO EDUCATE PRESCHOOL CHILDREN'S LOVE FOR THEIR HOMELAND

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ABSTRACT

The article presents some insights into Dong Ho folk paintings, a traditional print art form that was recognized as a National Intangible Cultural Heritage in 2013. The article argues that Dong Ho folk paintings are an artistic treasure worth exploiting and introducing into preschool education. By exposing children to Dong Ho folk paintings, they will be nurtured in terms of aesthetics, intellect, thinking ability, imagination, dexterity, meticulousness, and a love for nature, country, people, and an appreciation for national cultural identity. The article also highlights that in the current period of industrialization and modernization, Dong Ho folk paintings are at risk of being lost and forgotten. Another fact is that preschools have not paid attention to introducing Dong Ho folk paintings into school activities and have not really created an environment to encourage children to explore the beauty of national culture. The article also presents research on the current state of teaching by teachers regarding the use of Dong Ho folk paintings for children at some preschools in Hanoi, Bac Ninh and Nam Dinh province, from which to propose measures to introduce Dong Ho folk paintings into teaching for children at preschools.

Keywords: folk paintings, methods, education, children, tradition

1. INTRODUCTION

Every nation has its own unique cultural characteristics which are always respected and preserved by nations in various ways, especially through education. Connecting children with their national culture, helping them develop an understanding of their own cultural heritage so that they may further appreciate and love their homeland, has become a key requirement in the Vietnam's Early Childhood Education Curriculum. Art and culture are treasures that preserve and conserve precious values and are also visual teaching aids that help educators convey values to the younger generation and the community. Vietnam's Dong Ho folk paintings are also an art treasure worth exploiting and introducing into children's education.

However, up to now there has not been much researches on the use of Dong Ho folk paintings in educating love of homeland for preschool children. Dong Ho folk paintings are not only a precious cultural heritage but also carry profound educational values. This is a type of painting that attracts children, because the paintings are created from bright colors originating from nature, the images in the paintings are funny, the content in the paintings is rich, suitable for the perception of preschool children.

The main purpose of using Dong Ho paintings in organizing some activities for children in preschools will help teachers cultivate in children a love for nature, country, people, and appreciation of national cultural identity from the first steps in their learning journey. The main purpose of using Dong Ho paintings in organizing some activities for children in preschools will

help teachers cultivate in children a love for nature, country, people, and appreciation of national cultural identity from the first steps in their learning journey.

2. THEORETICAL BASIS AND RESEARCH METHODOLOGY

2.1. Literature Review

Recent studies on the application of art in early childhood education have shown that traditional Vietnamese visual art products are highly diverse in both content and form with unique expression styles. These artworks can contribute to creating a rich, friendly and truly “nationally-identified” educational and teaching environment.

Dong Ho folk paintings, with their profound artistic and cultural values, have attracted the attention of many researchers, especially in the field of children's education. These studies focus on the use of Dong Ho folk paintings as a teaching tool to convey cultural values and educate love for the homeland and country to preschool children.

Authors Sullivan, M. (1996), Lan, L. V. (1999), Vuong, T. Q. (2001), Taylor, N. (2004), Clark, J. (2009), Minh, L. Q. (2020), Linh, H. T. T. (2022) have been interested in Dong Ho folk paintings and the authors have stated that Dong Ho folk paintings can be used as an effective educational tool, helping children better understand Vietnamese culture and history.

Author Thao, N. T. (2011) in the article Application of Dong Ho folk paintings in art education for children affirmed that Dong Ho paintings not only help children recognize colors and shapes but are also a means of cultural and moral education for generations of Vietnamese children. Similar to the view of author Pham, J. (2020) in her article, who also stated that Dong Ho paintings not only help children learn about culture but also develop creativity and aesthetic thinking, the author presented a number of methods to integrate Dong Ho folk paintings into preschool education programs in this study. The above studies have demonstrated that Dong Ho folk paintings are an effective educational tool in conveying cultural values and educating love for the homeland to preschool children. Authors such as Thao, N. T. (2011), Minh, L. Q. (2020) and Linh, H. T. T. (2022) have provided an important foundation for the application of Dong Ho folk paintings in teaching, thereby affirming the value of this traditional art form in education. The artistic and content values of Dong Ho folk paintings do not stop at preserving cultural heritage but are also an endless source of inspiration for educating love for the homeland and national identity for Vietnamese children.

2.2. Theoretical Basis And Research Methods

2.2.1. Overview Of Dong Ho Folk Paintings

Dong Ho folk paintings are a type of woodblock print that originated around the 16th century in Dong Ho village, Song Ho commune, Thuan Thanh district, Bac Ninh province. Dong Ho artisans have skillfully conveyed beautiful words, meaningful ideas and life experiences into their paintings with a distinctive, unique, and refined expression full of emotional depth. The painting profession has become an integral part of Dong Ho village, creating a unique characteristic of this region and contributing to the preservation of the national cultural heritage. Dong Ho folk paintings

have been a part of Vietnamese life for many generations and have been recognized by the government as a National Intangible Cultural Heritage.

Dong Ho folk paintings are created entirely by hand, from the carving of woodblocks to the preparation of printing colors and the method of color application. These paintings cover a wide range of themes, including those intended for celebrations, wishes for happiness, favorable weather, and success, as well as paintings for worship, depictions of historical events in the country, and scenes of everyday life. In the past, Dong Ho paintings were highly popular and became an indispensable part of events in Vietnamese families in the Northern Delta, especially during the New Year celebrations.

2.2.2. The Values Of Dong Ho Folk Paintings For Preschool Children

Dong Ho folk paintings contain artistic, cultural, and life values and are art products suitable for application in preschool education. Preschool children are very eager and like to explore new things. Therefore, children at this age have strongly developing awareness. Exploring new things makes children very excited.

- The artistic value of Dong Ho folk paintings for preschool children

Dong Ho folk paintings are renowned for their unique woodblock printing technique, which skillfully combines carved wooden lines with natural colors. Each painting reflects the artisans' talent and craftsmanship, featuring highly symbolic images, simple yet profoundly meaningful lines. The paintings are made on durable *dó* paper, crafted from the bark of the *dó* tree and coated with a shiny layer of crushed seashell powder. The colors in the paintings are derived from natural materials, such as bamboo charcoal, *vang* wood, *hòe* flowers, indigo leaves, and seashells. The combination of these elements brings a rustic yet refined beauty, creating the uniqueness of Dong Ho folk paintings. Aesthetically, Dong Ho folk paintings stand out with their harmonious composition, using strong contrasting colors while maintaining balance and rhythm. The paintings are created with a simple, approachable, and easily understandable style, effectively conveying messages of love for nature, people, and the country, making them accessible to all social classes, especially children. This not only defines the uniqueness of Dong Ho folk paintings but also enables viewers, particularly children, easily access and feel the beauty of Vietnamese folk art.

- The content value of Dong Ho folk paintings for preschool children

Dong Ho paintings are not just artistic products; they also embody profound content values, reflecting the culture, customs, and beliefs of the Vietnamese people. The themes in these paintings often revolve around daily life, rural landscapes, traditional festivals, and iconic cultural symbols such as *'The Rat's Wedding'* and *'The Procession of Honor.'* The images in Dong Ho folk paintings are easy to understand and easy to attract children, close to children's lives such as the image of a mother pig and her cute piglets, the image of a majestic rooster stretching its neck as if preparing to crow loudly, the image of a large carp wriggling in the water, the image of a peacock stretching its neck, with a long, soft tail of splendid colors, the image of girls wearing traditional Vietnamese *áo dài* playing traditional musical instruments, the image of a farmer leading a buffalo to plow the field, etc. In addition, each painting carries within itself a story, a lesson about morality, a simple but meaningful philosophy of life, evoking love for the homeland and national pride. It is these

values that make Dong Ho folk paintings an effective educational tool, helping children from a young age to engage with their national culture, fostering a love for their country, and instilling an awareness of the importance of preserving traditional values.

2.3. Characteristics Of Preschool Children

Preschool children are going through an important stage of physical, psychological and social development. At this age, children have the following outstanding characteristics:

- *Physical development*: Children's gross and fine motor skills gradually improve with each age. Children begin to learn how to walk, run, jump, climb, grasp objects and perform more skillful movements such as drawing, assembling models, etc. Children like to explore the world around them through physical activities, so teachers need to create conditions for children to participate in games and physical activities to develop motor skills.

- *Cognitive and Thinking Development*: Preschool children are very curious, like to explore and learn about the world around them. Although their attention span is still limited, they can focus on activities or objects that interest them. Children begin to develop symbolic thinking and awareness of colors, shapes, sizes, and quantities through observation, experimentation, and imitation. While their thinking is still primarily action-based and visual, it is gradually expanding, making it easier for them to engage with Dong Ho folk paintings.

- *Language Development*: At this age, children's language skills gradually develop, and by the age of 5-6 years old, most children have become quite proficient in using their native language. They can pronounce words correctly and use proper grammar in sentences. Children begin to express their thoughts, emotions, and needs through speech. They enjoy listening to stories, singing, and participating in activities that involve language. This development allows them, when exposed to Dong Ho folk paintings, to accurately describe the images in the paintings and express their feelings when talking about the artwork or the events depicted in the Dong Ho folk paintings.

- *Social-Emotional Development*: Preschoolers begin to learn to recognize and manage their emotions. They also develop social skills, learning to share, cooperate, and play with friends. Children at this stage often express emotions naturally and easily, from joy and excitement to sadness and anger. Children gradually understand social rules and tend to seek recognition and praise from adults, especially from teachers and parents.

- *Aesthetic Development*: Preschool children are highly sensitive to colors, images, and sounds. They enjoy drawing, coloring, and creating simple art projects. Introducing Dong Ho folk paintings to preschoolers helps stimulate their aesthetic sensibilities. The beauty in Dong Ho folk paintings, such as the colors, composition, and charming images, easily resonates with children, evoking positive emotions as they explore the art. The simple lines in the paintings make it easy for children to understand and imagine the details, encouraging them to creatively come up with new ideas and images.

- *Moral Development*: Preschool children begin to understand basic moral values, such as right-wrong and good-bad. They learn to follow rules and seek positive approval from adults. This

is a crucial stage for educating children about social values, love, and responsibility. Given these characteristics, preschool children are highly receptive to learning through experiential, visual, and dynamic activities. Therefore, the use of Dong Ho folk paintings in preschool education not only aligns with children's cognitive abilities but also supports their holistic development, particularly in fostering a love for their homeland.

Dong Ho folk paintings help children form new symbols through systematic observation and analysis. Children can compare the differences between Dong Ho folk paintings and familiar objects, thereby developing the ability to associate and imagine. The content of the paintings and understanding of this genre of paintings foster positive emotions in children when participating in activities, helping them learn many lessons about ancient life and, more importantly, know how to preserve and love the art of their homeland.

2.4. Research Methodology

Several research methods were employed to explore the current use of Dong Ho folk paintings in preschool education, including:

- *Documentary Research:* This method involved collecting and analyzing documents related to Dong Ho folk paintings and their use in preschool education. The goal was to identify elements within Dong Ho folk paintings that can be applied to teach love for the homeland to children.

- *Interviews and Surveys:* Information was collected from 240 preschool teachers through in-depth interviews and survey forms ((through online surveys and direct interviews with 52 preschool teachers) about teachers' use of Dong Ho paintings in teaching, the advantages and difficulties they encountered and information was sought about preschool children's perceptions of Dong Ho folk paintings.

- *Observation:* Observed the spaces in classrooms and halls of kindergartens displaying Dong Ho folk paintings for children to learn or not. Observed children participating in some learning activities such as music activities, science discovery activities, creative activities, poetry and story activities, in the Homeland theme at kindergartens to better understand children's behaviors, skills and emotions about their homeland according to their age. Observed an activity where children were introduced to Dong Ho paintings through creative activities. Recorded children's emotions, understanding, and feelings towards their homeland and recorded the current state of the environment with Dong Ho paintings at kindergartens.

3. RESEARCH RESULTS

Study the current situation:

- Purpose of the research: Study the current situation of using Dong Ho folk paintings in teaching at 13 kindergartens including public and private schools in 3 provinces: Hanoi, Bac Ninh, Nam Dinh (Bac Ninh: 5 kindergartens, Hanoi: 6 kindergartens, Nam Dinh: 2 kindergartens). - Propose some measures to introduce Dong Ho folk paintings in teaching for preschool children.

- Survey subjects: Conduct a survey of 240 preschool teachers.

3.1. Research Results On The Current Situation

Regarding teachers: 50% of teachers have worked for 10 years or more, 30% have worked for 5 to 10 years, and 20% have worked for less than 5 years. All teachers are enthusiastic, love children and have solid expertise.

Regarding kindergartens: All kindergartens have adequate facilities and equipment, airy classrooms, meeting the regulations of the Ministry of Education and Training on facility standards. Classrooms are decorated and changed according to events during the school year. However, there is usually no space in the classroom dedicated to displaying traditional art products. Among the surveyed kindergartens, only 1 school in Hanoi and 1 school in Bac Ninh let children color Dong Ho folk paintings and hang their products outside the classroom for 1 week.

3.2. Survey Results Of Preschool Teachers

- Preschool teacher survey results on the number of times children are introduced to Dong Ho folk paintings per year

Most teachers said that they rarely or never organized activities to introduce Dong Ho folk paintings to children. Only 4 preschools surveyed, including Thi Tran Ho school, Tuoi Than Tien school, Lien Co school in Bac Ninh, Kid by Nature school in Hanoi, organized activities for children to learn about Dong Ho paintings, but not regularly. Thi Tran Ho School organized a visit to the Dong Ho Folk Painting Cultural Center for children once a year, but not every year. Teachers introduced children to Dong Ho folk paintings in the theme of Homeland and Uncle Ho in preschools. Teachers said that the main reason was that the activities were mainly based on the curriculum framework of the Ministry of Education, organizing activities to learn about Dong Ho folk paintings often came from personal ideas, but encountered difficulties due to the time and high cost of preparation. In addition, children are still young so they cannot fully perform the painting process like an artist.

Table 1. Results on the measures teachers use to help children approach Dong Ho paintings

Activity Group	Activity	Have organized		Never organized activities	
Observation	Observation of Dong Ho folk paintings	204/240	85%	36/240	15%
	Video clip about Dong Ho folk paintings	36/240	15%	204/240	85%
	Dong Ho folk painting artisans	108/240	45%	132/240	55%
Conversation		120/240	50%	120/240	50%
Practice	Children practice printing Dong Ho folk paintings from printing boards	24/240	10%	216/240	90%
	Children print Dong Ho paintings from other materials (printing from fingers, printing from bottle caps, printing from cotton swabs,...)	12/240	5%	228/240	95%
	Children color and draw Dong Ho folk paintings.	84/240	35%	156/240	65%
	Children create Dong Ho collages using various materials (natural materials, recycled materials).	12/240	5%	228/240	95%
	Children mold animals and objects found in Dong Ho paintings.	0	0%	240/240	100%
Take the children on a field trip	Visit art exhibitions	60/240	25%	204/240	85%
	Visit the art museum	0/240	0%	240/240	100%
	Visit artisans' traditional folk painting workshops	60/240	25%	180/240	75%

Survey results indicate that the use of Dong Ho folk paintings in teaching activities remains limited and lacks diversity. Although 85% of teachers use the method of observing paintings, only 15% use video clips, reflecting a lack of integration of information technology into teaching. 45% of teachers have allowed children to observe artisans making paintings, but only 25% have organized visits to craft villages, possibly due to the school's inability to invite artisans annually.

In terms of practice, drawing Dong Ho folk paintings is the most common activity, but 65% of teachers have not yet implemented it. Activities such as printing paintings using other materials or creating Dong Ho collages are rarely used, and no teachers have allowed children to mold animals from the paintings. Regarding field trips, 25% of teachers have organized small exhibitions, but none have arranged museum visits due to the long distance. Instead, 80% of teachers chose to visit craft villages where children could directly admire Dong Ho folk paintings.

- *Survey results show that most teachers believe that children are very interested in learning about Dong Ho folk paintings:* 85% of teachers believe that Dong Ho folk paintings help increase children's interest in learning thanks to the simple colors and details that suit children's figurative thinking. However, 15% of teachers believe that children aged 2-3 are less interested in paintings due to limited attention span and not understanding the content of the paintings. However, all teachers are clearly aware of the importance of using Dong Ho folk paintings in teaching to increase children's positivity. This shows that bringing Dong Ho folk paintings into preschool education is very necessary.

- *Survey results on preschool children's awareness level of the content and meaning of Dong Ho folk paintings.*

Based on the survey results on the level of awareness of preschool children about the content and meaning of Dong Ho folk paintings, the following observations can be drawn:

The survey results show that the level of awareness of preschool children about the content and meaning of Dong Ho folk paintings increases with age. At the age of 2-3, children's understanding is still very limited; 50% of children do not understand and 50% have little understanding of the meaning of the paintings, reflecting the incomplete development of perception and the ability to analyze images. At the age of 3-4, all children have only a little understanding, showing that although they have initial awareness, it is still not deep enough to grasp the meaning of the paintings. At the age of 4-5, the level of awareness is significantly improved, with 90% of children understanding the content and meaning of the paintings, only 10% of children have little understanding. Finally, at the age of 5-6, all children clearly understood the content and meaning of the paintings, showing that their cognitive, analytical and understanding abilities had fully developed, helping them to accurately grasp the traditional cultural messages in the paintings. In general, the survey results showed a clear relationship between age and children's level of understanding of Dong Ho folk paintings. Children's cognitive ability of the content and meaning of the paintings also improved significantly, especially clearly in groups over 4 years old. This also suggests that education about Dong Ho folk paintings should be carried out in an age-appropriate manner to ensure optimal effectiveness and help teachers better implement activities in the classroom, children will be introduced to content appropriate to their abilities.

Table 2. The appropriate level of organizing for children to become familiar with Dong Ho folk paintings

Activities	Suitable	Less suitable	Not suitable
Creative activities	168/240 70%	48/240 20%	24/240 10%
Activities for children to get familiar with their surroundings	192/240 80%	12/240 5%	36/240 15%
Activities to get acquainted with literary works	84/240 35%	120/240 50%	36/240 15%
Activities to form mathematical symbols	34/240 14%	156/240 65%	84/240 35%
Activities with Music	120/240 50%	84/240 35%	36/240 15%
Corner activities	192/240 80%	12/240 5%	36/240 15%
Outdoor activities	180/240 75%	72/240 30%	12/240 5%
Visiting and picnic activities	204/240 85%	0	36/240 15%

Most activities were evaluated as suitable for introducing children to Dong Ho folk paintings. In particular, field trips and excursions were considered appropriate by 85% of teachers, yet they have not been widely implemented in preschools, despite teachers and schools recognizing the benefits of such activities. The activity of forming mathematical concepts was deemed suitable by only 14% of surveyed teachers, with 65% considering it less suitable and 35% finding it inappropriate. Next, the activity corner and activities to familiarize children with their surroundings were considered fairly suitable, with 80% of teachers surveyed agreeing. Additionally, 75% of teachers found the integration of Dong Ho folk paintings into outdoor activities appropriate. Art activities, activity corners, and activities to familiarize children with their surroundings were all highly rated in terms of suitability, with corresponding rates of 70%, 80%, and 80%. However, the activity of introducing children to literary works had a lower suitability rating, with only 35% of teachers considering it appropriate.

Although teachers have a good awareness of integrating Dong Ho folk paintings into teaching, in reality, the inclusion of paintings into the curriculum has not been implemented uniformly and mainly comes from the personal enthusiasm of teachers. To promote educational values and preserve the beauty of national culture, there needs to be a change in the way of thinking and the method of integrating Dong Ho paintings into activities at preschools, making the curriculum richer and more diverse.

From the results, some preschools have introduced Dong Ho folk paintings to children, especially kindergartens in Bac Ninh province - where Dong Ho folk paintings were created. However, Dong Ho folk paintings have not really received proper attention. Although most teachers are aware of the importance and benefits that Dong Ho folk paintings bring to children. Because the paintings are not only close to children but also quite attractive because of the simple but attractive images. Letting children get acquainted with Dong Ho folk paintings helps them appreciate the beauty of their homeland's culture and also helps improve the results of their activities.

3.3. Proposing Some Measures To Educate Love For The Homeland For Preschool Children Through The Use Of Dong Ho Folk Paintings

Based on the current situation of using Dong Ho folk paintings in some kindergartens, it is necessary to choose paintings that are suitable for the age, have easy-to-understand content, bright colors and are close to daily life such as the paintings of *Mouse Wedding*, *Chicken Flock*, *Boy playing flute on buffalo back*, *Vinh Hoa - Phu Quy*, *Peacock*, *Carp*, *Rooster*, *Pig Eating Ray Leaves*. The goal is to help children easily recognize and remember the images and content of the paintings, thereby understanding and loving traditional values, thereby proposing some measures to integrate Dong Ho folk paintings into children's activities in kindergartens as follows:

- *Measure 1: Enhance children's observation of Dong Ho folk paintings.* Teachers create opportunities for children to perceive Dong Ho folk paintings (observe and self-analyze the characteristics of the paintings such as images in the paintings, colors, content, and meaning of the paintings), choosing paintings that are suitable for children's cognitive characteristics. For example, children in kindergarten and preschool can be introduced to the paintings of Pigs, Chickens, Pigs eating Ray leaves, Roosters, Carps, Vinh Hoa (a chubby boy holding a rooster) - Phu Quy (a healthy, chubby baby holding a duck).

Organize and integrate observation of Dong Ho paintings in activities in a natural way, such as: creative activities, activities to explore the surrounding environment, play activities, etc. to help children effectively comment on the images, colors, and content of the paintings.

- *Measure 2: Enhancing Children's Experience at Dong Ho Folk Painting Exhibition Sites.* To foster a passion and love for Dong Ho folk paintings in children, and to instill in them an appreciation for preserving the traditional beauty of their homeland, teachers should organize visits for children to exhibition sites. These visits can include meetings and exchanges with folk painting artisans and hands-on painting experiences at exhibition houses, markets, museums, etc. Examples of such places are: the Dong Ho Folk Painting Exhibition House of Distinguished Artisan Nguyen Dang Che in Bac Ninh, the Dong Ho Painting Market in Bac Ninh, the Luy Lau Folk Culture Preservation Area in Bac Ninh, and the Vietnam Museum of Ethnology in Hanoi, among others.

- *Measure 3: Flexibly Adjusting the Organization of Activities at School to Optimize the Use of Dong Ho Folk Paintings.* Teachers can integrate Dong Ho folk paintings into various activities, such as learning sessions, outdoor activities, playtime, and in-class learning centers. Example 1: Activity - Collage of *Flock of Chickens* Painting. *Purpose:* Children are organized into groups of 5 to 8 to enhance their teamwork skills, foster a love for Dong Ho folk paintings, and actively complete the group activity. Example 2: Activity - Drawing *the Dong Ho Pig* on the Schoolyard. *Purpose:* This activity gives children the opportunity to observe Dong Ho folk paintings, share their experiences with teachers and peers, learn to balance the composition in a painting, understand the meaning of the artwork, appreciate folk paintings, and cultivate a love for their beautiful homeland. Example 3: Teachers can take children outdoors and combine the activity of viewing Dong Ho paintings with traditional games or extracurricular activities. For instance, after viewing the *Flock of Chickens* painting, children can participate in a game to learn about animals on a farm.

- *Measure 4: Use Dong Ho folk paintings combined with stories. Teachers can tell children stories related to the content of Dong Ho folk paintings.* For example, when introducing the painting *Mouse Wedding*, teachers can tell about the Vietnamese wedding tradition, combined with values such as solidarity and love in the family. From there, help children connect the content of the paintings with the stories, thereby gaining a deeper understanding of the culture and customs of their homeland. When letting children learn about the painting the *Boy playing flute on buffalo back* teachers can talk about village life, love of nature and attachment to the country.

- *Measure 5: Organize exhibitions and decorate the space inside and outside the classroom with the products that children have created.* Teachers can organize a small exhibition in the classroom, where the products of Dong Ho folk paintings created by children are displayed. Children can introduce their works to their relatives, thereby feeling proud of their homeland culture. These products can also be used to decorate the space inside and outside the classroom, creating an aesthetic environment and helping children remember the characteristics and meanings of Dong Ho folk paintings, thereby loving their homeland more. The above measures help preschool children get closer to Dong Ho folk paintings through observation, practical experience, and flexible combination in learning and playing activities. This not only develops children's awareness and creative thinking, but also arouses their love for their homeland and national pride.

4. CONCLUSIONS

Dong Ho folk paintings are an art form with long-standing historical values, deeply reflecting the national soul and the values of the times. These works have a simple, easy-to-understand visual language, but still convey an impressive beauty, especially attractive to children, helping to stimulate creativity and develop their aesthetic ability.

Research shows that most preschool teachers are aware of the importance of Dong Ho folk paintings in education, but the application has not been scientifically organized and exploited to its full potential. Preschool age is an important stage for forming good virtues in children, and early exposure to traditional culture will help children develop good feelings and awareness of protecting important values. Through research and proposed measures for using Dong Ho folk paintings in preschool education, it can be affirmed that Dong Ho folk paintings are not only traditional art products but also effective educational tools. The familiar images, bright colors and rich content of Dong Ho folk paintings help foster children's love for their homeland and country, develop cognitive skills and awareness of national cultural values.

The conclusion shows that:

1. Preschool teachers are well aware of the importance of Dong Ho folk paintings but have not fully exploited their potential.
2. Preschool age is the best time to form good virtues through exposure to traditional culture.
3. Dong Ho paintings are very suitable for preschool children, helping to develop many new skills, creating a solid foundation for entering primary school.

With the great role and positive effects of Dong Ho folk paintings, bringing this art form into preschool activities is a potential direction, contributing to the comprehensive education of the young generation, while preserving and promoting national cultural identity.

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SEMANTIC EVOLUTION IN U.S. AIR FORCE TERMINOLOGY: A CORPUS-BASED ANALYSIS

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ABSTRACT

This study investigates the semantic evolution of U.S. Air Force terminology from 1950 to 2020, employing a corpus-based analysis of 50 key terms. The research examines changes in usage patterns, semantic scope, lexical relationships, and semantic depth. Findings reveal significant shifts driven by technological advancements, operational changes, and organizational transformations. Most terms showed increased frequency and broadened semantic scope, reflecting the growing complexity of modern warfare. Notable trends include the emergence of cyber-related terminology, the decline of traditional combat terms, and the transfer of military concepts to civilian domains. The study highlights the dynamic nature of military language and its responsiveness to evolving operational realities. These linguistic changes mirror broader shifts in military thinking, from industrial-age to information-age warfare concepts. The research contributes to understanding language evolution in specialized domains and has implications for ESP teaching in the military context.

Keywords: Semantic evolution, military terminology, corpus linguistics, ESP, U.S. Air Force

1. INTRODUCTION

Since its establishment in 1947, the United States Air Force (USAF) has experienced significant technological, strategy, and organizational structure changes. These changes have profoundly influenced the specialized language used within the service (Bowyer, 2007). Understanding these semantic changes is essential for effective communication and operational efficiency in the military and related sectors.

The dynamic nature of USAF terminology presents unique challenges and opportunities for linguists, educators, and military personnel involved in English for Specific Purposes (ESP) programs. ESP, focusing on the specific linguistic needs of learners in particular professional contexts, plays a crucial role in preparing military personnel and international partners for effective communication in aviation and other military settings (Hutchinson & Waters, 1987). Given the constant evolution of terminology, ESP programs must adapt to maintain relevance and effectiveness.

This research investigates the semantic changes in U.S. Air Force terminology over several decades. By understanding the patterns and drivers of semantic evolution in the Air Force lexicon, educators can develop more effective strategies for teaching specialized language skills to military personnel, aviation professionals, and students preparing for careers in these fields (Dudley-Evans & St John, 1998).

The objectives of this study are: first, to identify and analyze significant semantic changes in U.S. Air Force terminology from the mid-20th century to the present day; second, to examine the factors contributing to these semantic shifts.

2. LITERATURE REVIEW

Several studies have investigated semantic change within military contexts, focusing on how technological advancements and historical events influence military language and its interaction with civilian discourse. Building on this foundation, Bowyer (2007) traced the evolution of military aviation terminology, illustrating how geopolitical shifts, such as the Cold War and subsequent conflicts, have shaped Air Force lexicons. This historical perspective emphasizes the driving forces behind semantic shifts in military jargon.

Furthermore, Flusberg & cs. (2018) conducted a corpus-based analysis of metaphor usage in military English, revealing how conceptual metaphors influence military discourse and reflect underlying ideologies. Their findings highlight metaphorical extensions in terms like “drone” and “wingman,” showcasing their broader cultural and operational implications.

Additionally, Mahnken (2008) explored the nexus between technological innovation and American warfare, demonstrating how advancements in military technology drive the evolution of specialized terms, such as “avionics” and “stealth.” This research aligns with broader trends indicating the increasing technical complexity embedded in military language.

Similarly, Chen & cs. (2022) provided a quantitative examination of the rapid integration of cybersecurity terminology into military discourse, establishing a methodological framework for tracking the emergence and frequency of cyber-related terms. Their study underscores the dynamic nature of military lexicons in response to evolving threats and technological landscapes.

Moreover, Algeo (1993) discussed the broader societal impact of wars and conflicts on language evolution, highlighting how military terminology often introduces new terms and alters existing meanings in civilian contexts. This interaction underscores the fluid boundaries between military and civilian terminologies.

Lastly, Der Derian (2001) introduced the concept of the “military-industrial-media-entertainment network,” elucidating the intertwined relationships between military, industrial, and civilian technological sectors. This framework illustrates the domain transfer of terms like “logistics” and “agile,” reflecting the blurred boundaries between military and civilian linguistic domains.

Collectively, these studies provide a comprehensive framework for understanding the semantic evolution of military terminology. They highlight the pivotal roles of historical events, technological advancements, and military-civilian interactions in shaping and adapting military lexicons.

3. THEORETICAL BACKGROUND

3.1. Semantic Change Theory

Semantic change, the process of evolving word meanings, is fundamental to understanding language dynamics, especially in specialized fields. Traugott and Dasher (2001) emphasize that

language adapts through processes of generalization and specialization, reflecting communicative needs. This framework is crucial for understanding how usage patterns in military lexicons, particularly in Air Force terminology, adapt in response to technological and operational shifts. Corpus-based studies, drawing on usage-based theories (Sinclair, 1991), offer a quantitative approach to tracking these shifts, providing insights into the evolving usage patterns of military terms.

Ullmann's (1962) typology of semantic change identifies broadening, narrowing, amelioration, pejoration, and metaphorical extension as key processes. In military terminology, these processes shape the semantic scope of terms, as demonstrated in the broadening of "stealth" from aircraft-specific contexts to broader applications involving ships, missiles, and cyber warfare. This aligns with the prototype theory, which examines how meanings evolve across historical and technological contexts.

Additionally, Lakoff and Johnson's (1980) Conceptual Metaphor Theory provides a framework for understanding how metaphorical extensions influence military and civilian discourse. The metaphorical use of terms like "drone" illustrates how lexical relationships and collocations evolve, reflecting broader societal trends and domain transfers. These metaphorical shifts, examined through Frame Semantics (Fillmore, 1976), reveal how military terminology can exert influence beyond its original context, reshaping civilian language and professional fields such as software development.

3.2. Language Change in Specialized Domains

The complex adaptive systems approach to language change, articulated by Beckner et al. (2009), highlights the interconnectedness of linguistic, technological, and doctrinal developments. This approach is particularly relevant for examining semantic depth, where terms like "avionics" have evolved from basic flight instruments to advanced systems integrating AI and autonomous capabilities. The polysemy and semantic networks theory further support this analysis, explaining how terms develop multiple, interconnected meanings over time in response to evolving military technologies and strategies.

In military linguistics, Footitt and Kelly (2012) argue that the language of war reflects not only conflict but also how wars are fought and understood. This underscores the importance of studying changes in semantic depth, which can reveal shifts in conceptual complexity and sentiment. The nuanced evolution of terms like "wingman," now used figuratively in civilian contexts, further supports Conceptual Metaphor Theory's role in highlighting these broader societal impacts.

Despite expanding research on semantic change in military terminology, several significant gaps persist. There is a notable shortage of comprehensive, longitudinal studies that track the semantic evolution of military terminology over extended periods, particularly concerning the U.S. Air Force. Additionally, few studies have utilized large-scale corpus analysis to quantify these semantic changes within military lexicons. Most studies have focused on isolated aspects rather than providing a holistic view. This gap calls for examining semantic change across multiple dimensions, such as frequency, context, and collocation, offering a more thorough understanding of lexical evolution.

These theoretical frameworks, rooted in semantic change, lexical relationships, and semantic depth, inform the analysis in this study. By addressing the existing gaps, this study offers a comprehensive, corpus-based examination of the semantic evolution of U.S. Air Force terminology over 70 years. This approach contributes to linguistic theory and ESP practice in military contexts, mainly by studying how military language evolves in response to technological and operational shifts.

4. METHODOLOGY

4.1. Data Collection

This study employed a mixed-methods approach to investigate semantic changes in U.S. Air Force terminology, integrating corpus analysis with qualitative research techniques, as Dörnyei (2007) suggested. The data collection process was structured around two main components.

First, a specialized corpus of U.S. Air Force documents (sources listed in Appendix 1) was compiled from 1947 to the present day, adhering to the principles outlined by Biber et al. (1998). This comprehensive corpus encompassed a variety of sources, including official Air Force manuals and regulations, strategic documents and policy papers, training materials, technical publications, and public speeches and press releases by Air Force leadership. The corpus was analyzed using AntConc, a freeware corpus toolkit for concordance and text analysis. AntConc was used to generate word frequency lists, analyze keyword-in-context (KWIC) concordances, and examine collocations, providing quantitative data on term usage and contextual patterns over time.

Second, historical analysis was undertaken through archival research to trace the evolution of key terms and concepts within Air Force doctrine and operations. This involved examining a range of historical documents, memoirs, and scholarly works on Air Force history, following the methodologies outlined by Bowen (2009). This dual approach of corpus compilation and historical analysis provided a robust framework for exploring the semantic evolution of Air Force terminology over time.

4.2. Data Analysis

The collected data underwent a rigorous analysis combining quantitative and qualitative methods, guided by a comprehensive theoretical framework addressing four key dimensions of semantic change.

- Usage Patterns: Computational linguistics tools, informed by corpus linguistics principles and usage-based theories, identified frequency patterns and contextual shifts in Air Force terminology usage over time (Sinclair, 1991).

- Semantic Scope: Drawing on theories of semantic change (Traugott & Dasher, 2001) and prototype theory, changes in definitions, semantic fields, and specificity of terms were examined to track how meanings evolved across historical contexts.

- Lexical Relationships: Analysis employed structuralist approaches and Frame Semantics (Fillmore, 1976) to explore collocational patterns, domain transfers, neologism formation, and syntactic structures, revealing how terms interacted within the Air Force lexicon.

- Semantic Depth: Integrating theories of polysemy and semantic networks with Conceptual Metaphor Theory (Lakoff & Johnson, 1980), this aspect uncovered metaphorical extensions, sentiment shifts, and changes in conceptual complexity, providing insights into deeper semantic transformations.

The analytical process was multifaceted and rigorous, beginning with Corpus Analysis. Computational tools meticulously scrutinized Air Force documents, pinpointing frequency patterns, collocations, and semantic shifts within technological, operational, and organizational terms. Diachronic Comparison was pivotal, tracing these terms across different periods to discern broadening, narrowing, and metaphorical extension patterns, providing crucial insights into long-term semantic evolution. Comparative Analysis complemented this by juxtaposing findings with general English corpora, illuminating unique semantic shifts specific to military aviation terminology, distinct from broader linguistic trends. Qualitative Assessment added depth, supplementing quantitative measures with nuanced interpretations of contextual and conceptual changes in term usage and employing theoretical frameworks enriched understanding, fostering a comprehensive exploration of the dynamic evolution of military lexicons.

This integrated approach provided a comprehensive view of semantic evolution in U.S. Air Force terminology, capturing specific linguistic changes and broader patterns across usage, scope, relationships, and depth dimensions.

4.3. Findings and discussion

A corpus-based analysis of 50 U.S. Air Force terms from 1950 to 2020 (as in Appendix 2) reveals significant semantic evolution across four main categories, providing a comprehensive overview of changes in military terminology over seven decades.

4.4. Usage Patterns

The analysis reveals significant shifts in U.S. Air Force terminology usage patterns over the past seven decades. Using computational linguistics tools and corpus linguistics principles (Sinclair, 1991), frequency patterns and contextual shifts in terminology were identified, with nearly seventy percent of the analyzed terms showing a marked increase in frequency. For example, the term “drone” exhibited an exponential rise in usage, growing from 23 occurrences in 1950 to 1,245 by 2010. Similarly, “cybersecurity” surged from rare mentions in the 1990s to over 500 occurrences in military publications by 2020.

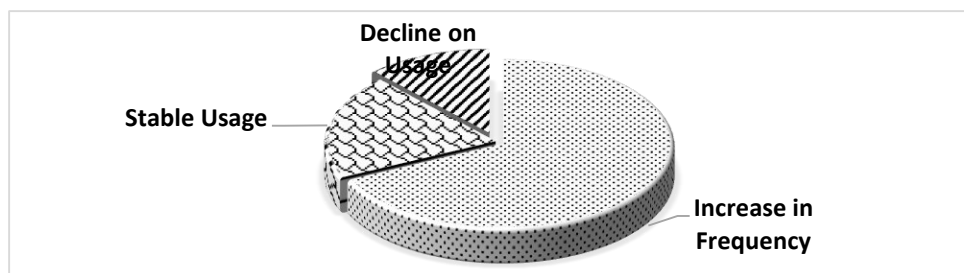


Figure 1. Changes in usage patterns of military terms

The increased frequency of terms related to advanced technology, such as “drone” and “cybersecurity,” corresponds with the Revolution in Military Affairs (RMA) concept proposed by Krepinevich (2002), indicating a shift toward network-centric warfare and information dominance in line with Alberts et al.’s (1999) network-centric warfare theory. The exponential growth in “drone” usage quantifiably underscores the rising importance of unmanned systems in modern warfare, highlighting significant contextual shifts as the terms evolve with technological advancements.

In contrast, 20% of terms, such as “sortie” and “theatre,” maintained consistent usage, suggesting their enduring relevance in military discourse. Meanwhile, 12% of terms, including “dogfight,” saw a sharp decline in usage, from 85 occurrences in 1960 to just 12 in 2020. This decline reflects a reduced emphasis on close-range aerial combat, aligning with van Creveld’s (1991) prediction of a shift from conventional to asymmetric warfare.

Moreover, new terms, such as “cybersecurity” in 1994 and “space force” in 2019, mirror the military’s adaptation to evolving operational domains. This trend supports Arquilla and Ronfeldt’s (1997) concept of the role of information strategy in modern warfare, emphasizing the military’s swift response to cyber threats and the growing significance of digital defense strategies.

The findings support Bowyer’s (2007) work on evolving military aviation terminology, offering quantitative evidence of how geopolitical changes and technological innovations shape the Air Force lexicon. The rise of terms like “cybersecurity” also supports Chen et al.’s (2022) insights into the dynamic nature of military lexicons, showing how they continually evolve in response to emerging threats.

4.5. Semantic Scope

The semantic scope of terms saw significant expansion, with nearly eighty percent of the terms broadening their context of use. For instance, “stealth” was initially used solely for aircraft in the 1970s, as in *“The stealth bomber can evade radar detection”*. It expanded to include ships, missiles, and cyber operations by 2020, e.g., *“Stealth technology is now applied to cyber operations to conceal digital footprints”* (Source: Air Force Doctrine Library Website). This broadening reflects the military’s ongoing adaptation to technological advancements and the shifting nature of warfare. The evolution of “stealth” aligns with Ullmann’s (1962) concept of semantic broadening, as well as Cebrowski and Garstka’s (1998) argument that network-centric warfare signals a fundamental shift in military affairs.

This expansion of semantic scope indicates a broadening of military concepts and capabilities, reflecting the increasing complexity of modern warfare. The evolution of “air superiority” to include electronic warfare and space control reflects the multi-domain operations concept articulated by Perkins and Holmes (2018), aligning with the theory of Fourth Generation Warfare (Lind et al., 1989), which emphasizes the blurring of lines between different aspects of warfare.

Similarly, about three-quarters of the terms broadened their definitions; the term “drone” expanded from an unmanned target for practice to encompass a wide range of unmanned vehicles for reconnaissance, combat, and civilian use, supporting Hoffman’s (2007) concept of hybrid

warfare, where diverse modes of warfare converge. Additionally, 84% of terms expanded their semantic fields, such as “spectrum”, as used in the 1960s, like “*The electromagnetic spectrum is crucial for communications*”, broadening from the electromagnetic spectrum to include “full-spectrum warfare,” indicates a more holistic approach to military operations, like in “*Full-spectrum operations encompass conventional, irregular, and hybrid warfare*” (Source: RAND Corporation Reports), aligning with Smith’s (2006) comprehensive approach to warfare.

These changes in semantic scope also build upon Mahnken’s (2008) work, highlighting how technological innovation drives the evolution of specialized military terminology. The expansion of terms like “stealth” and “air superiority” underscores the role of technology in reshaping how the military conceptualizes and communicates its operations. Additionally, these findings support Traugott and Dasher’s (2001) theory of language evolution through generalization and specialization, illustrating how terminology adapts to meet the ever-changing communicative needs of a complex and evolving military landscape.

4.6. Lexical Relationships

The corpus analysis reveals significant changes in the lexical relationships of military terms. Ninety percent of the terms demonstrated notable collocation shifts. For example, the collocational patterns of “stealth” transitioned from associating predominantly with “bomber” and “fighter” in the 1980s to “technology,” “features,” and “capabilities” by 2010. This shift suggests a more holistic approach to military technology, aligning with systems thinking in military strategy (Owens, 1995).

Moreover, 50% of the terms showed significant transfer to or influence on civilian domains. “Logistics,” once primarily a military term, became widely used in business and supply chain management, supporting the concept of spin-off effects in military-industrial complex theories (Melman, 1974), as illustrated in the following examples:

- 1950s: “*Military logistics ensure supplies reach the front lines*”.
- 2020s: “*Just-in-time logistics revolutionized both military and business supply chains*”.

Source: RAND Corporation Reports.

The adoption of “agile” from military contexts to software development and project management illustrates the bidirectional influence between military and civilian sectors, highlighting the increasing interconnectedness of these spheres, as described by Der Derian’s (2001) notion of the “military-industrial-media-entertainment network.” For example:

- 1960s: “*Agile fighter aircraft can outmaneuver slower opponents*.”
- 2020s: “*Agile development methodologies improve our software engineering processes*.”

Source: Air & Space Power Journal.

These lexical changes extend Algeo’s (1993) work on the societal impact of military terminology and highlight the bidirectional influence between military and civilian sectors.

Furthermore, the widespread adoption of military-derived terms such as “agile” and “logistics” reflects broader societal trends toward integrating advanced technologies across various domains, reinforcing Der Derian’s (2001) idea of interconnectivity between military and civilian sectors. This also aligns with Beckner et al.’s (2009) complex adaptive systems approach to language change, which posits that language evolves in response to adaptive needs within complex systems.

The observed lexical relationship changes also support Flusberg et al.’s (2018) analysis of metaphor usage in military English, illustrating how conceptual metaphors shape military discourse and broader cultural contexts. As military terms influence civilian domains and vice versa, the cross-pollination of language between these spheres reflects the increasing complexity of modern technological and operational environments.

4.7. Semantic Depth

The corpus analysis reveals diverse changes in the semantic depth of military terms, as illustrated in Figure 2. Sixty percent of the terms became more complex or nuanced. For instance, “avionics” evolved from basic flight instruments to complex integrated systems, including AI and autonomous flight capabilities. This evolution aligns with Mahnken’s (2008) analysis of the relationship between technology and American warfare.

- 1960s: “Avionics systems control basic flight instruments.”
- 2020s: “Advanced avionics integrate AI for autonomous flight capabilities and decision support.”

Source: Defense Technical Information Center (DTIC) Website.

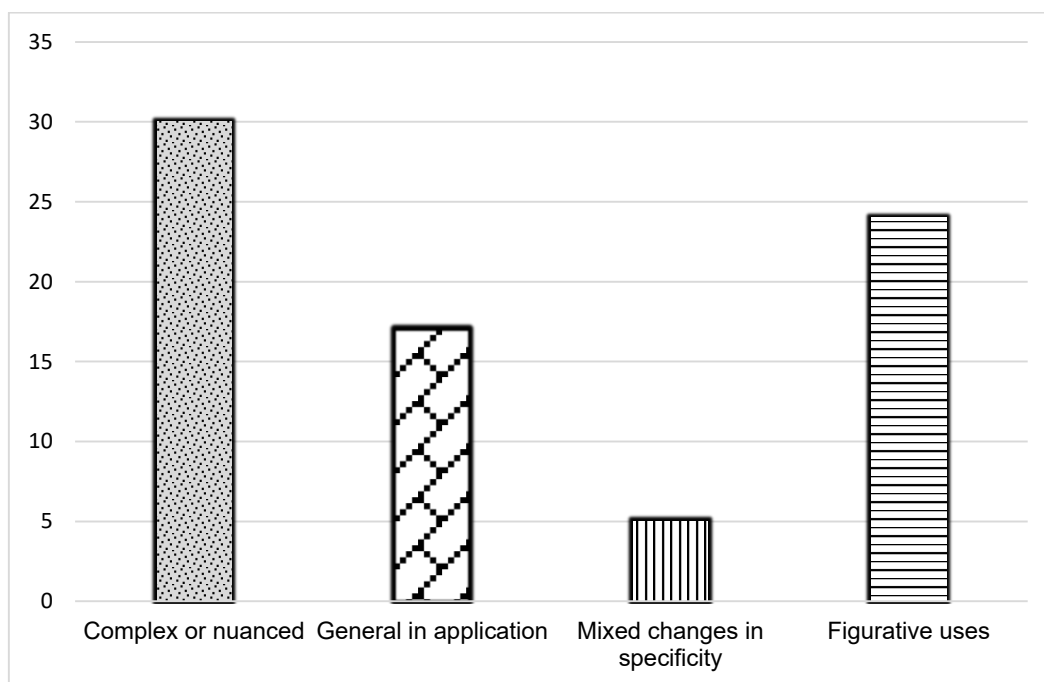


Figure 2. Changes in the semantic depth of military terms

The development of figurative uses for nearly 50% of the terms, such as “drone” and “wingman,” supports Lakoff and Johnson’s (1980) Conceptual Metaphor Theory. This demonstrates how military concepts shape broader societal discourse. The extension of “wingman” beyond its aviation context to represent a supportive partner in various social and professional situations highlights the intricate civil-military relationships described by Huntington (1957).

Meanwhile, about a third of the terms became more general in application, while 10% exhibited mixed changes in specificity. These changes in semantic depth illustrate the dynamic nature of semantic evolution, supporting Traugott and Dasher’s (2001) theory of semantic change. This theory suggests that language evolves through generalization and specialization in response to communicative needs.

These changes in semantic depth provide linguistic evidence for the increasing complexity of military affairs and their influence on broader societal discourse. The evolution of military terminology reflects changes in warfare and signifies a shift in how warfare is conceptualized and communicated. It supports that warfare has fundamentally transformed in the post-industrial age, necessitating new conceptual frameworks and linguistic tools to understand and describe it.

In summary, these findings provide linguistic evidence for the growing complexity of military discourse and its integration into broader societal language. By demonstrating how military terminology evolves in response to technological, operational, and organizational changes, this analysis offers valuable insights for both linguistic research and ESP teaching in military contexts.

5. IMPLICATIONS

The semantic evolution of U.S. Air Force terminology observed in this study has significant implications for teaching English for Specific Purposes (ESP) in military contexts. These findings underscore the need for a dynamic and adaptive approach to ESP instruction that reflects the rapidly changing nature of military language. To begin with, the substantial changes in usage patterns, semantic scope, and lexical relationships of military terms over time suggest that ESP programs should adopt a diachronic approach to terminology instruction. This approach, as advocated by Traugott and Dasher (2001), involves teaching current terminology and the historical context and evolution of terms. For instance, instructors could trace the evolution of terms like “drone” or “stealth” to illustrate how technological advancements drive linguistic change in military contexts.

Moreover, the broadening of semantic scope observed in many terms (e.g., “stealth” expanding from aircraft to cyber operations) highlights the need to teach semantic flexibility. ESP learners should be equipped with strategies to understand and adapt to shifting meanings, aligning with Lakoff and Johnson’s (1980) emphasis on the importance of conceptual understanding in language learning. In addition, the effectiveness of corpus-based analysis in this study suggests that incorporating corpus linguistics techniques into ESP teaching could be beneficial. Biber et al. (1998) proposed that authentic language data can enhance learners’ understanding of real-world

language use. Consequently, ESP programs could utilize military corpora to illustrate current usage patterns and collocations of specialized terms.

Furthermore, the observed transfer of military terms to civilian domains (e.g., “logistics” in business contexts) indicates the need for ESP programs to address cross-domain language transfer. This aligns with Der Derian’s (2001) concept of the “military-industrial-media-entertainment network,” suggesting that ESP instruction should prepare learners for the broader applicability of military language. At the same time, the rapid integration of cyber-related terminology into military discourse, as noted by Chen et al. (2022), emphasizes the need for ESP programs to stay current with technological advancements. This may involve regular curriculum updates and professional development for instructors to ensure they can effectively teach emerging terminology.

Lastly, as described by Perkins and Holmes (2018), the evolution of terms to encompass multi-domain operations suggests that ESP instruction should foster a holistic understanding of military concepts across air, land, sea, space, and cyber domains. This multi-domain approach would enable learners to grasp the interconnected nature of modern military operations and communication.

6. CONCLUSION

This study has demonstrated that U.S. Air Force terminology undergoes significant and ongoing semantic changes driven by technological advancements, operational evolution, and organizational shifts. These changes have profound implications for teaching English for Specific Purposes (ESP) in military contexts. The findings underscore the necessity for ESP programs to adopt a dynamic, diachronic approach to terminology instruction, equipping learners with the skills to navigate and adapt to evolving linguistic landscapes. This involves teaching current terminology and fostering an understanding of the processes and factors that drive semantic change in military contexts.

However, this study has some limitations. The focus on a relatively small sample of 50 terms may not fully capture the breadth of semantic evolution within the extensive lexicon of the U.S. Air Force. Additionally, insights gained through expert interviews could enhance the understanding of practical implications for teaching evolving terminology. Conducting semi-structured interviews with Vietnamese military personnel, language instructors, and ESP educators specializing in military English would provide valuable perspectives.

Future research directions might include longitudinal studies of semantic change in specific subfields of military operations, cross-linguistic comparisons of military terminology, and investigations into the impact of multimodal analysis on the comprehension and retention of specialized military language. As military organizations, including those in Vietnam, continue to evolve in response to new challenges and opportunities, so must the language used to describe their operations and technologies. ESP educators in the Vietnamese military context play a

crucial role in ensuring that personnel can navigate this linguistic complexity, facilitating clear communication and operational effectiveness.

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APPENDICES

Appendix 1. Key Resources for U.S. Air Force Terminology Research

1. Air & Space Power Journal (Print Edition)
2. Air Force Doctrine Library Website: <https://www.doctrine.af.mil/>
3. Air University Press Website: <https://www.airuniversity.af.edu/AUPress/>
4. Defense Technical Information Center (DTIC) Website: <https://discover.dtic.mil/>
5. Historical Resources at the Air Force Historical Support Division Website: <https://discover.dtic.mil/>
6. Public Papers of the Presidents of the United States Website: <https://www.govinfo.gov/app/collection/PPP>
7. RAND Corporation Reports (Print Versions).

Appendix 2. List of 50 Analyzed Terms

1. Agile
2. Air superiority
3. Airman
4. Artificial intelligence
5. Asymmetric warfare
6. Autonomous
7. Avionics
8. AWACS (Airborne Warning and Control System)
9. Bandwidth
10. Cockpit
11. Command and control
12. Cyber domain
13. Cybersecurity
14. Deterrence
15. Dogfight
16. Drone
17. Electronic warfare
18. Engagement
19. Expeditionary
20. Fifth-generation
21. Force multiplier
22. Full-spectrum dominance
23. Fusion
24. Hypersonic
25. ISR (Intelligence, Surveillance, Reconnaissance)
26. Joint operations
27. Kinetic
28. Logistics
29. Missile
30. Multi-domain
31. Net-centric warfare
32. Network-centric
33. Non-kinetic
34. Payload
35. Platform
36. Precision-guided
37. Radar
38. Remotely piloted
39. Resilience
40. Smart weapons
41. Sortie
42. Space Force
43. Spectrum
44. Squadron
45. Stealth
46. Stealth
47. Swarm
48. Theatre
49. Total Force
50. Wingman

TEACHING MATHEMATICS THROUGH VIRTUAL REALITY TECHNOLOGY EXPERIENCE AS A LEARNING MOTIVATION FOR STUDENTS IN VIETNAM

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ABSTRACT

This paper presents the findings of using virtual reality (VR) technology as a supporting tool to enhance the effectiveness of mathematics teaching and increase students' motivation to learn in Vietnam. In the context of modern education, integrating advanced technology into the teaching process not only improves the quality of education but also provides learners with rich and vivid learning experiences. The study was conducted on a group of secondary school students in Vietnam, with mathematics lessons specially designed to exploit and effectively utilize the features of VR technology. The research results show that using VR technology in teaching mathematics has brought significant benefits. Students participating in lessons with integrated VR experiences showed more positivity, enthusiasm, high concentration, and stronger learning motivation than students studying in traditional classrooms. In addition, experiencing mathematics through VR helped students gain a deeper understanding of abstract, complex mathematical concepts, thereby improving problem-solving skills and enhancing logical thinking. The article also discusses the challenges and limitations of VR technology in teaching in Vietnam, such as high equipment costs, technical requirements for teachers, and necessary preparation to develop appropriate lessons. However, with the positive results achieved, the article concludes that VR technology has great potential to improve the effectiveness of mathematics teaching and suggests further research directions to optimize the use of this technology in education in general and mathematics teaching in particular.

Keywords: Virtual reality (vr); mathematics teaching; learning motivation; middle school students; education in Vietnam.

1. INTRODUCTION

Integrating technology in education has revolutionized the teaching and learning process, making education more engaging, interactive, and effective. With rapid technological advancements, educators constantly look for innovative ways to enhance the learning experience and improve student learning outcomes. VR is a new technological advancement that provides rich and interactive learning environments that can transform traditional educational methods.

VR takes us into a simulated experience space where a model can be set up that is similar, completely or partially similar, or completely different from the real world. Computer technology is used to create a simulated environment that is suitable for the purpose of experience that immerses users in a virtual world, it often engages multiple senses, including sight, sound, and touch. In an educational context, VR has the ability to offer students hands-on learning experiences that are challenging or even impossible to achieve in traditional educational settings. Mathematics,

which is often perceived as a challenging subject by students, often involves abstract concepts and symbolic representations, which can sometimes be difficult for students to grasp. On the other hand, VR can make these abstract concepts more concrete and understandable. By allowing students to interact with mathematical models in three-dimensional space, VR can enhance their spatial reasoning and conceptual understanding. Our study provides survey results on students' learning motivation when using VR in mathematics education in Vietnam. We focused on monitoring changes in learning motivation of middle school students through mathematics lessons using VR. The results of the study will answer the following research questions:

1. How does incorporating VR into mathematics instruction impact student motivation and engagement?
2. To what extent does VR improve students' understanding of complex mathematical concepts?
3. What are the challenges and limitations of implementing VR in the classroom and how can they be addressed?

By answering the above research questions we aim to demonstrate the potential of VR as an innovative tool in mathematics education and lay the foundation for further research and applications in this field.

The study was conducted on a group of secondary school students, and the representativeness of the research sample is not high, the conclusions of the study are valid for a group of students but cannot be generalized to all students in Vietnam, this is considered a limitation of this study.

2. LITERATURE REVIEW

VR in education has attracted considerable attention in recent years. As VR technology becomes more accessible and sophisticated, its potential to transform traditional educational activities is increasingly recognized. In this section, we focus on examining the potential applications of VR in mathematics education through recent scientific publications on this issue.

Numerous studies have highlighted VR's positive effects on learning outcomes across diverse subjects. Merchant *et al.* (2014), through a meta-analysis of VR-based instruction, revealed that VR can substantially enhance students' learning experiences by offering immersive, interactive environments. Findings indicate that VR contributes to higher levels of student engagement, motivation, and knowledge retention when compared with conventional teaching approaches. Similarly, Hew and Cheung (2010) highlighted that VR's immersive nature makes learning more engaging and enjoyable, which can lead to better educational outcomes.

The immersive experiences provided by VR enable learners to engage with content in ways that traditional teaching methods cannot facilitate. For instance, in subjects such as history or science, VR can transport students to different historical periods or simulate complex scientific experiments. In language learning, VR can create authentic language immersion environments that facilitate natural language acquisition (Lin & Lan, 2015). These capabilities of VR demonstrate its versatility and effectiveness in educational.

The application of VR in mathematics education is particularly promising due to the subject's abstract nature. Teaching abstract concepts through descriptions or simple visual drawings can be confusing or impossible for students to understand. VR can bridge this gap by providing concrete visualizations of mathematical concepts. For instance, Lee and Wong (2014) found that VR-based learning environments significantly improved students' spatial reasoning skills and their ability to understand geometric concepts.

Cai *et al.* (2020) conducted a study on the use of VR in teaching complex mathematical concepts such as calculus and linear algebra. The study reported that students who used VR-based tools showed a better understanding of these concepts compared to those who were taught using traditional methods. Students can interact with mathematical objects, observing their changes in real time, thereby helping students gain a deeper understanding of the knowledge.

Student motivation and engagement are critical factors in effective learning. VR has been shown to enhance both by providing an immersive and interactive learning experience. According to Makransky *et al.* (2019), VR can increase intrinsic motivation by making learning experiences more enjoyable and relevant to students' interests. Research has shown that students become more engaged and active when learning with VR compared to traditional lessons.

VR holds great potential in creating an engaging learning environment especially in mathematics lessons, where students often perceive the subject as difficult and uninteresting. By transforming abstract mathematical concepts into interactive and visually appealing experiences, VR can make learning mathematics more enjoyable and less intimidating. Thereby students' learning motivation is improved positively, which in turn can improve learning outcomes.

Despite the promising benefits of VR in education, several challenges and limitations need to be addressed. VR technology devices are often expensive, making widespread adoption difficult and challenging, especially in developing countries. According to Radu (2014), the cost of VR devices becomes a difficult barrier for schools, limiting their ability to implement VR-based learning solutions.

Technical challenges also pose a significant barrier. Teachers need to be trained to use VR technology effectively, and there may be a lack of technical support and resources to facilitate this training. Makransky and Lilleholt (2018) emphasized that teachers' attitudes towards technology and willingness to adopt new teaching methods play an important role in implementing the transformation and application of VR into lessons.

Additionally, developing curriculum-aligned VR content is a time-consuming and resource-intensive process. There is a need for collaboration between educators, curriculum developers, and VR content creators to ensure that VR learning experiences are pedagogically sound and aligned with educational standards.

The adoption of VR in education in Vietnam faces unique challenges. While the Vietnamese government has made significant efforts to modernize the education system, resource constraints and varying levels of access to technology remain significant barriers. Pham and Ho (2020) noted that while urban schools in Vietnam are more likely to have access to modern technology, rural schools often lack the necessary infrastructure and resources.

Moreover, there have not been many studies mentioning VR applications in Vietnamese education, especially in mathematics. Some empirical evidence on the effectiveness of VR in enhancing students' learning motivation in mathematics in Vietnam is presented in this study. Here we would like to add a scientific document on educational technology and give practical recommendations for educators and policy makers in Vietnam.

3. METHODOLOGY

3.1. Participants

The participants of the study were middle school students from three different schools in urban and rural areas of Vietnam. A total of 120 students (60 boys and 60 girls) participants aged 12 to 14 years old took part in the study. The schools were selected based on their willingness to integrate VR technology in to their curriculum, their availability of necessary resources.

3.2. Materials and Tools

The VR content used in the study was specifically designed to align with the Vietnamese mathematics curriculum for middle school students. The VR lessons focused on complex mathematical concepts such as geometry, algebra. The VR equipment included Oculus Rift headsets and compatible computers with sufficient processing power to run the VR applications smoothly.

3.3. Procedure

The study was conducted over a period of 8 weeks, with students participating in VR-based mathematics lessons twice a week. The procedure involved the following steps:

- Pre-Test: Before the intervention, all participants completed a pre - test to asses their baseline knowledge of the targeted mathematic concepts and their initial levels of motivation towards learning mathematics.

- VR Intervention: During the intervention period, students engaged in VR lessons designed to provide immersive and interactive experiences with mathematical concepts. The lessons included activities such as exploring 3D geometric shapes, visualizing algebraic equations in a spatial context, and manipulating calculus graphs.

- Observations and Interviews: Throughout the intervention, researchers conducted classroom observations to monitor student engagement and interaction with the VR content. In addition, semi-structured interviews were conducted on a group of students and teachers to collect and analyze qualitative data about their experiences and perceptions, and learning motivations regarding VR-enabled lessons.. The observations were conducted in three different classrooms, each using VR technology for teaching mathematics. Over a period of 6 weeks, 12 observation sessions were held, with each session lasting approximately 45 minutes. The aim was to examine student engagement, participation, and interaction with VR tools.

Criteria for Observation: Student engagement (e.g., attention span, participation in activities); Collaboration (e.g., teamwork, interaction with peers); Understanding of mathematical

concepts (e.g., problem-solving skills); Use of VR tools (e.g., how comfortably and effectively students interacted with the technology). The observations were recorded using a predefined rubric, with scores ranging from 1 (low engagement or participation) to 5 (high engagement or participation). Researchers took detailed notes during each session and reflected on patterns across multiple observations.

The interviews were semi-structured to allow flexibility while still focusing on key aspects related to student motivation and the use of VR in mathematics education. A total of 18 students (9 boys, 9 girls) and 6 teachers participated in the interviews, conducted one-on-one in a quiet setting within the school environment.

Interview Questions for Students:

How did you feel about using VR in your math lessons?

Did VR make learning mathematics easier or harder for you? Why?

Were you more motivated to participate in class when using VR technology? Can you explain why or why not?

How did the use of VR affect your understanding of the math concepts?

How would you compare learning with VR to traditional learning methods?

Interview Questions for Teachers:

What were your initial thoughts on integrating VR into your math lessons?

Did you notice any changes in student engagement or motivation after introducing VR? If so, can you describe them?

What challenges did you face while using VR technology in the classroom?

How do you feel VR impacted students' understanding of math concepts?

Would you continue to use VR in your teaching? Why or why not?

The interview data were transcribed and analyzed using thematic coding. This allowed the researchers to identify recurring themes and unique insights regarding motivation and the learning process.

- Post-Test: At the conclusion of the intervention, all participants completed a post-test identical to the pre-test, aimed at assessing any changes in knowledge and motivation. The results were then compared to determine the effectiveness of the VR lessons.

- Follow-Up Survey: A follow-up survey was administered to gather feedback from students and teachers on the overall VR learning experience, including any technical challenges and suggestions for improvement.

3.4. Data Gathering and Evaluation

Data collection included both quantitative and qualitative approaches:

- Quantitative Data: Pre-test and post-test scores were statistically analyzed to assess VR's impact on students' learning outcomes. Descriptive statistics, t-tests, and ANOVA were applied to compare scores and identify significant differences.

- Qualitative Data: The qualitative data from observations, interviews, and follow-up surveys were analyzed thematically. A thematic analysis was conducted to uncover common themes and patterns within the data, offering insights into both students' and teachers' experiences with VR in mathematics education.

4. RESULTS AND DISCUSSION

4.1. Quantitative Results

Pre-Test and Post-Test Scores

The quantitative analysis focused on the comparison of pre-test and post-test scores to assess the impact of VR on students' learning outcomes in mathematics. Paired t-tests were used to analyze pre-test and post-test scores, assessing the significance of any observed differences.

- Pre-Test Scores : The average pre-test score for the 120 students was 52.3%, indicating a moderate baseline knowledge of the targeted mathematical concepts.

- Post-Test Scores: After the 12-week VR intervention, the average post-test score increased to 76.8%, demonstrating a significant improvement in students' understanding of the mathematical concept ($t(119) = 14.56, P < 0.001$).

Table 1. Analysis of Changes in Test Scores and Motivation Before and After Using VR Technology

Results	Pre-Intervention (Pre-test)	Post-Intervention (Post-test)	Change	Standard Deviation (SD)	Effect Size	p-value
Average Score (Mean)	52.3%	76.8%	+24.5%	12.4%	1.94	< 0.001
Average Motivation Score	3.2 / 5	4.1 / 5	+0.9	0.65	1.38	< 0.001

In this table now includes the standard deviation (SD) and effect size (Cohen's d), demonstrating that the changes in test scores and motivation are both substantial and statistically significant. The large effect sizes ($d > 1$) suggest a strong impact of VR on both learning outcomes and student motivation.

Motivation Levels

Students' motivation towards learning mathematics was measured using a standardized motivation questionnaire administered before and after the intervention. The results showed a notable increase in motivation levels:

- Pre-Intervention Motivation: The average motivation score was 3.2 on a 5-point Likert scale, reflecting moderate motivation levels.

- Post-Intervention Motivation: The average motivation score increased to 4.1, indicating a significant enhancement in students' motivation to learn mathematics ($t(119) = 10.89, P < 0.001$).

Table 2. Analysis of Score Differences Between Boys and Girls

Variable	Pre-Intervention (Pre-test)	Post-Intervention (Post-test)	Change	Standard Deviation (SD)	Effect Size	p-value
Boys	53.1%	77.2%	+24.1%	11.8%	1.82	0.395
Girls	51.7%	76.4%	+24.7%	12.6%	1.96	0.271

This table shows that both boys and girls benefited equally from the VR intervention, with no statistically significant difference between the two groups. The standard deviation values and effect sizes indicate that the intervention had a strong positive effect on both groups.

Gender Differences

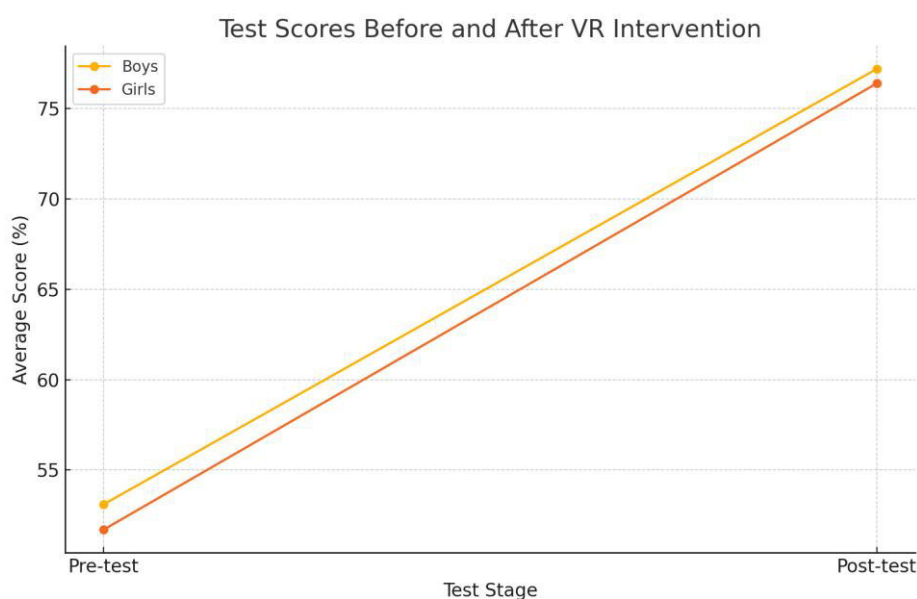
An analysis of gender differences in learning outcomes and motivation levels was conducted using two-way ANOVA. The results indicated no significant differences between boys and girls in terms of both post-test scores ($F(1, 118) = 0.73, P = 0.395$) and motivation levels ($F(1, 118) = 1.22, P = 0.271$), suggesting that the VR intervention was equally effective for both genders.

Table 3. Analysis of Differences in Motivation Between Boys and Girls

Motivation	Pre-Intervention (Pre-test)	Post-Intervention (Post-test)	Change	Standard Deviation (SD)	Effect Size (Cohen's d)	p-value
Boys	3.3	4.0	+0.7	0.58	1.21	0.395
Girls	3.1	4.2	+1.1	0.62	1.49	0.271

The motivation levels for both boys and girls also improved significantly after the VR intervention, with no statistically significant gender differences. The effect sizes further confirm the notable impact of VR on motivation for both groups.

The chart below illustrates the differences in test scores for boys and girls before and after the VR intervention.



4.2. Qualitative Results

Classroom Observations

The observational data revealed consistent improvements in student engagement and participation after the VR intervention. On average, student engagement scores increased from 2.8/5 during the first few sessions to 4.2/5 by the end of the observation period.

Increased Collaboration: Students were observed to collaborate more effectively in group problem-solving activities, as the immersive VR environment seemed to encourage peer-to-peer interactions. Students frequently asked each other for help with VR tools or shared insights into solving mathematical problems.

Enhanced Understanding of Concepts: Teachers noted that students displayed a deeper understanding of mathematical concepts, such as geometry and spatial reasoning, particularly in VR sessions where these concepts were visualized in 3D.

However, some students struggled initially with navigating the VR technology, which required extra instructional support from the teacher in the early stages of the intervention.

Student and Teacher Interviews

The student interviews confirmed the observational findings, with many students describing VR as a “fun” and “engaging” tool that made math more accessible.

Increased Motivation: 83% of the students interviewed stated that they were more motivated to participate in class when VR was used. Many described VR as making the lessons feel more like a game, which helped reduce the anxiety often associated with math.

Easier Conceptual Understanding: 72% of students reported that concepts they had previously found challenging, such as 3D geometry, became clearer when they were able to visualize and interact with the shapes in VR.

Challenges with VR: Some students (approximately 17%) mentioned initial difficulties using the VR headset, feeling overwhelmed by the technology, or experiencing mild discomfort such as dizziness. However, these issues diminished over time as students became more familiar with the tools.

The teacher interviews also reflected these themes. Teachers felt that VR added a valuable new dimension to their teaching and expressed willingness to continue using it, though they also cited technical issues such as equipment maintenance and the need for more training.

5. DISCUSSION

Impact on Learning Outcomes

The significant improvement in post-test scores indicates that VR has a positive impact on students' understanding of complex mathematical concepts. This aligns with previous research findings (Cai *et al.*, 2020; Lee & Wong, 2014) that highlight the effectiveness of VR in enhancing spatial reasoning and conceptual understanding in mathematics. The ability of VR to provide immersive and interactive learning experiences likely contributed to these positive outcomes.

Influence on Motivation

The substantial increase in motivation levels suggests that VR can serve as a powerful tool to engage students in learning mathematics. The immersive and enjoyable nature of VR likely played a crucial role in making the learning experience more appealing, thereby enhancing students' intrinsic motivation. This finding is consistent with studies by Makransky *et al.* (2019) and Merchant *et al.* (2014), which reported higher motivation and engagement levels in VR-based learning environments.

Specifically, students indicated that VR lessons provided a novel and exciting way to interact with mathematical concepts, which contrasted sharply with traditional teaching methods that they often found monotonous. For example, one student mentioned, "Before using VR, I found geometry difficult and boring, but now I enjoy exploring shapes in 3D and it makes more sense." This sentiment was echoed by several other students who felt that VR made abstract concepts more tangible and understandable.

Teachers also noted a noticeable shift in students' attitudes towards mathematics. One teacher observed, "Students who were typically disengaged and reluctant to participate became more active and enthusiastic during VR sessions. They were more willing to ask questions and collaborate with their peers." This enhanced engagement and willingness to participate are critical factors in fostering a positive learning environment and improving academic outcomes.

Gender Neutrality

The absence of significant gender differences in learning outcomes and motivation levels is noteworthy. It suggests that VR-based mathematics instruction is equally effective for both boys and girls, supporting the notion that VR can be an inclusive educational tool that benefits all students regardless of gender. This finding is particularly important in the context of educational equity, as it indicates that VR can help bridge the gap in STEM education, where gender disparities often exist.

Practical Implications and Challenges

While the results are promising, the study also highlights several practical challenges associated with implementing VR in the classroom. The high cost of VR equipment and the need for technical expertise are significant barriers that need to be addressed. Schools may require additional funding and resources to integrate VR technology effectively. Furthermore, continuous professional development and technical support for teachers are essential to ensure successful implementation.

Despite these challenges, the positive impact of VR on student engagement and motivation suggests that the investment in VR technology could yield significant educational benefits. Policymakers and educational stakeholders should consider developing strategies to make VR more accessible and sustainable in schools, particularly in under-resourced areas.

Future Research Directions

Future research should focus on long-term studies to evaluate the sustained impact of VR on learning outcomes and motivation. Additionally, exploring the use of VR in other subjects and

educational levels could provide further insights into its versatility and effectiveness. Research on cost-effective and scalable VR solutions for schools, particularly in developing countries, is also crucial to make this technology more accessible.

Investigating the potential of VR to support differentiated instruction and personalized learning experiences could also be valuable. By tailoring VR content to meet the diverse needs of students, educators can provide more targeted and effective support, potentially leading to even greater improvements in learning outcomes and motivation.

6. CONCLUSIONS

This study demonstrates the potential of VR technology to enhance mathematics education by increasing student motivation and improving their understanding of complex concepts. However, addressing the challenges related to cost, technical skills, and content development is crucial for the successful integration of VR in education. Future research should focus on developing cost-effective VR solutions and providing professional development for teachers to maximize the benefits of this technology in the classroom.

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LANGUAGE DEVELOPMENT EDUCATIONAL ACTIVITIES FOR PRESCHOOL CHILDREN AT PUBLIC PRESCHOOLS IN DAKAO WARD, DISTRICT 1, HO CHI MINH CITY

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ABSTRACT

Language development is an important task in preschool education, especially in the context that Vietnam is promoting international integration and fundamentally and comprehensively innovating the education sector according to "Resolution 29-NQ/TW" - 2013. This article surveys the current status of preschool education Educational activities at public schools in Dakao Ward - a central ward of District 1, Ho Chi Minh City. This article also offers some directions and recommendations to help manage language development educational activities for preschool children more effectively through the tools of Ehon books, fairy tales, percussion, ...

Keywords: Language development, preschool children, public preschool, Dakao.

1. INTRODUCTION

Since the country's unification in 1975, the Vietnamese government has focused on preschool education. On November 4, 2013, the 11th Central Committee of the Communist Party issued Resolution No. 29-NQ/TW on "Fundamental and comprehensive innovation of education and training to meet the requirements of industrialization, modernization under the conditions of a socialist-oriented market economy and international integration", determining the goal of preschool education: "to help children develop physically, emotionally, understandingly, aesthetically, Forming the first elements of personality, well preparing children to enter grade 1" with a focus on "Developing quality preschool education for children under 5 years old suitable to the conditions of each locality and educational facility". This policy has been specified in Chapter II, Section 1 - Subsection 1. Preschool education, Article 23 of Education Law 2019 by the National Assembly. To achieve that educational goal, in addition to educational task of physical, cognitive, emotional, aesthetic, and social development, language development education is an important task. However, language development educational activities for preschool children nowadays need to be strengthened, created, and applied in many flexible ways to be able to keep pace with advances in the technological age, but, with the more opportunities comes, the more challenges.

District 1 is the center of Ho Chi Minh City (HCMC), Dakao ward is one of the central wards of District 1 with a rich tradition of preschool education. Starting with the name "Dat Ho" from the French colonial period, it was written as Dakao. Dakao area is the land that is now the northern field of District 1 - including Dakao ward and Ben Nghe ward. In early years of 20th century, the French built a hospital named Grall - often called "Don Dat" hospital by Vietnamese on this area.

This hospital has a famous pediatrics department and an orphanage with its own preschool run by the nuns of Saint Paul de Chartres where has become hospital Nhi Dong 2 today. In 1964, the Goodwill Women's Association established a childcare center on Nguyen Du Street (Nguyen, Nuong T.K, 2023, p.54) - the precursor of current preschool 19/5. Also on Dakao land, after the unification of Vietnam in 1975, the city's first preschool was born - 30/4 preschool (or 30/4 kindergarten), and kindergarten Hoa Lu just two years after - 1977 . Now these two preschool belongs to Ben Nghe ward (Hoang Huong, 2015 & Manh Tung, 2016). Meritous Teacher Ton Nu Kim Anh recalled the difficulties in the early days of operating kindergartens and preschools in Dakao area: "The leaders of kindergartens and preschools in 1975 - 1995 had to suddenly grasp a large amount of work in a new environment. Therefore, in addition to having to take on daily works, these preschool's leaders had to attend continuous training courses to improve their qualifications and experience" (interview - August 11th/2024). The success of District 1's efforts in the field of preschool education led to the establishment of three more public preschools in Dakao ward in the 1990s-2000s.

Because of the special marks in the history of preschool education in Dakao land and the necessity of language development educational mentioned above, this subject chosen to research language development educational for children in preschool age, with the research area being public preschools in Dakao ward, District 1 in the past near three years (November 2021 to August 2024), since the city normalized all activities after the Covid-19 pandemic. Dakao Ward currently has 03 preschools out of a total of 16 public preschools in District 1, including: 19/5 preschool, Be Ngoan preschool and Le Thi Rieng preschool.

This research will show the current status of language skills development education at three preschools in an area with the most typical urban cultural characteristics in Southern of Vietnam. In addition, the research also comes up with directions and recommendations to improve educational process of developing language skills for preschool children in Dakao ward, based on integrating a number of achievements of modern educational science. The research results can be extended to apply to preschools in District 1 and preschools in large cities in Southern of Vietnam.

2. LITERATURE REVIEW

In Vietnam, many scholars have paid attention to language development education for children. In 2021, Nguyen Huy Can published the book *Language Formation and Development in Children* in Hanoi. In this book, Nguyen Huy Can focuses on children's communication and phoneme system as well as semantic structure. Previously, in 2013, also in Hanoi, Dinh Hong Thai published *Preschool Language Development* with a new approach from considering Behavioral psychology, and in Ho Chi Minh City, in 2006, Nguyen Thi Phuong Nga published the textbook *Language Development Methods for Preschool Children*. This curriculum focuses on specific instructional exercises on language development for children with reflection and modeling methods.

In addition to the three typical books just mentioned, we can mention a few other research projects with rich content such as: *Language development methods for children under 6 years old* by a group of authors: Hoang Thi Oanh, Pham Thi Viet, Nguyen Kim Duc published in 2005, or

the scientific article "The current status of coherent language development for children 5-6 years old through experiential activities at preschools in Thua Thien Hue province" by Dang Thi Ngoc Phuong , Le Thi Nhung and Tran Viet Nhi published in the Vietnam Journal of Educational Sciences in 2022 .

Most recently, "Overview Study on Language Development for Preschool Children on Scopus Database" by Tran Thi Nhung, Cao Thu Hoai and Trieu Ngoc Anh was published in the International Journal of Social Science and Human Research.

In general, the above-mentioned documents appeared within about 15 years, focusing on educational methods to develop language for preschool children. They are the most typical works in this field, showing the urgency of language development strategies for preschool children.

Around the world, the topic of language development educational for preschool children is also of interest to many authors, the most typical being *Language Development in Early Childhood – The Pre-school Years: Ages 3–5*, belongs to Menyuk, Paula & Brisk, Maria, published in 2005 at Boston University, United States. This is a core reference book in the field of language development educational for preschool children.

In addition, there are some famous articles and essays such as: "Language development at early childhood" by Ninuk Indrayani published in the magazine International Conference on Education - University of Muhammadiyah Jember in 2016. "Language development and acquisition in early childhood by Salwa Saeed Al-Harbi" published in the Journal of Education and Learning in 2019. And most recently "Early childhood education language environments : considerations for research and practice" by Jennifer Finders, Ella Wilson and Robert Duncan published in the journal Frontiers in Psychology in 2023.

Through some of the typical projects just mentioned, it can be seen that the topic "language development for preschool children" is urgent and has always been a focused task in preschool education around the world.

3. METHODOLOGY

To conduct research, this article chose the approach of Educational Administration from an expert perspective with three main methods: interview method, participant observation method and questionnaire survey method. In particular, the questionnaire survey method is the focus.

Interview method: we met and interviewed a number of teachers who have worked in management and teaching for many years with an unstructured interview style - life story to understand the difficulties and current situation of language skills development educational at public preschools in Dakao ward, District 1.

Participant observation method: through periodic academic exchange activities between public preschools in District 1, the author spent a lot of time visiting, observing, and auditing periods of language development education activities from many preschool teachers in Dakao ward. The author recorded and systematized factors that make up the variables to include in the questionnaire

Questionnaire survey method: According to official information of the District 1 Department of Education, the total number of teachers and educational administrators of three public preschools in Dakao ward - those participating directly to educational activities to develop language skills for preschool children, are 106 people, all female, aged 25 - 52, qualifications: College Bachelor, University Bachelor and Master (19/5 preschool: 46 teachers, Be Ngoan preschool: 41 teachers and Le Thi Rieng preschool: 19 teachers).

According to Hair (1998), the minimum scale that can be applied statistically is 30 samples, and the sample index can be deduced into the population index with with 95% of confidence. The survey table for this topic includes 19 indicators with each indicator having 5 levels for minimum 5 people selected. So the sample range that Hair (1998) recommends in this case is from 30 - 90 samples. From Hair's norms, this topic chooses to conduct sampling (symbol: n), applying Yamane Taro - 1967 sampling formula in cases the population size is known, with error rate + 0.1

$$n = \frac{106}{1 + 106(0.1)^2} = 51.45$$

Thus, standard sample size is 51.45

The author distributed 68 survey questionnaires, collected 54 questionnaires (14 no answer), after checking, eliminated 02 invalid questionnaires, leaving 52 valid questionnaires, just enough to ensure the sample size by Yamane Taro - 1967 as above formula.

The survey was designed to apply the Linkert scale because this is a type of scale in which a series of attitude-related statements are presented and respondents indicate their attitude by choosing one of the answers, either strongly agree or strongly disagree. The questionnaire includes 3 questions, 19 indicators, scored from 1 to 5, strongly disagree -1 to strongly agree -5.

4. RESULTS AND DISCUSSION

Table 1. The importance of language education activities for children at preschool

Results oriented	Mean	Std. deviation
■ Children express emotions through language and build social relationships, understanding social norms.	4.40	0.91
■ Language helps children acquire knowledge, understand and learn about the world around them.	4.86	0.34
■ Language develops children's cognition, helping them think, solve problems and be creative.	4.78	0.41
■ Language development helps children communicate and interact with people, forming social and emotional skills	4.48	0.50
■ Children are more independent and autonomous in daily activities	3.78	1.14

Source: Author

After analyzing the questionnaire data using SPSS 20 statistical software, the results are shown as follows:

With the question: "How does language education activities for preschool children at preschool affect children's development ?" 5 levels of implication: 1. Not important ; 2. Less important ; 3. Relatively important ; 4. Important ; 5. Very important

Most teachers believe that the results of language development education will help children acquire knowledge, understand and learn about the world around them (4.86), besides, helping children think and solve problems. problem solving and creativity (4.78). Thus, the two most important cores of language development activities for preschool children are: understanding the world around them and creative thinking. Ms. Nguyen Thi Them - Vice Principal of Le Thi Rieng preschool also emphasized this aspect: "Language development for preschool children plays an important role, helping children build a solid foundation for learning, communicating with the world around them and thinking in the future" (interview - August 11th/2024)

Although they all recognize and appreciate two values: helping children understand the world around them faster and think more creatively, practice shows that the application of diverse methods in educational activities develops children. Language development is still uneven. The uneven situation in implementing teaching methods is clearly shown in the results of surveys on teaching methods.

With the question: "According to you, what organizational methods are prioritized in language development education activities for preschool children at the kindergarten that you are working at?" with 5 levels of implication: 1. Absolutely not applicable; 2. Apply occasionally; 3. Apply multiple times; 4. Apply regularly; 5. Apply continuously

The results are shown in below table:

Table 2. Level of application of methods in language development educational activities for preschool children

Method	Mean	Std. deviation
■ Chat method	4.25	0.98
■ Game method	3.73	1.19
■ Visual method	3.08	1.08
■ Situational method	3.34	1.29
■ Role play method	3.02	1.29

Source: Author

The two methods most favored and used by teachers are: chat (4.25) and games (3.73), the remaining three methods are less chosen.

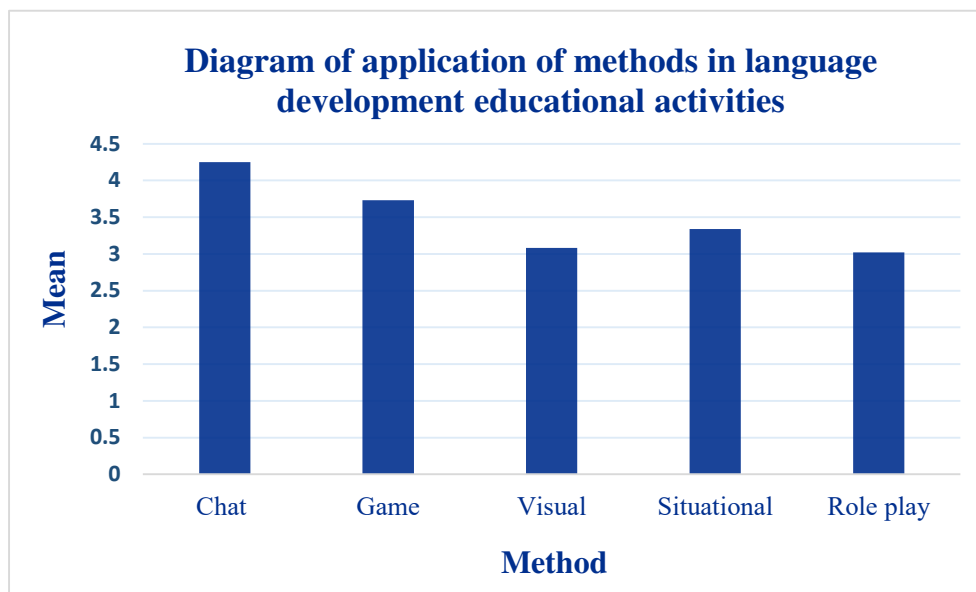


Figure 1. Chart of application of methods in language development educational activities for public preschool children in Dakao ward, District 1, Ho Chi Minh city

Source: Author

The main reason reported by teachers through interviews is because the following three methods are difficult to apply, in addition, they have not found much content and models from abroad to learn and apply. Through analysis, it can be seen that the two most used methods are both traditional and inherited methods. Generations of teachers have skillfully applied these two methods, while the three following methods are somewhat new and more difficult to understand and apply.

As well as the lack of balance in teaching methods, the implementation content, although complete, is also uneven. However, this happens in practice as normal because each school always considers how to exploit selectively. Content associated with the specific strengths of your school such as: teacher qualifications, activity space, financial capacity, ...

So, question: "At the preschool where you are working, What content does language development education for preschool children usually focus on? "

With 5 options: 1. Never deploy; 2. Occasional deploy; 3. Regularly deploy; 4. Very frequent deploy

The results are as shown in the table below:

The results show that among the 3 skills that the Ho Chi Minh City Department of Education proposed for the content of language development education in preschool children, there are:

Listening skills, teachers regularly told stories, read poems, folk songs, and rhymes appropriate to their age (3.21)

Speaking skills, teachers regularly encourage children to practice expressing their feelings and understanding in different types of sentences (3.0).

Skills to get used to reading and writing, teachers regularly help children become familiar with some common symbols in life (3.17)

The problem is: these three frequently deployed contents do not have a diversity of methods. As Table 2 shows, the three methods: visual, situational and role-playing have not been used much. Especially the role-playing method is the least used (3.02). Meanwhile, with the three most widely deployed contents according to Table 3, these three methods in Table 2 are very necessary.

Table 3. Language development educational contents for preschool children

Educational content for language development	Medium score	Std. deviation
I. Listening skills		
▪ Listen to words that refer to people, things, phenomena, characteristics, properties, activities, and expressive words and general words.	3.09	0.84
▪ Listen to speech in everyday communication	3.00	0.90
▪ Listen to stories, read poetry, folk songs, and rhymes appropriate to your age	3.21	0.97
II. Speaking skill		
▪ Pronounce words clearly in Vietnamese.	2.78	0.66
▪ Bay expresses his own needs, feelings and understanding using different types of sentences.	3.00	0.86
▪ Use correct words and sentences in daily communication. Ask and answer questions.	2.86	0.88
III. Skills to get used to reading and writing		
▪ Get familiar with how to use books and pens.	2.71	0.89
▪ Get familiar with some common symbols in life.	3.17	0.78
▪ Get familiar with writing and reading.	2.61	0.91

Source: Author

To help teachers overcome the lack of flexibility in applying new teaching methods, in this article, the author would like to make some recommendations:

- For visual methods: teachers should use Ehon comics to create reflective and interactive activities with preschool children. Ehon comics are not only a visual tool but also a combination of simple sounds and a plot that represents an experience in everyday life. Many educational researchers have considered Ehon as an effective language learning tool for preschool children. Not only in Japan, Ehon is now used to teach language in preschools in China, Thailand, United States, England, Spain, ...

- For the situational method: teachers can create conversational situations such as: what would you do if a stranger gave you toys or food, what would you do if there was a fire? what would you do if you lost way?,... so that children can try to respond by speaking in these situations, the teacher can listen and correct sentences for children to have more correct syntax. More specifically, teachers can use percussion instruments, the simplest sound generators in music, to

help children identify types of sounds and compare each sound with natural phenomena. For example: the sound of Trung is compared to the sound of a stream flowing through a rock crevice... Ms. Nguyen Thi Thu Hong - former lecturer from Faculty of Early Childhood Education – Saigon University (SGU) provided some practical experience through the process of implementing language education activities in the field of music: "Children need to get acquainted with and recognize many domestic and foreign songs. Pay attention to correcting pronunciation, intonation, speaking in full sentences, and the ability to express themselves verbally. In addition, special attention must be paid to the coordination between spoken language and body language. At preschool age, children can still participate in the creative process with teachers through imitating and creating music: imitating animal sounds, sounds in life, sounds of musical instruments ..." (interview - August 13th/2024)

- For role-playing method: teachers can use magical fairy tales to read and tell in a high, low, strong and light tone to impress the children. After that, the teacher will let the children dress up as characters in the story. Costume tools do not need to be complicated, just a scarf, a piece of cardboard, etc. The important thing is to help children integrate into the story, stimulate their imagination and help them get acquainted. with some words: king, prince, princess, castle, treasure, ...

The application of a variety of methods will support the implementation of language development educational content for preschool children more effectively.

5. CONCLUSION

Language development educational activities for preschool children play a very important role in the overall picture of preschool education.

The results of language development education will help children acquire knowledge, understand and learn about the world around them, and solve problems more flexibly. However, a survey of 3 public preschools in Dakao ward, District 1, shows that the biggest limitation to this activity is that teachers have not yet applied diverse methods. The lack of method diversity in the case of this article comes from a subjective and objective factor. Especially the role-playing method.

On that basis, the article has made a number of recommendations for teachers to apply more effective methods such as: using Ehon books, magical fairy tales, percussion instruments, and simple role-playing scenes.

Public preschools in District 1 have always been prestigious and top quality preschool training facilities in HCMC. Language development education activities at the 3 public preschools in Dakao ward that this paper mentions are always focused on by teachers and administrators, carefully updating lesson plans and plans. However, adjusting the method towards diversification will help bring about optimal interactions, helping educational activities to develop language for preschool children achieve the highest results.

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DISCUSSING THE ROLE OF GRAPHICS COURSES IN THE COMPUTER SCIENCE TEACHER EDUCATION CURRICULUM IN VIETNAM

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ABSTRACT

In the context of rapid technological development, the role of graphics courses in the computer science teacher education curriculum in Vietnam has become increasingly essential. This study aims to analyze and evaluate the effectiveness of applying graphic design in training bachelor students in computer science education, thereby proposing solutions to improve the training program. The research employs methods such as document analysis, observation, and expert interviews to collect data and insights, determining that integrating graphics into teaching enhances educational quality and fosters creativity in learning. The study results propose methods to improve the computer science teacher education program for the modern technological world, laying the groundwork for further research on the application of graphics in education and technology. The research provides a practical framework for the application of graphic design in Vietnamese education, opening new development potentials for the computer science teacher education program, contributing to the progress of the education and technology sectors in the country.

Keywords: Graphic Design, Computer Science Education, Creative Skills, Teaching Quality.

1. INTRODUCTION

In the rapidly developing context of information technology, the field of computer science education in Vietnam is undergoing significant changes. Despite the ongoing shortage of computer science teachers to meet the requirements of the new general education program, the competency and skill requirements for these teachers are becoming increasingly demanding. This necessitates the integration of various supportive subjects, including computer graphics. Computer graphics not only serve as a useful teaching tool but also provide a crucial foundation for computer science teachers to design and implement engaging and dynamic lessons. The intersection of language and learning in the digital age is transforming how people learn, use, and understand language, as well as the settings in which education occurs (Gee, J. P., & Hayes, E. R., 2011).

Mastering computer graphics skills helps computer science teachers improve teaching quality, enhance creativity, and integrate technology into their lessons. Additionally, computer graphics prepare computer science education students with the necessary skills to meet the growing demands of the labor market and societal needs. According to Sweller, applying cognitive load theory to the design of educational technology not only enhances learning efficiency but also reduces cognitive overload, enabling learners to absorb and retain information more effectively (Sweller, J., 2020).

This paper discusses and investigates the role of graphics courses in the computer science teacher education curriculum in Vietnam today. We will examine theoretical perspectives, analyze

the current state of training, and consider societal needs, thereby proposing solutions to enhance the effectiveness of this subject within the computer science teacher training program.

2. LITERATURE REVIEW

To date, no specific research has been conducted in Vietnam on the critical role of computer graphics in the training of computer science education undergraduates. However, there have been some preliminary studies related to this issue. For instance, Nguyen The Dung's doctoral dissertation explored the application of interactive B-Learning methods for computer science education students, aiming to enhance their competencies and encourage active participation in the learning process (Nguyen The Dung, 2019). The results showed that this method significantly improved students' knowledge acquisition and information technology application skills.

Authors Le Van Toan and Truong Thi Diem researched the improvement of computer science education quality at An Giang University in the context of the Industrial Revolution 4.0. They proposed solutions to enhance the training program, including updating teaching content and developing soft skills for students, to prepare them to meet the increasingly high demands of the labor market (Le Van Toan & Truong Thi Diem, 2019).

Moreover, the role of design in teaching has garnered attention from international researchers. David H. Jonassen studied the role of instructional design as a complex problem-solving process, emphasizing the iterative nature and flexibility in evaluating and adjusting solutions (Jonassen, D. H., 2008). Sherry Turkle explored the relationship between computational technology and self-perception, particularly in digital and simulation environments (Turkle, S., 1997).

In the field of education and technology, the studies by Gary Stager, Dillenbourg and Fischer, Collins and Kapur, as well as Ruth C. Clark and Richard E. Mayer, have provided methods and design principles to optimize learning efficiency and encourage active participation from learners (Stager, G., 2005; Dillenbourg, P., & Fischer, F., 2007; Collins, A., & Kapur, M., 2006; Clark, R. C., & Mayer, R. E., 2023).

Building on these prior studies, it is evident that investing in and researching the role of graphics in the training of computer science education undergraduates is essential. This endeavor HOLDS BOTH SCIENTIFIC AND PRACTICAL SIGNIFICANCE, MEETING THE NEEDS OF SOCIETY.

3. THEORETICAL BASIS AND RESEARCH METHODOLOGY

3.1. Theoretical Basis

Mayer's Multimedia Theory (2009) and Paivio's Dual Coding Theory (1986) provide important theoretical foundations for the use of graphics and images in teaching, especially in subjects related to information technology and computer science. According to Mayer, the use of multimedia elements such as text, images, sound, and animation in teaching stimulates students'

senses. This not only helps students to absorb information more effectively but also enhances their memory and understanding by activating multiple channels of information simultaneously.

Paivio (1986) developed the dual coding theory, which posits that humans process information through two systems: the imagery system and the verbal system. Using images in teaching helps students create clear and comprehensible mental models. Students can visualize and link information more effectively when it is presented in a visual format.

The combination of multimedia theory and dual coding theory provides a solid foundation for the use of computer graphics in the training of computer science education majors. Applying these principles in teaching not only improves teaching quality but also enhances students' learning processes by activating multiple visual and auditory modalities.

3.2. Research Methods

This study uses qualitative research methods through document analysis and observation. Specifically, the methods include:

Document Analysis: Analyzing existing documents related to the role of graphics in education and computer science teacher training. These documents include books, scientific articles, and reports from reputable educational organizations. Document analysis helps to understand previous perspectives, theories, and research on the use of graphics in education, providing a basis for evaluating the role of graphics in the computer science education program.

Observation: Observing classes at several educational institutions to examine the application of graphics in actual teaching. These observations aim to collect information on the methods and effectiveness of using graphics in the teaching process. Factors such as how teachers use graphic tools, student reactions, and the level of classroom interaction will be recorded and analyzed.

Expert Interviews: Conducting random telephone interviews with 10 experts who are members of the management boards of high schools nationwide to gather opinions and experiences regarding the role of graphics in computer science teacher training. The experts provide detailed information on the benefits and challenges of integrating graphics into the curriculum, as well as the most effective methods and tools for teaching graphics.

These research methods help collect detailed and specific information about the current state of graphics courses in computer science education programs. By combining document analysis, observation, and expert interviews, this study will provide a comprehensive view of the role of graphics in computer science education, thereby offering useful recommendations for improving the training program in the future.

4. RESEARCH FINDINGS

4.1. Societal Demands for Computer Science Teachers

In the context of digital transformation and the rapid development of information technology, the societal demand for computer science teachers is increasingly high. This not only

requires extensive specialized knowledge but also proficiency in technological skills. The use of computer graphics to design engaging and effective teaching materials, as well as the integration of technology into the teaching process to enhance interaction and learning efficiency, has become indispensable.

Random interviews with school principals nationwide, representing employers in the education sector, show that 90% of board members agree that computer science teachers need to have computer graphics skills. According to these principals, the ability to use graphics helps teachers convey knowledge in a more visual and dynamic manner, thereby improving the quality of learning and encouraging student creativity. One principal emphasized, "Computer science teachers with graphics skills not only make lessons more engaging but also help students easily grasp knowledge, especially abstract concepts."

The rapid development of information technology presents significant challenges for computer science teachers, requiring them to continuously update and enhance their skills. Computer graphics, as an important tool, enables teachers to convey knowledge in a more visual and dynamic way. Using graphics in teaching helps students access and understand lessons more easily, thereby improving learning quality and fostering creativity.

Graphics skills not only support teachers in creating diverse teaching materials but also help them design effective e-learning lessons and online courses. This is particularly crucial in the digital transformation era, where online education and remote learning are becoming increasingly prevalent. Computer science teachers who are proficient in graphics and information technology can better meet society's new demands, thereby improving the quality of education and training.

4.2. Duration of Graphics Courses in Computer Science Teacher Training Programs at Educational Institutions in Vietnam

The Bachelor of Computer Science Education programs in Vietnam are facing numerous challenges and opportunities in the era of Industry 4.0 and digital transformation. Educational institutions have proactively upgraded their training programs to meet the increasing societal demands and rapid technological advancements.

Graphics Courses in the Training Program

Computer Science Education programs at universities and colleges in Vietnam have equipped students with solid foundational knowledge and essential skills. However, there are still many limitations that need to be addressed, such as the lack of integration between theory and practice and inadequate physical infrastructure, especially the shortage of computer labs and software.

Modern teaching methods, such as the use of graphics and technology in teaching, have not been uniformly implemented across educational institutions. This diminishes the attractiveness and effectiveness of the learning process, especially in an era where technology plays an increasingly crucial role.

Actual Duration of Graphics Courses

The training programs from universities offering Computer Science Education show that graphics courses such as Image Processing, Applied Graphics, and Computer Graphics are offered with relatively few credits. For example:

- Hanoi University of Education: 1 elective course with 3 credits
- Hai Phong University: Image Design with Photoshop is one of the elective courses
- Can Tho University, Phu Yen University, Vinh University, University of Culture, Sports and Tourism of Thanh Hoa: Graphics courses range from 2 to 4 credits

However, the number of credits allocated to graphics courses in the curriculum, as mentioned above, is insufficient and does not meet the practical requirements of students and society. This calls for improvement and greater investment in training graphics skills for students in computer science education.

Evaluation and Recommendations

Educational institutions are making concerted efforts to evaluate and improve their training programs to meet the development goals of the computer science and information technology sectors. Collaboration with businesses and international organizations is also being promoted to create opportunities for practical learning and to update students with the latest technological trends.

4.3. Role of Graphics Courses in Computer Science Teacher Training Programs in the Current Stage

4.3.1. Development of Professional Skills

Computer graphics help students grasp fundamental concepts and techniques in image design and processing. These skills are crucial not only in creating teaching materials but also in developing educational applications and information technology. Graphics software such as Adobe Photoshop, Illustrator, and open-source tools like GIMP are integrated into the curriculum for students to familiarize themselves with and practice.

Proficiency in graphic software enables students to design engaging and visually appealing lessons, thereby enhancing the effectiveness of knowledge transmission. Moreover, these skills support students in developing educational technology projects, leading to high-quality and innovative learning products. Additionally, understanding computer graphics expands students' career prospects, meeting the increasing demands of the job market in education and information technology sectors.

4.3.2. Enhancing Creative Capabilities

One of the key objectives of graphics courses is to develop students' creative thinking and aesthetic sensibility. This capability not only helps them create engaging graphic products but also contributes to enhancing the quality of teaching through visual media. Creative design in lesson plans, digital lectures, and electronic learning materials attracts the attention and interest of students.

Applying graphics in teaching goes beyond beautifying educational materials; it significantly enhances knowledge transmission. Creatively designed and engaging lessons facilitate easier access and understanding for students, stimulating their own creativity and critical thinking. Computer graphics also provide numerous opportunities for students to explore and experiment with new teaching methods, thereby enhancing their creative abilities and technology application in education.

Through graphic design practice, students have the opportunity to refine skills in spatial thinking, layout, and color—a crucial aspect in creating effective and vivid lessons. This creativity extends beyond document design to other teaching activities such as creating instructional videos, designing educational websites, and developing interactive educational applications.

4.3.3. Application in Teaching

Graphic design skills help computer science teachers create more vivid and visually appealing lessons, presentations, and learning materials. Research shows that using images and graphics in teaching can enhance students' memory retention and understanding of content. Tools such as PowerPoint, Canva, and video editing software enable teachers to create effective presentations.

Integrating graphics into teaching enriches lessons, making them more engaging and motivating for students. The use of images, charts, and videos not only makes lessons more dynamic but also helps students easily grasp and understand the content deeply. Tools like PowerPoint and Canva allow teachers to design visually appealing and professional presentation slides, while video editing software facilitates the creation of rich and interactive video lectures.

Applying graphic design skills in teaching also helps teachers develop electronic learning materials that support students in self-study and knowledge review. These materials may include ebooks, instructional guides, online quizzes, and various other forms of diversified learning, all designed to optimize students' learning experiences.

4.3.4. Meeting Job Market Demands

Graphic design skills are becoming increasingly important in today's job market. Computer science education graduates with graphic design knowledge have an advantage in job search, not only in the education sector but also in other creative industries such as web design, advertising, and digital media. The growth of technology companies and startups in Vietnam also opens up many job opportunities for students with graphic design skills.

Mastering graphic design skills enables computer science education students to broaden their career prospects, making it easier for them to adapt and meet the requirements of various job positions. Students with professional graphic design abilities can work in advertising agencies, media companies, or participate in web design projects and software development.

Technology companies and startups in Vietnam are rapidly developing, constantly seeking employees with graphic design skills to contribute to creative and innovative projects. Students with a solid foundation in graphics can take on roles such as UI/UX designers, digital media

specialists, and multimedia content developers, contributing significantly to the success of projects and enterprises.

Integrating graphic design skills into computer science education programs not only enhances students' creative abilities and aesthetic thinking but also prepares them for a diverse and promising career future. This is an important step towards meeting the demands of the modern job market and providing many development opportunities for computer science education students.

4.3.5. Integrating Technology in Education

Graphics have become an indispensable component in integrating technology into modern education. Applying graphic tools and software not only enhances the interactivity and effectiveness of teaching but also opens up new opportunities for research and educational development.

Learning applications such as Google Classroom and Microsoft Teams have proven crucial in creating flexible and connected learning environments. They provide powerful tools for teachers to manage classrooms, share materials, and communicate effectively with students. This integration not only improves technological advancements but also changes the way knowledge is conveyed and motivates students to learn.

Graphic design software like Adobe Illustrator, Canva, and video editing tools such as Adobe Premiere Pro and Camtasia provide teachers and students with tools to create high-quality teaching materials. Thanks to these technologies, educational materials are designed to be more dynamic, including images, illustrative charts, and instructional videos. This helps students easily access and efficiently absorb knowledge.

4.3.6. Developing Learning Materials

Graphic design skills help students create visual and engaging learning materials. These materials not only support student learning but also help teachers deliver knowledge more easily and engagingly. Digital learning materials, video lectures, and interactive learning applications enhance students' learning experiences.

Visual elements in learning materials play a crucial role in helping students effectively absorb knowledge. Using images, graphics, and illustrative charts in teaching materials helps students easily understand and remember information. Graphic design software such as Adobe Illustrator, Canva, and video editing tools like Adobe Premiere Pro and Camtasia enable students and teachers to design high-quality teaching materials.

Furthermore, developing digital learning materials and instructional videos creates a multimedia learning environment where students can learn through various channels. Video lectures provide an effective means to convey complex concepts, allowing students to learn at their own pace. Meanwhile, interactive learning applications engage students actively in the learning process, enhancing their interest and motivation.

Learning materials designed with graphic design skills not only enrich teaching content but also personalize learning to meet the diverse needs and learning styles of students. This is

particularly important in the context of modern education, where technology and creativity play a crucial role in enhancing educational quality.

4.3.7. Self-Learning and Research Abilities

Graphic design courses also encourage students to develop self-learning, research, and stay updated on new technological trends. This helps students enhance their professional competence and adaptability to technological changes. Engaging in online courses, professional forums, and graphic design competitions helps students continuously learn and develop.

Self-learning and research skills are crucial factors for students to keep pace with rapid technological advancements. Through graphic design courses, students acquire methods to search, analyze, and apply new knowledge. Online learning resources such as Coursera, Udemy, and Khan Academy offer numerous courses on graphics, design, and software tools, making it easy for students to access and learn from leading experts.

Additionally, participating in professional forums and online graphic design communities such as Behance, Dribbble, and social media groups helps students stay updated on the latest design trends, exchange experiences, and receive feedback from like-minded individuals. This not only expands knowledge but also helps build a professional network, an important factor in their future careers.

Engaging in graphic design competitions is also an effective way for students to challenge themselves, hone their skills, and explore creative potential. These competitions often require students to apply learned knowledge and skills to solve real-world problems, thereby enhancing critical thinking and problem-solving skills.

5. CONCLUSION

Integrating computer graphics into the computer science teacher training program plays a crucial role in enhancing teaching methods and students' learning experiences. Through hands-on practice with graphic design software such as Adobe Photoshop, Illustrator, and open-source tools like GIMP, students can learn basic skills in image editing and visual communication. These skills not only help students create engaging teaching materials but also prepare them to develop innovative educational applications and technologies.

Furthermore, computer graphics also help students develop creativity and aesthetic sensibilities, essential qualities for designing compelling educational content. By integrating graphics into teaching, educators can create dynamic lessons and interactive learning resources to capture students' interest and stimulate their cognitive and creative abilities. Moreover, mastering graphic skills opens up numerous career opportunities for students, meeting the increasing demands of the labor market not only in education but also in creative industries such as web design, advertising, and digital media.

Integrating graphic design skills into the computer science teacher training program not only enhances creativity and aesthetic evaluation but also prepares students for diverse and promising career paths. This not only meets the needs of the modern labor market but also brings about many development opportunities for students in the fields of education and information technology.

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BUILDING A GOVERNANCE MODEL FOR VIETNAMESE UNIVERSITIES IN THE NEW CONTEXT

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ABSTRACT

The education system in general, and universities in particular are facing strong impacts from the new context, characterized by decentralized management and the Fourth Industrial Revolution (IR 4.0). Regarding management decentralization, educational institutions must implement self-governance in several key areas including academic self-governance, organizational and personnel self-governance, financial and asset self-governance. IR 4.0 necessitates changes in the structure of disciplines and training levels, modifications to the output standards of the education system, alterations in teaching and learning methods, transformations in the university model alterations in teaching and learning methodologies, transformations in the university model, and a shift from managing physical universities to governing virtual ones. This article proposes the development of a model to transform universities into smart, tectonic institutions, characterized as learning organizations, self-governing communities, and digitalized entities. To implement this model, several solutions are necessary, including retraining the university's workforce and establishing a big data analytics system. These measures are essential for realizing the vision of a university that is smart and tectonic.

Keywords: Governance, Vietnamese universities, new context, Smart and Tectonic institution

1. CONTEXTUAL BACKGROUND

Resolution No. 29-NQ/TW of the 8th Meeting of the 11th Central Executive Committee on fundamental and comprehensive innovation of education and training (Central Executive Committee, 2013) clearly stated the orientation and guiding viewpoint "Fundamental and comprehensive innovation of education and training is innovation of major, core, and urgent issues from guiding viewpoints and ideas to goals, contents, methods, mechanisms, policies, and conditions to ensure implementation; innovation from the Party's leadership, the State's management to the governance activities of educational and training institutions" and identified one of nine tasks and solutions as "Fundamentally innovating the management of education and training, ensuring democracy and unity; increasing the autonomy and social responsibility of

educational and training institutions". At the 13th Party Congress, our Party emphasized the country's development orientation for the period 2021-2030: "Creating a breakthrough in fundamental and comprehensive innovation of education and training" (Communist Party of Vietnam, 2021, p.115). Innovation in the governance of educational and training institutions in general and higher education in particular is both a goal and a driving force for development towards the ultimate goal of constantly improving the quality and effectiveness of education and training. The issue of university autonomy and university governance has received much attention from our Party and State and has been much discussed by authors in recent years in order to find a suitable model in the new context to create a breakthrough in fundamental and comprehensive innovation of education and training.

2. LITERATURE REVIEW

There have been many researches on university governance in Vietnam, notably the following researches: research by Le, L. and et al. (2023) on Higher education quality management: Trends, current status and recommendations; research by Nguyen, D. P. and Nguyen, H. H. N (2013) on University governance and model for economic universities in Vietnam; research by Do, D. M. (2018) on Autonomous university governance mechanism and requirements for improvement of the law on university autonomy in Vietnam; research by Nguyen, D. C. and et al. (2023) on Improving the effectiveness of university governance in the context of educational innovation in Vietnam; and research by Pham, M. H. and Dinh, X. K. (2023) on Components of public university governance in Vietnam in the current context.

Moreover, international studies have made substantial contributions to our understanding of education governance. Dobbins (2017) conducted a comparative analysis of higher education governance in Poland and Romania. Dobbins' research identified three distinct models: a state-centric approach, an academic self-governance paradigm, and a marketized system. Hong (2018) conducted a comparative analysis of higher education governance in China and Australia, focusing on three key aspects: the relationship between universities and the government, internal governance structures, and financial management. The study revealed that the rapid growth and expansion of higher education in China have necessitated the development of regulations to maintain quality standards, improve efficiency, and secure adequate funding.

These studies have addressed general issues on trends, models and effectiveness of higher education governance globally, provided recommendations to improve higher education quality governance in Vietnam in general or specific models for economic universities, to specific issues on mechanisms, components, organizational structure, etc. of public university governance in Vietnam. However, no study has clearly identified the impacts of the new context and higher education autonomy that necessitate an adaptive university governance model based on modern quality management approaches. Therefore, further research is needed to develop a university governance model adapted to the current new context.

3. RESEARCH METHODOLOGY

The article uses methods of synthesizing documents and materials on university governance and autonomy, modern school quality management, and IR 4.0. Based on this, it analyzes, selects, and proposes a model for Vietnamese university governance in the new context.

4. RESEARCH RESULTS AND DISCUSSION

4.1. New context

Our country's universities are facing the strong impacts of the new context with two characteristic factors: management decentralization and IR 4.0.

4.1.1. Management Decentralization in Higher Education

The issue of university autonomy and self-responsibility was first included in the document in the Education Law (1998) and affirmed throughout the Education Law (2005), Education Law (2019) and further specified in the Law on Higher Education (2012) and the Law amending and supplementing a number of articles of the Law on Higher Education (2018), whereby the autonomy and social responsibility of higher education institutions were affirmed in academic activities, organizational structure, personnel, finance, and assets. Next, the Government issued Resolution 77/NQ-CP dated October 24, 2014 on piloting renovation of the operation mechanism for public higher education institutions in the period of 2014-2017 to implement the Law into practice and now Decree No. 99/2019/ND-CP by the Government detailing and guiding the implementation of a number of articles of the Law amending and supplementing a number of articles of the Law on Higher Education.

- Academic Autonomy and Autonomy in Professional Activities

Academic autonomy includes autonomy in training and autonomy in scientific research. Autonomy in training includes contents such as autonomy in choosing and opening training occupations, developing training programs, organizing and managing training courses from enrollment to assessment of output capacity in accordance with the human resource needs of the labor market, and linking domestic and international training, autonomy in international training cooperation. Autonomy in scientific research includes choosing scientific research topics, organizing the implementation of topics and evaluating the results of research topics, applying and transferring technology, and associating with domestic and foreign organizations in scientific research.

- Autonomy in Organizational Structure and Personnel

With the mission and class of the university, training institutions (TI) have autonomy in building an appropriate organizational structure to meet the university's activities in their specific conditions. Training institutions have autonomy in selecting, using, and appointing lecturers, administrators, and managers according to regulations and autonomy in remuneration for teachers, administrators, and managers to attract talented people to the university.

- Autonomy in Finance and Assets

Training institutions have autonomy in building and deciding on legal revenues and expenditures, deciding on investment projects using non-state budget revenues. Financial autonomy requires attention to issues of revenue and expenditure, scholarship and tuition policies for policy beneficiaries and investment and procurement activities.

To improve the effectiveness of autonomy, training institutions must be public and transparent about quality assurance conditions and actual quality in activities; be accountable for their activities, implement quality standards, and fulfill of commitments to learners and relevant parties.

Autonomy must be associated with the social responsibility of the training institution. First, it is the university's responsibility to the students: ensuring the committed training quality, organizing job consultancy and providing exchange for graduates so that they have many opportunities to find jobs. In a market economy, the fact that students get a job after graduation is an important criterion to evaluate the social responsibility as well as the effectiveness and reputation of training institutions.

4.1.2. Industrial Revolution 4.0

IR 4.0 started in the first decade of the 21st century, from the 2000s, called the digital revolution, through technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), social networks, cloud computing, mobile, big data analysis (SMAC: Social-Mobile-Analytics-Cloud), etc. to transform the entire real world into a digital world, including universities (Kagermann, H., W. Wahlster and J. Helbig, eds, 2013). With a very large spreading speed and a strong impact on all areas of socio-economic life in general and education in particular, the IR 4.0 will bring opportunities but will also create many risks for universities in our country. IR 4.0 will have a very strong impact on the training system in general and universities in particular in each country in the following aspects:

- IR 4.0 requires changes in industry structure and training level

Regarding training industry, the appearance of intelligent robots will cause many new industries to appear and many old industries to disappear. Regarding training level, low-skilled workers will be replaced by intelligent robots. In other words, the occupational structure and training level of the human resource training system will have to change fundamentally to suit the human resource needs of the IR 4.0.

- IR 4.0 will change the output standards of the training system

IR 4.0 requires each country to train a team of human resources capable of operating in the digital world environment. Therefore, the output standards of the human resources training system must be changed accordingly. In other words, the training system must redesign the training programs for industries and training levels in accordance with the human resource needs to meet the requirements of IR 4.0.

- IR 4.0 will change teaching and learning methods

The emergence of virtual reality and augmented reality will fundamentally change teaching and learning methods. Teachers must change their teaching method from "face-to-face" teaching

between teacher and learners to interactive teaching with learners through a virtual environment. Learners can use virtual reality glasses and a virtual reality headset to study with any local or foreign teacher on any topic they want and study anytime, anywhere and whenever they are convenient. This leads to the need to change the university model from a real university with a campus and classrooms, facilities, teaching equipment, and a team of teachers who are qualified to teach face-to-face with learners according to the determined teaching plan to a virtual university model with the necessary conditions for teaching and learning under the virtual system.

- *IR 4.0 will change the university governance model*

The emergence of virtual training and virtual universities forces university administrators to change from real university administration with the current face-to-face teaching process to managing the virtual university system and managing the virtual interactive teaching process. Educational management must change from goals, content, methods to management tools.

Some Modern Quality Management Models (Nguyen, M. D. and Hoang, T. M. P., 2014)

In today's era, managers cannot perform university governance tasks subjectively or based on unsubstantiated experience. Instead, they must rely on modern management models to select an approach that aligns with the school's actual conditions and contemporary trends. While numerous quality management models exist, two models are currently widely applied in many countries worldwide: Quality Assurance and Total Quality Management.

4.1.3. Quality Assurance

Quality assurance (QA) aims to commit and create trust for customers by ensuring that quality requirements will be fulfilled. QA is performed by verifying the QA conditions of an organization, so in some countries, QA is called quality accreditation. *Quality accreditation is a method of managing the quality of an organization/training institution according to the "quality assurance" model.* Quality accreditation is essentially testing the QA conditions of an organization/training institution. Quality accreditation is based on the philosophy: *To provide quality training, there must be QA conditions that meet the training requirements of the training institution.* It cannot be said that a training institution with weak QA conditions can provide high quality training.

In Vietnam, implementing the policy of innovating educational management from traditional educational management to quality-based educational management, the Ministry of Education and Training issued the first set of university quality accreditation standards in 2004 (Ministry of Education and Training, 2004) with 10 standards and 53 criteria, each criterion is evaluated with 2 levels: satisfactory and higher than requirements, issued the second time in 2007 (Ministry of Education and Training, 2007) with 10 standards and 61 criteria, each criterion is evaluated with 2 levels: pass and fail, issued the third time in 2017 (Ministry of Education and Training, 2017) with 25 standards and 111 criteria, each criterion is evaluated according to a 7-level evaluation scale and QA is currently being organized for universities in our country.

4.1.4. Total Quality Management

Total Quality Management (TQM) has been developed with the following philosophy:

- Quality is the overall result of all factors and activities throughout the entire process of product creation.
- The inherent potential and creativity of each individual contribute to quality.
- Quality is a journey, not an endpoint.

This philosophy places particular emphasis on the human factor: *the potential and creativity of each person in creating quality*. As such, TQM is not only concerned with the conditions for quality assurance (the tangible aspects of the organization) but also especially focuses on its "soul" - *the self-awareness, autonomy, sense of responsibility, and creative capacity of each individual within the organization*.

4.2. Smart and Tectonic university

4.2.1. The concept of smart and constructive university

Currently, there is no comprehensive study on the concept or structure of a smart, creative school model. However, based on the philosophy of TQM and the principles of IR 4.0, we can understand it as follows:

- Smart University

+ Every individual and unit within the school understands the mission, vision, and strategic objectives of the institution. They recognize their duties and authorities, know who their customers are, and who they serve. This understanding allows them to exercise autonomy, take responsibility, and independently plan and execute activities within their scope. They can identify and resolve issues without needing assistance or directives from the Principal.

+ The university has a complete, accurate and timely two-way information system from top down and bottom up to disseminate and share knowledge and experience with each other and learn from each other. The information system is very diverse such as: LAN (Local Area Network) connecting computers of units in the university to create conditions for units in the university to exchange, collect, process and store information regularly and conveniently, through which they can learn from each other's experiences; Intranet is a compact form of Internet, consisting of a computer communications infrastructure and a set of application programs to connect distant units such as universities with branches or with partners outside the university to exchange information, disseminate experiences and learn from each other; and Internet to exchange information and experiences with other units and the outside world.

- Tectonic University:

Tectonic refers to building and establishing new, more advanced, and superior systems compared to the current ones. A tectonic school is always future-oriented, aiming for continuous development without a stopping point. To achieve this, the school needs a long-term development strategy and effective mechanisms and policies to harness the potential and creativity of every

individual. It should create a conducive environment that motivates everyone, from administrators and faculty to staff, to continuously innovate and improve their work.

4.2.2. Building the University into a Smart and Tectonic organization

To build a university into a smart and tectonic organization, the following key aspects must be implemented:

- Building the University into a Learning Organization

There are many concepts and models of a learning organization. However, the model that many managers are interested in today is the OECD model. In 2016, OECD-UNICEF published the document "What makes a school a learning organization". This document outlines seven key elements for building a learning organization (OECD, 2016):

(1) Creating and Developing a Continuous, Lifelong Learning Orientation for All Members

In today's era, rapid advancements in science and technology and the swift changes in production/service technologies mean we live in an ever-changing society. Therefore, the knowledge and experience of individuals in any position quickly become outdated, making lifelong learning essential to maintain one's job position and avoid obsolescence. Given the vast amount of new information generated daily, it is crucial to guide the selection of learning content with a clear purpose to achieve the desired effectiveness.

(2) Providing Opportunities and Support for Lifelong Learning for All Members

For an organization to be a learning organization, everyone within it must engage in continuous, lifelong learning and have favorable conditions and opportunities to do so.

(3) Encouraging team-based learning and cooperative learning

Group learning allows members to share their concerns and experiences, build new awareness together, and choose the most effective methods and processes for their tasks. Group activities help individuals recognize their knowledge levels and identify what and from whom they need to learn. Therefore, group learning is highly effective and essential for a learning organization.

(4) Establishing a Culture of Mutual Learning to Continuously Improve Work Quality

To foster mutual learning, the university must establish a culture of learning from one another, promoting the concept that "learning from peers is invaluable." Additionally, a quality culture must be developed, continuously improving work quality.

(5) Establishing an Information Collection System to Exchange Knowledge and Experience

To facilitate mutual learning, the school needs a rich and diverse internal information system, enabling everyone to access sufficient information for mutual learning.

(6) Learning from the External Environment

Today, universities are open systems interacting with many external environmental factors, such as the Party and State's policies on fundamental and comprehensive educational reform,

relationships with customers, borderless education, international educational integration, scientific and technological advancements, including Industry 4.0. Universities must connect with these ever-changing external factors to engage in exchange and learning.

(7) Innovating University Governance

To implement the above elements, it is essential to innovate school governance to build the school into a learning organization.

- *Building the University into a Self-Governing Community*

Total Quality Management clearly states: *Everyone in the organization participates in management and self-management*. The university needs to thoroughly decentralize management and modify the management mechanism, promoting *autonomy and self-responsibility* of all units and individuals within the university. Each unit and individual, from administrative staff and managers at various levels to faculty members and employees, should clearly understand their duties, immediate objectives, and the school's long-term development strategy. This understanding enables them to self-manage their work without relying on the assignment, direction, supervision, and inspection of the principal.

- *Transforming the University into a Digitalized Organization*

The IR 4.0 represents an objective development in science and technology that we must inevitably engage with, sooner or later. IR 4.0 is compelling us to digitize all data and all university activities to transition a physical university to a virtual one. Particularly, it necessitates changing the traditional face-to-face teaching process between faculty and students to virtual, network-based learning. Consequently, this requires a fundamental shift in university governance from administrative management with paperwork, forms, reports, and summaries to management through digitized data systems. These systems should be ready to share information transparently, publicly, regularly, comprehensively, and promptly with everyone within the school, external partners, students, and society at large.

4.3. Conditions For Implementing A Smart And Constructive University Model

4.3.1. Retraining the University's Workforce

A reality is that the current workforce in most universities, including administrative staff, faculty, and other employees, does not meet the requirements of a smart and creative university. Therefore, universities need to organize training courses or facilitate self-training for their staff to acquire the necessary knowledge and skills to operate and manage a smart, creative school.

4.3.2. Building a Big Data Analysis System

To establish a smart, creative university, it is essential to have the necessary information and communication technology infrastructure and equipment. This infrastructure must be effective to build a robust data analytics system that can digitize and transform the physical university into a virtual one, enabling smart, creative university management.

5. CONCLUSION

We are implementing the policy of fundamentally and comprehensively innovating education and training on the threshold of IR 4.0. IR 4.0 will have a strong impact on the training system in general and universities in particular.

To implement the country's educational innovation policies and to be able to develop appropriately and adapt to IR 4.0, universities need to be pioneers in the cause of innovation and aim to build a smart and constructive university.

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EDUCATING ABOUT THE CULTURAL IDENTITY OF ETHNIC MINORITIES FOR UNIVERSITY STUDENTS (A CASE STUDY AT THAI NGUYEN UNIVERSITY OF EDUCATION)

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ABSTRACT

The education of cultural identity for ethnic minorities in general, and for university students in particular, is necessary and plays a significant role in preserving and promoting the cultural values of the nation. It contributes to maintaining the “rich identity” and “diversity” of Vietnamese national culture, and more profoundly, to strengthening the national unity bloc. With the aim of enhancing the effectiveness of cultural identity education for ethnic minority students in universities, we conducted research using theoretical research methods, statistics, synthesis, analysis, comparison, and tools such as observation and interviews. Based on the theoretical research results, this paper clarifies the current situation, evaluates the strengths and shortcomings, and identifies the requirements for ethnic minority cultural identity education for students at Thai Nguyen University of Education. From this, the authors propose solutions to improve the effectiveness of ethnic minority cultural identity education for university students. The research results contribute to affirming the necessity and significance of ethnic minority cultural identity education for students, calling for the involvement of universities, social organizations, staff, lecturers, and students through specific solutions.

Keywords: Education, cultural identity, ethnic minorities, students, Thai Nguyen University of Education

1. INTRODUCTION

The Resolution of the 5th Central Committee of the 8th Congress of the Communist Party of Vietnam on building and developing an advanced Vietnamese culture, deeply imbued with national identity, affirms: “*Culture is the spiritual foundation of society, both the goal and the driving force for economic and social development*” [Dam, 2020]. Inheriting and implementing this directive, the 13th Congress of the Communist Party of Vietnam placed special emphasis on promoting the role of culture in realizing the aspiration for a prosperous and happy nation. In the development orientation for the 2021 – 2030 period, the Communist Party of Vietnam clearly stated: “*Developing well-rounded individuals and building an advanced Vietnamese culture, rich in national identity, so that culture truly becomes an intrinsic strength and a driving force for national development and defense*” [Communist Party of Vietnam, 2021, pp. 115-116]. At the National Cultural Conference held on December 24, 2021, to implement the resolutions of the 13th Congress, the late General Secretary Nguyen Phu Trong attended and delivered an important speech. In his remarks, the late General Secretary emphasized: “*Culture is the soul of the nation, expressing its identity. If culture survives, the nation survives*” [Trong, 2021]. Thus, culture plays

a vital role and is given special attention by the Communist Party and the State of Vietnam. Culture is placed on par with politics and economics, contributing to ensuring the sustainable development of the country and the nation.

To build and develop an advanced Vietnamese culture imbued with national identity, unified in diversity, and to promote the role of culture, cultural education is of utmost importance. This task is particularly urgent in globalization, as the integration trend poses challenges related to “assimilation”, leading to the potential loss of national cultural identity, especially that ethnic minorities. Additionally, the lack of understanding of one’s own culture and the cultures of other ethnic groups in Vietnam risks creating divisions between groups, leading to a lack of mutual comprehension, which could negatively affect national unity and solidarity. Meanwhile, young people, particularly students who are the future of the country, are quick to adopt trends and are heavily influenced by external cultural elements. Therefore, educating students about cultural identity in general, and particularly the cultural identity of ethnic minorities in universities, is highly significant.

The research question raised here is how the current status of ethnic minority cultural identity education for university students is taking place, and how to ensure and improve the quality of this education. To address these issues, the research team conducted a case study to clarify the current state of this work at the University of Education under Thai Nguyen University (where nearly 50% of the students are ethnic minorities) while also considering the general situation at other universities through various published materials and sources.

This paper is based on previous relevant research and the real-world experiences of the research team, building a theoretical framework and general reasoning on the topic. To gain an objective and multi-dimensional view of the current state of ethnic minority cultural identity education for university students, with a focus on Thai Nguyen University of Education, we conducted research using tools such as observation, surveys, and interviews. Based on this, specific measures are proposed to enhance the effectiveness of education on the preservation of ethnic minority cultural identity for students in universities.

The research on ethnic minority cultural identity education for university students (case study at Thai Nguyen University of Education) holds both scientific and practical significance. Scientifically, the research results provide general theoretical knowledge of ethnic minority cultural identity education and its current status in universities, while also offering relevant materials for this educational work. Practically, this paper serves as a reference for lecturers and students in the social sciences and humanities field. Based on the research results, lessons can be drawn, and solutions can be directed toward improving the effectiveness of ethnic minority cultural identity education for university students, contributing to the overall work of cultural identity education and strengthening national unity bloc.

Within the scope of this paper, the research team clarifies the research context, research methods, general theoretical issues, practical awareness of ethnic minority cultural identity, and the current state of ethnic minority cultural identity education for students at Thai Nguyen University of Education, while discussing the general situation at other universities. The paper also addresses the issues raised and proposes solutions to enhance the effectiveness of ethnic minority cultural identity education for students.

2. LITERATURE REVIEW

The issue of cultural identity education in general, and ethnic minority cultural identity education in particular, has been discussed to some extent in various academic works and scientific publications from different perspectives.

Through our survey, we found that many studies address national cultural identity, the cultural identity of minority ethnic groups, and orientations for building and developing national culture. However, there are a limited number of publications specifically focused on cultural identity education. Notably, the book “Cultural identity education for pedagogy students” by Pham Hong Quang clarifies several theoretical issues related to cultural development, educational development, and human development, as well as the tasks, orientations, and solutions for educating students in pedagogy colleges and universities about national cultural identity [Quang, 2022]. However, the national cultural identity discussed in this paper covers a broad scope, including both the cultural identity of the Vietnamese nation and that ethnic groups. Phan Thanh Long, in his book named “Multicultural education for universities to serve the process of integration and globalization”, addressed the issue of multicultural education in universities [Long, 2018].

In scientific articles, both domestic and international scholars have addressed the topic of cultural identity education in general, and for students in particular. In the article “Educating National Cultural Identity for Vietnamese Students: A Case Study at An Giang University”, Nguyen Chi Hai clarified the perceptions and evaluations of An Giang University students regarding the importance of education in preserving the national cultural identity of Vietnam [Hai, 2021]. Similarly, Le Trong Hung’s article “Educating students to preserve and promote national cultural Identity in Vinh Long today” focused on imparting students the traditional cultural values of the Vietnamese nation [Hung, 2022].

In addition, many researchers have chosen the topic of national cultural identity education for their theses and dissertations. Tran Thi Minh Hue’s doctoral dissertation, titled “Educating National cultural identity for pedagogy students in the northern mountainous region through extracurricular educational activities”, clarified theoretical and practical issues and proposes solutions to enhance the effectiveness of national cultural identity education for pedagogy students in the northern mountainous region through extracurricular activities [Hue, 2010]. Truong Khanh Thanh’s master’s thesis named “Managing the education of national cultural identity through experiential activities for students at the Ethnic boarding secondary school in Dai Tu District - Thai Nguyen Province”, elaborated on managing cultural identity education for students through experiential activities at the Ethnic boarding secondary school in Dai Tu District, Thai Nguyen Province. The author also discusses the theoretical foundations of cultural identity and its education [Thanh, 2017].

The scope of this paper does not allow the research team to present a detailed literature review; however, through surveying related studies on the topic and by highlighting some of the representative research works mentioned above, we have observed that the issue of cultural identity education has received considerable attention in research. Nevertheless, most of the

existing studies and publications primarily address the national cultural identity of Vietnam as a whole. The specific issue of ethnic minority cultural identity education, particularly for university students, remains an unexplored area. This study aims to make a modest contribution to building upon and further developing the results of previous scholarly research.

3. RESEARCH METHODS

To achieve the research objectives, the authors employed theoretical research methods, along with both qualitative and quantitative approaches. We utilized observation tools, surveys, and in-depth interviews to collect data.

Specifically, we conducted a survey of 383 students from the Thai Nguyen University of Education (from courses 55, 56, 57, and 58, across 13 faculties). The survey was designed using Google Forms and covered the following areas: Students' personal information (faculty, course, ethnicity); Students' understanding of ethnic minorities and cultural identity; Ethnic minority cultural identity education activities at the secondary education level that students have participated in; Students' level of understanding and confidence in presenting their own ethnic group's cultural identity; Students' assessment of the necessity and importance of ethnic minority cultural identity education for university students; The demand for educated/participation in activities related to ethnic minority cultural identity; Subjects and forms of ethnic minority cultural identity education activities they had participated in at their faculty and university; Students' evaluation of the extent to which the current activities at the university meet the demand for ethnic minority cultural identity education; and Students' selection of appropriate or necessary solutions to enhance the effectiveness of ethnic minority cultural identity education for university students.

The survey was conducted in August and September 2024 at Thai Nguyen University of Education. We received 383 responses (a 100% response rate) and used Excel software for data analysis.

After conducting the survey, we carried out in-depth interviews with three administrators (including representatives from the School Leadership, the Student Affairs Office, and Faculty Leadership), as well as 10 lecturers and 13 students from various faculties.

Based on the collected data and information, the research team employed analysis, synthesis, comparison, and examination of related materials and documents to clarify the current status of ethnic minority cultural identity education, the needs of students, and feasible solutions that can be applied to enhance the effectiveness of ethnic minority cultural identity education for students in Thai Nguyen University of Education specifically, and in universities in general.

4. RESULTS AND DISCUSSION

4.1. Theoretical and practical foundations of educating about the cultural identity of ethnic minorities for university students

Cultural identity is the core, unique characteristic of a cultural community throughout its historical existence and development, distinguishing one ethnic group from another. It is reflected in all areas of life - consciousness of a community; including origins, ways of thinking, ways of

living, nation-building, national defense, and the creation of culture, science, and art. The concept of identity has two fundamental relationships: the external relationship serves as a marker to distinguish different communities, while the internal relationship refers to the homogeneity that each individual within a community must possess [Communist Review, 2018].

In Vietnam, the cultural identity of the ethnic group, in a broad sense, is understood as the common cultural characteristics of the Vietnamese nation (the unity in cultural values among the 54 ethnic groups). In a narrower sense, cultural identity refers to the unique cultural characteristics of each ethnic group. Within the scope of this article, ethnic cultural identity is defined in a narrow sense and is associated with minority ethnic groups. According to Decree No. 05/2011/NĐ-CP dated January 14, 2011, issued by the Government of Vietnam, “*Minority ethnic groups are those with a population smaller than that of the majority ethnic group within the territory of the Socialist Republic of Vietnam. The majority ethnic group is defined as the group whose population constitutes over 50% of the total national population, according to national census data*” [Government of the Socialist Republic of Vietnam, 2011]. Therefore, the cultural identity of minority ethnic groups is understood as a system of values, traditions, aesthetics, and lifestyles that constitute distinctive, progressive, and unique characteristics, making it impossible to conflate the culture of minority ethnic groups with that of other ethnic groups.

Party and State of the Socialist Republic of Vietnam have consistently affirmed that the culture of minority ethnic groups is an important component of the unified and diverse Vietnamese culture. The cultural identity of minority ethnic groups, along with that of the Vietnamese people, plays a significant role in contributing to the richness and diversity of Vietnamese culture. At the same time, there are shared cultural traits among minority ethnic groups that create unified values within the national culture. Recognizing and distinguishing the cultural identity of minority ethnic groups is crucial for the preservation and promotion of these cultural values, safeguarding the national culture, and preventing phenomena of “transformed into Kinh people” or “assimilation” in the context of cultural exchange, transformation, and integration in the current trend of globalization. Because, in today’s world, with the diversity of cultures, every nation faces the risk of loss, alienation, and the erosion of its authentic values [Chi-Ying, et al., 2021].

The trend of globalization has brought many opportunities for Vietnam’s economic and diplomatic development, facilitating the industrialization and modernization of the country. However, it has also posed numerous challenges, among which is the dilution and gradual loss of national cultural identity, particularly that minority ethnic groups. Meanwhile, culture has been defined by the Communist Party of Vietnam: “*Culture is the spiritual foundation of society and a goal and driving force for the sustainable development of the nation*”. One of the important objectives emphasized by the Communist Party of Vietnam is to “*build a culture and Vietnamese people that are fully developed, oriented toward truth - goodness - beauty, and imbued with national spirit, humanity, democracy, and science. Culture must truly become a solid spiritual foundation for society, an important internal strength to ensure sustainable development and the robust defense of the homeland for the goal of a prosperous, strong, democratic, just, and civilized nation*” [Central Party Office, 2014, pp.47]. Therefore, the preservation and promotion of the cultural identity of minority ethnic groups are particularly important for the prosperity and sustainable development of the nation.

The preservation and promotion of national cultural identity is a strategy for sustainable national development and a collective responsibility of society as a whole, with education playing the most crucial role. Through education, the material and spiritual values, practical experiences, behavioral norms, lifestyles, languages, customs, and traditions of various ethnic groups are transmitted, preserved, and connected across generations [Tho, 2017]. Educating national cultural identity in general, and the cultural identity of minority ethnic groups in particular, is a socially organized process that is purposeful and systematic. In this process, with the leading role of educators; the educated subjects actively and proactively receives, supplements, and completes the system of traditional cultural values that embody the essence of both the nation and humanity, while simultaneously discarding outdated habits and customs, ensuring that sustainable values remain vibrant and relevant to current realities [Thanh, 2017, pp.17].

To achieve the goal of educating students for comprehensive development, Vietnam's education system emphasizes the importance of ideological, political, historical - cultural, and ethical education at all levels. At the university level, higher education focuses on in-depth training in the disciplines that students pursue, with the aim of developing a foundational educational framework regarding character, qualities, and essential knowledge to be applied in specific fields. In addition to moral education, fostering positive human qualities, instilling revolutionary ideals in the younger generation, and nurturing students' independent and self-reliant spirit, the education of national cultural identity in general and the cultural identity of minority ethnic groups in particular has become a significant component of higher education for students at universities today.

In practice, universities in Vietnam recognize the importance and responsibility of educating cultural identity and implement specific programs and activities to train the "future owners of the country" in a comprehensive manner that combines both moral and professional development, including the education of the cultural identity of minority ethnic groups. However, the education of national cultural identity is more prevalent than that minority ethnic cultural identity. The education of minority ethnic cultural identity is more prominently reflected in institutions with a significant proportion of students from minority ethnic backgrounds. In terms of format, these institutions have been educating minority ethnic cultural identity through various methods: courses, specialized topics, seminars, clubs, and cultural, artistic, and sports activities. Nonetheless, the level of implementation and effectiveness of these forms varies among higher education institutions. In the context of global integration, some Vietnamese students exhibit a negative absorption of foreign cultures, lacking the correct awareness and understanding of their ethnic identity, which poses a risk of "assimilation". Therefore, the education of minority ethnic cultural identity of university students is urgent and of significant importance.

4.2. The current status of cultural identity education of ethnic minorities for students in Thai Nguyen University of Education

The University of Education - Thai Nguyen University, formerly known as Viet Bac University of Education, was established by Government Council Decision No. 127/CP on July 18, 1966. In 1994, the Government founded Thai Nguyen University, and the university became

one of its member institutions. It is one of the leading higher education institutions in training and fostering high-quality teachers and educational management personnel, conducting scientific research, and transferring knowledge and technology to serve the educational cause and socio-economic development of the nation, particularly in the northern midland and mountainous provinces.

Currently, the university is educating more than 4,000 full-time students, of whom 43.9% are ethnic minority students from the northern provinces (data as of January 2024 for courses 55, 56, 57, and 58). Most of these students, upon graduation, will return to work in their local areas, where their teaching audiences will also consist largely of ethnic minority students. Therefore, the university places great emphasis on student affairs, especially those concerning ethnic minority students, under the motto “*Students are the reason for our existence and the driving force of our development*”. The university identifies the education of political, ideological, ethics, and lifestyle... especially education on traditional culture and ethnic identity as one of its core educational responsibilities.

To clarify the current state of students’ awareness and the educational efforts related to preserving the cultural identity of ethnic minorities, we conducted a survey of 383 students from four cohorts (courses 55, 56, 57, and 58) across 13 departments at Thai Nguyen University of Education. The breakdown is as follows: 29 students from the Faculty of Mathematics, accounting for 7,6%; 58 students from the Faculty of Physics, accounting for 15,1%; 18 students from the Faculty of Chemistry, accounting for 4,7%; 10 students from the Faculty of Philology, accounting for 2,6%; 28 students from the Faculty of History, accounting for 7,3%; 114 students from the Faculty of Geography, accounting for 29,8%; 22 students from the Faculty of Biology, accounting for 5,7%; 1 student from the Faculty of Physical Education, accounting for 0,3%; 79 students from the Faculty of Primary Education, accounting for 20,6%; 6 students from the Faculty of Political Education, accounting for 1,6%; 12 students from the Faculty of Educational Psychology, accounting for 3,1%; 2 students from the Faculty of Early Childhood Education, accounting for 0,5%; and 4 students from the Faculty of Foreign Languages, accounting for 1%, as illustrated in Figure 1.

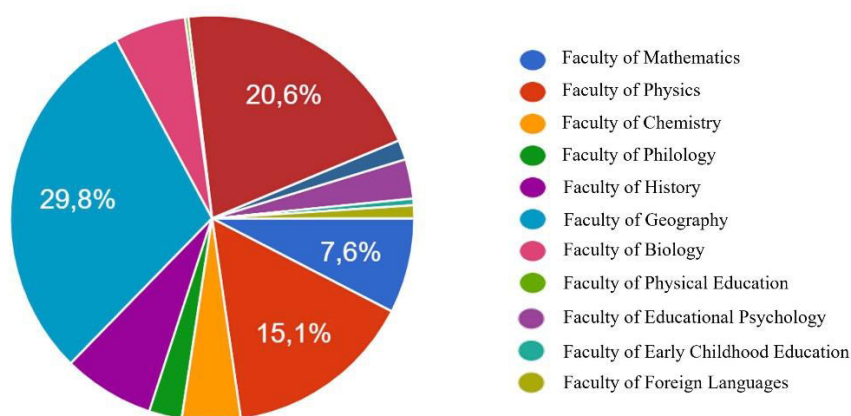


Figure 1. Chart of the number of students from each Faculty participating in the survey

Among the 383 students surveyed, the proportion of ethnic minority students accounted for more than 52%. These students represent the following ethnic groups: Tay (87 students), Nung (30 students), Muong (19 students), Thai (16 students), Dao (13 students), H'Mong (12 students), Ha Nhi (3 students), Bo Y (2 students), Cao Lan (2 students), and Giay (1 student).

The majority of students surveyed (79,1%) had participated in programs and activities incorporating education on the cultural identity of ethnic minorities during their high school, through various activities such as propaganda, extracurricular activities, class meetings, and subject content. Most students correctly perceive cultural identity as a distinctive traditional feature used to differentiate ethnic groups. However, many students lack a precise and comprehensive understanding of what constitutes an ethnic minority, offering vague definitions such as “not Kinh people”, “ethnic groups with small populations”, and assuming that ethnic minorities “live in remote areas” or “live in underdeveloped regions”. Some students even confuse ethnic minorities with the concept of very small ethnic groups, defined as having fewer than 10,000 people. This issue highlights the need for schools and society to enhance the education of basic social sciences and knowledge on cultural identity and ethnic groups for students.

When asked to self-assess their understanding of their own ethnic cultural identity, the majority of students rated their knowledge as incomplete or uncertain (66,1%); 30,4% rated themselves as having a clear understanding, and only 2,6% assessed their knowledge as very clear. However, when interviewing 5 out of 11 students who claimed to have a very clear understanding of their ethnic cultural identity, the research team found that these students had not objectively evaluated themselves. In reality, their knowledge was quite limited. For example, Nung students could not distinguish their traditional attire from that of the Tay ethnic group.



Figure 2. Chart of students' self-assessment of their understanding of their own culture

Due to their incomplete or uncertain understanding, many students lack confidence when introducing their ethnic cultural identity to others. Several reasons were cited by students to explain their limited knowledge and lack of confidence, including: Limited participation in traditional

cultural rituals, which are not widely practiced in modern society; A superficial understanding of ethnic customs, mostly acquired through mass media; The gradual fading of local cultural identity, partly due to exposure to various other cultures, leading to less attention to their own ethnic culture. Another reason is the reduced exposure to traditional culture as society has become more modernized, with changes in people's perceptions, resulting in fewer efforts to preserve and practice cultural traditions. Other factors include limited access to information and a lack of communication and presentation skills.

Notably, when interviewing 5 out of 49 students who expressed high confidence in their knowledge and ability to present their ethnic cultural identity, we found that their reality understanding was limited. They could typically name a few distinctive cultural traits but struggled to distinguish these from similar traits in other ethnic groups, or they knew of these traits but could not describe them in detail. Interviews with faculty members teaching subjects related to cultural and ethnic studies revealed that most students lack a deep understanding of both their own and other ethnic groups' cultural identities. Many ethnic minority students are also unable to speak their native language, as they have been educated in the national language from an early age. Attending schools in town centers and being exposed to mainstream Vietnamese culture and other external influences further limits their contact with and ability to inherit and maintain traditional cultural values.

Given the reality of students' limited understanding and lack of confidence in their own ethnic cultural identity, 91,1% of surveyed students expressed a desire for education on the cultural identity of ethnic ethnicity.

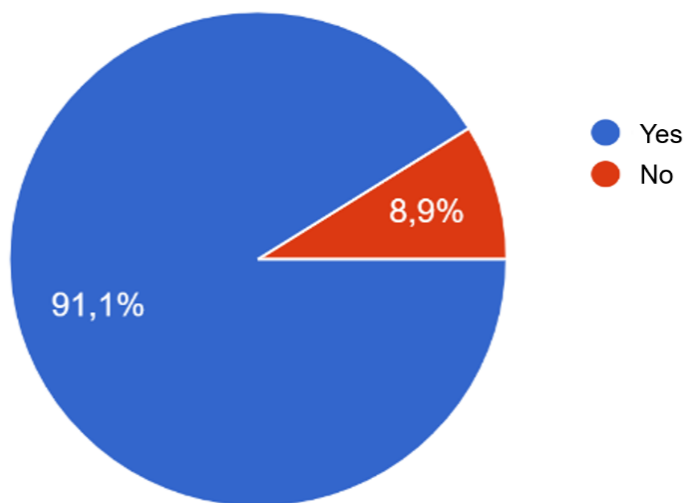


Figure 3. Chart of students' need for education on ethnic minority cultural identity

The students' awareness and assessment of the necessity and importance of educating ethnic minority cultural identity in Thai Nguyen University of Education and other universities are illustrated in Figures 4 and 5.

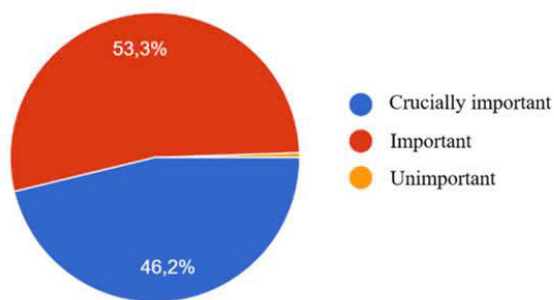


Figure 4. Chart of student results on the importance of educating on ethnic minority cultural identity

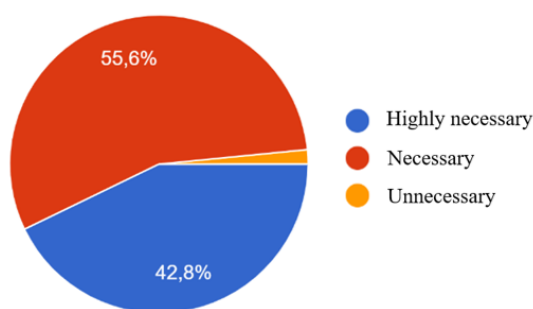


Figure 5. Chart of student results on the necessity of ethnic minority cultural identity education for university students

It can be said that the majority of students have a correct understanding of the importance and necessity of educating ethnic minority cultural identity in universities, as shown by over 98% to 99% of students selecting “Crucially important” or “Important” and “Highly necessary” or “Necessary”. In expressing their views on this issue, all 15 students interviewed affirmed that receiving education on the cultural identity of ethnic minorities helps them gain more knowledge and understanding about their own ethnic group and others, which would be valuable for their future teaching careers. A small number of students also recognized the significance of this education for preserving and promoting the cultural values of ethnic groups, contributing to the protection of Vietnam’s rich, diverse, and unified cultural identity.

In Thai Nguyen University of Education, students participate in a wide variety of activities aimed at educating about the cultural identity of ethnic minorities.

Table 1. Statistical table of forms and number of surveyed students who participated in cultural identity education activities of ethnic minorities

Activity form	Total number of surveyed students	Number of students selected	Percentage %
Class activities	383	141	36,8
Subjects	383	222	58
Seminar, discussion	383	98	25,6
Cultural, artistic and sport activities	383	220	57,4
Club activities	383	81	21,1
Politics class at the beginning of the school year	383	110	28,7
Through media	383	15	0,4
Through friends	383	89	23,2

Thus, the four most popular forms of educating cultural identity of ethnic minorities for students in Thai Nguyen University of Education are through subjects; cultural, artistic and sport activities; class activities and political class at the beginning of the school year.

Subjects with educational content on the cultural identity of ethnic minorities for students in the training program of Thai Nguyen University of Education include: Vietnamese cultural

foundations, General humanity, Vietnamese history, Community of Vietnam ethnic groups, Natural and social foundations, General socio-economic geography, Pedagogy (through organizing experiential activities), Cultural studies, Ethnic theory and ethnic relations in Vietnam, Social psychology, Experiential activities, and practical modules. In which, the subject of Vietnamese cultural foundations and Pedagogy is a common subject for training many majors; other subjects are mainly specialized subject of Social Sciences and Humanities field (History, Geography, Philology, Primary Education).

In extracurricular activities, the popular forms are faculty and school level Art Performances (competitions related to the culture of ethnic minorities) and thematic class activities. Regarding club activities, mainly has school level clubs (Assault Arts, Guitar - Bamboo Flute, art performances of clubs in events), clubs/groups outside the school such as the H'Mong Student Association in Thai Nguyen, the Dao Ethnic Student Association in Thai Nguyen. Thus, currently the school does not have any ethnic minority student clubs, clubs about a type of ethnic minority cultural art such as the Then singing and Tinh lute club, Thai ethnic student club...

When assessing the level of meeting the needs of content and form of activities, 35,5% of students said that it only met some needs, 4,5% of students said it did not meet needs. Thus, it can be seen that students of Thai Nguyen University of Education have great needs for education and diversity of content and forms of education on the cultural identity of ethnic minorities, requiring more attention to this work of the University.

In order to have a basis for proposing solutions to improve the effectiveness of educating ethnic minority cultural identities for students at universities in general and in Thai Nguyen University of Education in particular, the research team surveyed students' opinions to choose necessary/appropriate solutions. The selected answers include: Establishing clubs on ethnic minority culture (eg: Then singing and Tinh lute club, Dao ethnic student club); Increasing practical experience activities; Education through subjects; Organizing activities and seminars; Organizing cultural exchange programs between students in the university; Integrating criteria on preserving and promoting ethnic cultural identities in the 5 Good Students movement; Organizing competitions on ethnic minority cultural identities (knowledge, presentations, costume performances, dramatization,...). The results are as follows:

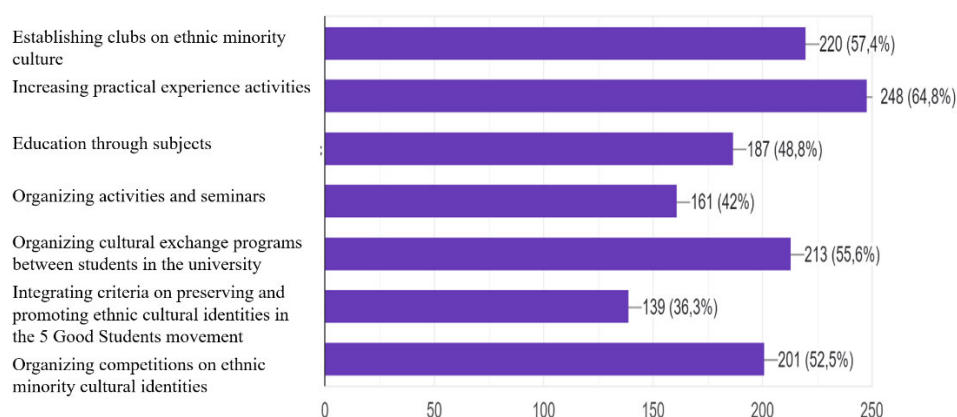


Figure 6. Results of students choosing necessary/appropriate solutions to educate the cultural identity of ethnic minorities

According to the data collected, the choice with the highest percentage is to increase practical experience activities (64,8%). Interviewed students shared the need to organize cultural festivals of ethnic groups to have the opportunity to participate, perform, express and introduce their ethnic culture; the need to have field trips for subjects, extracurricular activities of the class, clubs, and Union - Association activities to bring students to ethnic minority areas to experience reality. More than 50% of students wish that the university establish clubs on ethnic minority culture, organize cultural exchange programs between students in the school and organize competitions on the cultural identity of ethnic minorities.

5. DISCUSSION

Cultural identity education of ethnic minorities for students is a necessary issue, with an important and significance role at universities. For pedagogical universities such as Thai Nguyen University of Education, this work is even more valuable because each well-educated student will become a teacher to educate many generations of students later.

The education of ethnic minority cultural identity for students has been and is being focused on by the University in the work of educating learners. In the training program of the university, there are many subjects with direct content on cultural identity and ethnic minority cultural identity, providing students with scientific knowledge on the issue. In addition, the lecturers' team in teaching and education have actively and proactively integrated relevant content, practical activities and experiences to contribute to the education of ethnic minority cultural identity for students. In addition to education through classroom hours, at the university, many extracurricular activities have been organized by the Student Affairs Department, Youth Union - Student Association, Clubs, and specialized Faculties with the value of educating ethnic minority cultural identity for students. However, it can be said that, up to now, the University has not had any direct and specific directive documents, programs and projects on the work of educating ethnic minority cultural identity for students. Ethnic minority cultural identity education activities for students are mostly spontaneous in terms of content and form chosen by the implementer, lacking overall direction. Moreover, between specialized faculties, the frequency and effectiveness of educational activities are inconsistent and unbalanced. For example, in the curriculum of the Natural Sciences block, there are limited subjects with ethnic minority cultural identity education content. In terms of activities, the school lacks club/team models and activities on ethnic minority culture.

Students have many channels and forms of activities to absorb and understand their own national culture and the culture of ethnic minorities. However, the content absorbed lacks systematization, specificity, and sometimes lacks accuracy. Therefore, students' awareness of national cultural identity is very limited with basically superficial and general knowledge. Besides, due to the impact of various factors, several students have not really realized their full role and responsibility in preserving and promoting the cultural values of their own ethnic group, so they are indifferent, have no need, and lack motivation to learn about the cultural identity of ethnic groups. At university level, most students leave their families and hometowns to live in urban areas, so they have little contact with traditional national culture, leading to the situation where students gradually forget the cultural values of their own ethnic group.

Through the study of documents, the research team have found that the existing problems and difficulties in the work of educating the cultural identity of ethnic minorities for students at the University of Education - Thai Nguyen University are also the common situation and problems of most universities in Vietnam. Therefore, to overcome these difficulties, the requirements for the work of educating the cultural identity of ethnic minorities for university students in general and for students in Thai Nguyen University of Education in particular, need to have specific policies, plans and educational solutions. In addition, it requires the coordination of many forces in the school such as lecturers, Youth Union - Student Association; agencies, departments, families and students themselves.

Based on the inheritance of theories and some practical research cases, the group of authors proposes a number of solutions to improve the effectiveness of ethnic minority cultural identity education for students as follows:

Firstly, the University need to thoroughly understand and organize activities so that all lecturers and students are aware of the role, meaning and responsibility in the work of education and self-education of ethnic minority cultural identity.

Secondly, the University need to have directive documents and develop a project to synchronously implement solutions to effectively implement and improve the effectiveness of ethnic minority cultural identity education for students. The solutions include:

1 – Strengthen communication efforts to raise awareness among staff, lecturers, and students about the importance of educating on the cultural identity of ethnic minorities. These communication efforts can take various forms, such as speeches, addresses at commemorative ceremonies, traditional days, etc.

2 – Develop curricular and extracurricular programs that include content on educating the cultural identity of ethnic minorities (continue to maintain and expand existing programs); integrate this educational content with experiential learning activities.

3 – Organize ethnic minority cultural festivals within the school, featuring diverse activities such as fashion shows, musical and dance performances, playing traditional musical instruments, preparing ethnic dishes, and organizing folk games.

4 – Design classroom activities based on themed of minority cultural identity education in collaboration with pilot units. From there, expand the scope of these activities while maintaining consistency and ensuring effectiveness.

5 – Establish cultural clubs focused on ethnic minority groups with regular meetings to share knowledge on the cultures, customs, festivals, cuisine, and languages of these groups. Collaborate with similar clubs both within and outside the university to expand the network and promote multidimensional cultural exchange.

6 – Build a school environment that deeply reflects the cultural characteristics and identities of various ethnic regions.

7 – Inherit and develop family and general education values in shaping students' character by fostering connections between families and schools, as well as between universities and secondary schools.

Thirdly, determining the goal of educating ethnic minority cultural identity is not limited to educating traditions and preservation, but requires the process of absorbing progress and good things; preserving while developing, suitable to the context of the times, integration trends and students' needs.

CONCLUSION

The education of ethnic minority cultural identity for students in universities has received attention, but the educational efficiency is not high due to many subjective and objective reasons. Universities need to continue to pay enough attention and deploy this work on a large scale and synchronously in their educational tasks. To improve the effectiveness of the education of ethnic minority cultural identity for students, the solutions that need to be implemented are to change the thinking and awareness of learners. Learners must be the subject of education and self-education, have the need to be self-motivated and proactive in learning about ethnic cultural identity, preserving and promoting those values; build and develop training programs, innovate training and teaching methods, and attach new goals to the education of ethnic cultural identity; Orient and form research and discovery skills for students; Organize diverse forms and content suitable to the needs and aspirations of students and the trends of the times. Educating the cultural identity of ethnic minorities in the trend of both preservation and development.

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THE INFLUENCE OF TESTS AND ASSESSMENTS ON PRESSURE IN THE LEARNING ACTIVITIES OF MIDDLE SCHOOL STUDENTS NORTHERN MOUNTAINOUS AREA

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ABSTRACT

In the context of changes to the general education program in 2018 in general, the change in testing and assessment methods is based on comprehensive student qualities, focusing on personal abilities, encouraging Students demonstrate their individuality and ability, bringing positive effects to teachers and students. However, in addition, a portion of students have not yet become familiar with and adapted to the new testing and assessment methods, creating pressure on themselves, affecting their learning activities. We used the questionnaire survey method and in-depth interviews to investigate the current situation of the influence of testing and assessment on the pressure in learning activities of middle school students, and the results. shows that assessment has a moderate impact on pressure in learning activities. From there, we point out measures to promote the positives of testing and assessment methods, avoiding affecting the learning outcomes of middle school students in the Northern mountainous region.

Keywords: Testing and assessment, pressure, learning activities, middle school students.

1. INTRODUCTION

Pressure in testing and assessment is when students face strict requirements during the learning process, those requirements can be coercion, discomfort or excessive expectations from the environment. surrounding school and from the students themselves. The pressure of testing and evaluation can motivate students to achieve their goals, but if the pressure is long-term, it will bring negative consequences on students' health and psychology.

The learning activities of middle school students have their own characteristics as they begin to get acquainted with many new subjects that are not available in elementary school, requiring them to improve their learning and mastery tasks. knowledge in many fields. Learning activities are an important turning point and the main activity of middle school students. In the lower grades, children learn systems of events and phenomena, understanding the simple relationships between those events and phenomena. In middle school, students move on to systematically study the foundations of the sciences. In particular, the newly issued 2018 general education program requires students to have high research, exploration, systematic and self-study capacity. Middle school students often put pressure on themselves to score high on exams, this result affects their ranking and progress to have the opportunity to enter specialized schools when taking the transfer exam. . In learning activities, children often show competition to assert themselves in the eyes of

friends and relatives. That feeling of competition makes them always feel pressured. Physiological development along with changes in learning activities make middle school students always feel pressured.

The concept used in this study is: "Pressure in testing and assessment activities of middle school students is a psychological reaction when affected by pressure from both the internal and external environment." Outside schools influence students' testing and evaluation activities, causing positive or negative effects. Those reactions can be a driving force for students' learning activities, but can also become negative when they cannot respond and manifest into stress and resistance."

2. RESEARCH OVERVIEW

2.1. Situation of foreign research

Currently, authors are interested in research on the manifestation of testing and evaluation pressure in four aspects: cognition, behavior, emotions and physiology.

First of all, regarding cognitive manifestations, when researching the sources of testing and evaluation pressure, authors Lihong & Meijinrong (2002) said that the manifestation of testing and evaluation pressure is expressed through perception. Students' concerns include: worries when the exam does not achieve the expected results, wanting to focus on studying but not studying [1].

Regarding emotional expressions, Gordana Stankovska and colleagues (2018) believe that assessment pressure has a close relationship with emotions. When students are under pressure during assessment, they will have specific manifestations of emotions. emotions, female students often express anxious emotions during exams, while male students often control their emotions, and when the exam ends, they get the same score. If desired, their emotional expressions will then improve and be better than before [2].

In terms of physiology, some authors are interested in the endocrine changes of puberty. Middle school students are a period of many physiological changes, which affects It's not a big deal when it comes to checking and evaluating students. During adolescence, an increase in emotional disorders is observed in girls during adolescence; however, this is less evident in boys. 15-year-old girls have more emotional problems than their male counterparts. From 2008 to 2016, girls experienced an increase in academic pressure compared to boys, manifested by feelings of anxiety. Hormonal changes may play a role in developmental differences between the sexes and may be the reason why adolescent girls also seem to have stronger emotional responses to stress compared to adolescent boys.

In terms of behavior, some authors believe that when under pressure of testing and evaluation, children often have negative changes in eating behavior. studies relating anxiety and eating habits in young adults and adolescents aged 8 to 18 years. Therefore, the results of this work show that the learning environment can also have negative effects on eating behavior, which together with the pressure of assessment can cause them to abandon a balanced diet. equal. [3]

2.2. Research situation in the country

Authors Trieu Thi Dao, Vu Van Du, Dang Duc Nhu (2018) when researching factors causing stress, pointed out that the pressure of testing and evaluation is one of the causes of stress, a manifestation of stress. The pressure of testing and cognitive assessment means that students feel disappointed in their learning scores and lack confidence in their scores [4].

Author Le Minh Nguyet and colleagues (2018) have presented 70 manifestations of pressure and stress in various fields, mainly manifesting in three areas: pressure from the environment, pressure from the social environment. and pressure from studying. These pressures cause negative manifestations that erode the health and energy of students [5].

According to research by author Nguyen Thi Nguyet (2018), the pressure of testing and evaluation is related to physical, cognitive, emotional and behavioral weakness. When students are under pressure to study for a long time, it will lead to a decline in cognitive ability, reduced memory and affect learning results. Moreover, when children experience high pressure, it will lead to a tendency to participate in "video games" or "Like to use stimulants: cigarettes" [6].

Thus, there have been a number of studies on the manifestation of test pressure, assessed in four aspects: cognition, behavior, emotion and physiology. However, research is mainly integrated into the relationship of testing and assessment pressure with other issues in mental health, so there are no studies showing the manifestations of academic pressure. cover all four aspects above. In Vietnam, very few authors have studied the manifestations of testing and evaluation pressure or there have only been studies on testing and evaluation pressure associated with stress issues, so we will clarify these manifestations in this study.

2.3. Research methods

To study the level of pressure in testing and assessment of middle school students in the Northern mountainous region, we use the questionnaire survey method.

This study was investigated on a number of 450 middle school students in the Northern mountainous region

The questionnaire is designed through specific multiple-choice questions in events related to the student's assessment activities. The influence of assessment on pressure in learning activities is built through groups of agents surveyed from students, including 5 options: (1): "Not including hour"; (2): "Rarely"; (3): "Sometimes"; (4): "Often" (5): "Very often".

In-depth interview method: we conducted in-depth interviews with 20 middle school students to collect some additional information for the questionnaire survey method.

3. RESEARCH RESULTS

During the learning process, assessment is one of the activities that puts pressure on middle school students. Below are the results of the impact of assessment on pressure in learning activities. of middle school students:

3.1. Current status of the impact of testing and assessment on pressure in the learning activities of middle school students in the Northern mountainous region

Table 1. The influence of testing and assessment on pressure in learning activities in the Northern mountainous region

Numerical order	Inspection and evaluation activities	Quantity	Ratio (%)	Average score	Standard deviation
1	How to evaluate through tests	99	22	2,15	0,72
2	Evaluate through practice	87	19,3	2,12	0,69
3	How to organize end-of-semester exams	140	31,1	2,37	0,84
4	A lot of knowledge to test	149	33,1	2,38	0,90
5	The exam schedule is packed	91	20,2	2,01	0,77
6	The teacher's grading method is unfair	72	7,4	1,76	0,87
	Overall average score	450	100	2,13	0,79

Our survey results show that the issues related to testing and assessment that cause the most anxiety for students are: "a lot of knowledge tested" (average score = 2.38), "how to Organize exams for all subjects" (average score = 2.37). If in the previous high school program, students learned mainly theory and little practice, then when studying the new high school program today, they not only learn a lot of theory but also have to practice more and more. That result is evaluated through in-class tests. The test sessions are strictly organized like a major high school exam, making students always feel nervous before taking the exam. When asked about the upcoming exams, NLP (SD Secondary School) shared: "I'm very worried when I have to learn a lot of new knowledge, especially thinking about the upcoming exams. was afraid".

The process of researching the current situation shows that there are differences between the three areas: city, rural and mountainous areas, the results are shown in the table below:

Table 2. The influence of testing and assessment on pressure in learning activities by region

Inspection and evaluation activities	Leve					
	City area		Rural area		Mountainous area	
	Average score	Standard deviation	Average score	Standard deviation	Average score	Standard deviation
1.How to evaluate through tests	3.71	0.62	3.52	1.27	2.87	1.21
2.Evaluate through practice	3.71	0.62	3.52	1.27	2.87	1.21
3.How to organize end-of-semester exams	3.60	0.67	3.55	0.86	2.57	1.00
4.A lot of knowledge to test	4.01	0.76	3.16	0.98	3.03	1.01
5.The exam schedule is packed	4.18	0.60	3.53	1.22	2.99	1.23
6.The teacher's grading method is unfair	3.74	0.69	3.17	1.06	2.96	1.14
Overall average score	3.85	0,66	3.39	1.01	2.88	0.98

Research results show that in the city, students have the highest level of influence (average score = 3.75) compared to rural areas (average score = 3.52) and mountainous areas (average score

= 2.87). In the city, competition among students is fierce, with many excellent students in the same class or school. This creates great pressure to achieve high results in exams and tests, in order to maintain position in class and school. City schools often compete for good reputations, and this is reflected in student performance. Students face pressure from the school to achieve high levels of achievement in order to maintain the school's reputation. Parents in the city often have very high expectations for their children's education. They want their children to get good grades, get into prestigious universities, and have a successful career. This creates great pressure for students during tests and assessments. In urban environments, society often values academic achievement, and students often feel pressured to perform well to meet family and societal expectations. Students in the city often have to learn a larger amount of knowledge due to a richer and more demanding curriculum. This includes not only core subjects but also supplementary subjects such as foreign languages, arts, and computer science. This increases the pressure during exams. City students often have a very packed schedule, including regular classes, extra classes, and extracurricular activities. This leads to a lack of time to rest and prepare for exams, adding to stress. Relationships with friends and teachers in a city environment can create great pressure. Students may feel pressured when compared to their peers or when they do not meet teacher expectations. In cities, testing and assessment forms are often more diverse, including written tests, presentations, practical tests, and standardized tests. This diversity requires students to be well-rounded, and this can create pressure. With a packed schedule and large workload, city students often lack time for rest and entertainment, leading to accumulated stress. This increases the pressure when facing exams and tests. Although there are many psychological support services in the city, many students still cannot access them or do not dare to seek them out for fear of being judged. This increases pressure as students have to face academic stress on their own. City students often face more testing and assessment pressure than students in rural and mountainous areas due to high levels of competition, expectations from family and society, heavy curriculum, and school environment. Challenging practice. These factors contribute to creating a stressful learning environment where students face great pressure to achieve high levels of achievement. This requires support from family, school, and society to reduce pressure and help students achieve balance in their study life.

For the city area, the factor affecting the pressure in learning activities of middle school students is "a lot of knowledge to test" (average score = 4.18). In the city, the level of academic competition is often higher than in other areas. Students need to master a large amount of knowledge to achieve good results in exams, leading to increased pressure. In the city, due to the large number of excellent students and the highly competitive environment, students must try to master a large amount of knowledge to achieve high scores and maintain their position in class or school. In the city, many students aim to enter specialized schools, selective classes, or prestigious universities, where extensive knowledge is required. This requires students to put in more effort, creating great pressure on the amount of knowledge they need to learn. City students often have a packed schedule, including regular classes, extra classes, and extracurricular activities. This limits self-study and review time, increasing the pressure to absorb a large amount of knowledge in a short time. With a large amount of knowledge and a dense study schedule, students often have little time to rest. Students in the city are often under pressure from high expectations from family, teachers, and society. They need to achieve high levels of achievement to meet these expectations, which requires them to learn and memorize large amounts of knowledge. In many

city schools, exams and tests are often designed with complex content and require students to have extensive knowledge. This requires students to study more and can lead to pressure.

For rural areas, the factor that affects children the most is "assessment through practice" (Measurement = 3.55), when schools here are still limited, lacking equipment, laboratories, and the necessary tools to carry out the practice. This makes it difficult for students to master and perform practice tests. Students in rural areas often do not have as many opportunities to access rich educational materials and resources as students in cities. The lack of resources to study and practice can make students feel less confident when facing practice tests. Due to limited facilities, students in rural areas often do not have as many opportunities to practice as students in cities. When facing tests that require practical skills, students may feel pressured due to lack of experience and practical skills. In rural areas, teachers may have difficulty providing complete and detailed practical instruction due to lack of resources. This makes students feel less ready and confident when taking practice tests.

For mountainous areas, the impact of "exam organization" (average score = 3.03) puts the most pressure on students. In mountainous areas, due to limited traffic, information and communication conditions, students may not be provided with full information about the structure and content of the exam. This causes pressure as students feel uncertain about what will be tested. With the change in the assessment format of the new 2018 high school program, due to limited learning materials and guidance, students in mountainous areas often have few opportunities to review and prepare carefully for the exams. exam. This leads to anxiety and pressure when facing exams. Many schools in mountainous areas have substandard facilities, exam rooms may be uncomfortable, have poor lighting, or even lack necessary equipment such as exam paper, pens, or calculators. NGT friend said: "I'm very afraid of the test. Check out presentations and slides because I don't have a computer." These difficulties increase the pressure on students during the exam process. Students in mountainous areas may lack the necessary skills to test effectively, such as time management, reading comprehension, and test-taking techniques. Lack of these skills increases anxiety and pressure when taking the exam.

Besides, students in all three areas are affected by teachers' "unfair grading practices". When students feel that their grades do not reflect their ability or effort, they may lose trust in the assessment system. This injustice makes the children feel pressured, because no matter how hard they try, they are still not appreciated.

If students believe their academic performance is affected by bias or unfairness, they may lose motivation to keep trying. This creates a vicious cycle where psychological pressure increases as students feel unable to control their academic performance. When grades are not given fairly, students may worry that their performance will not reflect their true abilities. This anxiety can lead to great pressure to get good grades, even when they know that their efforts may not be recognized. Students often face expectations from their families, teachers, and society. When grading is unfair, they may feel pressured to explain or deal with people who have high expectations of them, leading to stress and anxiety. NGT - a 7th grade student at Lang Son VL Secondary School said: "I feel like no matter how well I do, I can't get as high a score as my friends who know my family." When students feel unfairly evaluated, they can fall into a state of frustration, discouragement, and even despair. This condition can last a long time, causing negative effects on children's psychology and

health. Unfair grading methods create great pressure for students, not only making them feel anxious and unfair, but also causing negative impacts on psychology, learning motivation, and relationships with students, teachers and friends. These factors contribute to increased stress and reduced academic performance, negatively affecting students' comprehensive development.

3.2. Solutions to improve the positivity of assessment for middle school students

In order to promote the positivity of the testing and evaluation method according to the new 2018 general education program, we have introduced a number of measures as follows:

Integrate assessment into the learning process: Instead of relying solely on final exams, integrate assessment methods into the daily learning process. Use activities such as group projects, presentations, and homework for continuous assessment.

Develop tests in diverse formats: Use many different types of tests such as multiple choice, essay, practice exercises, and group exercises. This provides a more comprehensive assessment of students' abilities and reduces monotony.

Encourage self-assessment and peer feedback: Guide students to conduct self-assessment and participate in the peer feedback process. This not only helps students become aware of their own strengths and weaknesses but also develops analytical and feedback skills.

Provide constructive and timely feedback: Give specific and constructive feedback after each test. Make sure that feedback helps students understand their weaknesses and provides suggestions for improvement.

Encourage students to set personal goals: Guide students to set personal learning goals and track their progress. This helps students focus on self-development instead of just chasing scores.

Create a comfortable learning environment: Reduce pressure by creating a positive and supportive learning environment. Ensure that students feel safe and confident when participating in testing and assessment activities.

Explain the goals and benefits of testing: Explain to students the goals of tests and how they help them develop skills and knowledge. When students understand the purpose, they will be more motivated to participate actively.

Organize extracurricular learning activities: Incorporate extracurricular learning activities, such as competitions, academic clubs, or seminars, to enrich the assessment and learning process practice.

Use assistive technology: Apply technology tools to create interactive tests and assessments, such as online quizzes, automated assessment software, and learning applications. This helps students find testing more interesting and engaging.

Promote creativity and critical thinking: Design tests that not only assess knowledge but also encourage creativity and critical thinking. For example, ask students to solve real-life problems or participate in simulation activities.

By implementing these measures, teachers can help middle school students feel more positive about testing and assessment and create a supportive and encouraging learning environment.

4. CONCLUSION

In summary, the results of the investigation of the current situation show that testing and evaluation have an average impact on middle school students. The level of impact of assessment on students in different regions is different, students in the city have the highest level of impact, students in mountainous areas have the lowest level of impact. To ensure testing and assessment have a positive impact on students, teachers need to ensure that tests reflect the content taught and students' true abilities, rather than just focusing on scores. numbers, encourage students to continuously study and evaluate their progress over time; Encourage students to self-assess and reflect on their own learning to develop self-awareness and self-management. From there, the school can create a friendly learning environment, helping students feel confident in their own learning activities.

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LEVEL OF PRESSURE IN STUDENTS' LEARNING ACTIVITIES PHU THO PROVINCE SECONDARY SCHOOL

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ABSTRACT

Pressure in the learning activities of middle school students is a psychological reaction when affected by pressure from both the internal and external environment on their learning activities. students cause positive or negative effects. To learn about the level of pressure in the learning activities of middle school students in Phu Tho Province, we use research methods by questionnaire survey and in-depth interview method. The results of the investigation of the current situation show that middle school students in Phu Tho have decent level. Schools and teachers need to take specific measures to turn pressure into motivation to help students improve their results in learning activities.

Keywords: Pressure, learning activities, middle school students, Phu Tho Province

1. INTRODUCTION

Pressure is a human psychological reaction when affected by any environmental condition that gives the individual a positive or negative interaction. Those reactions can be the driving force that drives the individual's activities to develop, it can also be negative when the individual cannot respond and manifests as tension and resistance. Pressure can come from many different sources such as work, family, society or self-imposed to achieve personal or social goals. In the work and study environment, pressure can appear when there are requirements, regulations or goals that people find difficult to meet. When people face long-term pressure, it will affect the ability to concentrate, work efficiency, overwork, physical weakness, imbalance between work and personal life, causing causes mental health problems such as anxiety, depression... However, pressure can also motivate people to try, strive to rise and achieve goals.

When there is pressure, students will be motivated and increase their concentration level when studying. Pressure arouses competition, making students want to improve themselves and surpass themselves to achieve high achievements. From there, you can remember knowledge well and pass the exam in the best way. Excellent academic achievements can open up better opportunities in the future for study and employment with a stable and successful future. labour. However, if academic pressure lasts for a long time and you do not know how to adjust, both your physical and mental health will face many psychological and mental problems. Students may lose social relationships, family, and friends, and may feel lonely or alienated from relatives. The

pressure to achieve results will cause students to chase scores and lose creativity and personal development.

The concept used in this study is: *"Pressure in the academic activities of middle school students is a psychological reaction when affected by pressure from both the internal and external environment." on students' learning activities, causing positive or negative effects. Those reactions can be a driving force for students' learning activities, but can also become negative when they cannot respond and manifest into stress and resistance."*

2. RESEARCH OVERVIEW

2.1. Studies abroad

A study by Chinese author Lina Mu and colleagues (2022) found that students experience pressure in learning activities with the highest level being in exam activities and anxiety about test activities, evaluation, in which female students are always higher than male students. According to the author, to deal with that problem, educational institutions need to guide students in methods to reduce pressure and burden, improving their living conditions on a healthy campus. strong. Besides, in learning activities, in addition to psychological interventions, students need to plan time allocation and have connections between students of the same major and other majors. industry to be creative, especially for female students [1].

Rajash.E and colleagues (2022) believe that pressure in learning activities comes from many different sources, including the amount of knowledge content in learning comes from many different courses, many young students. There are signs of "nervous breakdown, panic, exhaustion and depression", each student has different reactions and expressions, but depending on the stressful situation, each person has different emotions or ideas. negative or positive [2]

In recent years, many studies have suggested that Chinese students outperform their Western counterparts on achievement tests. Research by the author group F Salili and colleagues (2004), the number of students having suicidal thoughts and the number of students suffering from depression increased due to pressure to achieve good results in school [3].

2.2. Research in Vietnam

Author Bui Dinh Tuan (2015) said that "96% of parents of high school students asked wanted their children to become successful people" [4]. To achieve that, parents must regularly urge, monitor, and remind their children, and parents will even take disciplinary measures if their children do not achieve good results.

Sharing the same opinion about the cause of academic pressure on children as parents, author Nguyen Thi Nguyet (2018) researched on 85.39% of "parents often compare with others", 44.66% " Parents are demanding and impose schedules"; 35.67% "Parents care too much, manage strictly" and 36.52% "Parents interfere deeply with their children's learning and relationships". In the relationship between parents and children, if parents do not know how to respect their children's opinions and do not understand their children's physiology, it will lead to disagreements, conflicts, inhibitions, fatigue and negative effects. to children's learning [5].

Author Hoang Gia Trang (2004) when researching "Psychological pressure in learning activities of middle school students" conducted a survey on 598 students of 4 middle schools in the

city. Hanoi shows that: The cause of academic pressure for students comes from both the family and the school [6].

In summary, the studies by foreign and Vietnamese authors all focus on the causes of academic pressure, some measures to reduce academic pressure or partially elucidate the causes and solutions. impact of pressure in learning but has not focused entirely on the issue of pressure in learning activities of middle school students, nor have students had any measures to cope with academic pressure. Therefore, researching the academic pressure of secondary school students in Phu Tho Province is of urgent significance

2. 3. Theoretical base and research methodology

We researched over 200 middle school students in Phu Tho Province, using a questionnaire survey method with 16 items/questions to assess learning pressure. Each question includes a 5-point Likert-type scale (from 1 = never to 5 = very often). Participants' responses to the questions were added together to create a total score; Furthermore, five different factors resulted from the statistical analysis of their responses to the following issues: 'Study pressure'; 'Learning load'; 'Worry about grades'; 'Self-expectation' and 'Uncomfortable'. Higher scores indicate greater pressure. Published in English by Sun et al. (2011), the questionnaire had good internal consistency, with Cronbach's $\alpha = 0.82$ for the total scale and $\alpha = 0.79$, $\alpha = 0.73$, $\alpha = 0.69$, $\alpha = 0.65$ and $\alpha = 0.64$ for 5 separate factors [7]

In addition, we use the in-depth interview method to supplement the questionnaire survey method to clarify the level of pressure in the learning activities of middle school students in Phu Tho Province.

3. RESEARCH RESULTS AND DISCUSSION

3.1. Current status of pressure level in learning activities of middle school students in Phu Tho Province

To research pressure in learning activities, we have clarified the pressure situation of students representing Phu Tho Province, the results are shown in the data table below:

Table 3.1. Current status of pressure levels in learning activities of middle school students

Pressure factors	Level of pressure in learning activities		
	Average score	Standard deviation	Hierarchy
1. I feel very disappointed with my academic scores	3.29	1,01	6
2. I feel like there are too many lessons at school	3.47	0.95	1
3. I have too much homework to do	3.28	1,04	8
4. Thinking about studying in the future puts a lot of pressure on me	3.37	0.95	2
5. My parents care too much about my studies and put a lot of pressure on me	3.19	0.93	16
6. I feel like studying every day puts a lot of pressure on me	3.21	1.07	14

Pressure factors	Level of pressure in learning activities		
	Average score	Standard deviation	Hierarchy
7. There are too many tests and exams in school	3.21	1.06	14
8. My academic performance is very important for my future and it even determines my entire life	3.24	1,08	11
9. I feel like I disappointed my parents when my test results were low.	3.24	1.06	11
10. I feel like I disappointed my teachers when my test results were not perfect (ideal)	3.25	1,05	10
11. There is too much competition in studying with my classmates, bringing a lot of pressure to study for me	3.31	1.08	4
12. I always lack confidence in my academic scores	3.36	1.11	3
13. I have a hard time concentrating during class	3.24	1,10	11
14. I feel stressed when I don't live up to my own standards	3.29	1,10	6
15. When I don't meet the expectations I set, I feel like I'm not good enough	3.30	1,03	4
16. I often cannot sleep and feel anxious when I cannot achieve the goals I set for myself	3.27	0.98	9
Overall GPA	3,28	0,92	

Survey results of over 200 students show that the pressure in learning activities is at a moderate level, the level of pressure in learning activities is mainly caused by the students themselves feeling through their learning activities. practice. Middle school students are gradually transitioning from children to humans, this is a characteristic stage of both physiological and psychological development that leads to a series of changes in activities and social interactions. When entering 6th grade, students have to get used to the environment, teachers, and friends, and do not yet have self-study skills and clear study plans. When entering middle school, students begin to take many new subjects in other fields, they begin to develop interest in their favorite subjects, and feel tired and bored with other subjects. or teaching methods they don't like. From then on, students gradually have pressure in their learning activities, especially that pressure comes from themselves, when they feel "there is too much homework at school" (DTB=3.46). During the research process, we conducted an in-depth interview with an NTH student - a 6th grade student at MP Viet Tri Secondary School who said "I have to study all 12 subjects, not to mention mandatory extracurricular activities, every subject is very interesting." a lot of homework, I can't sleep before 12 nights a day, if I don't do all my homework I won't be able to go to class or will be graded. Before, I could go out with friends every weekend, but now on weekends Just take the time to do your homework." In addition to the exercises in the textbook, students must become familiar with many forms of project and experiential exercises, which require practical and application skills that are more difficult than in elementary school. The higher you go, the more difficult and difficult the exercises become, which has a significant impact on the pressure in students' learning activities.

When middle school students lose interest and feel bored and tired, they "Thinking about future studies creates a lot of pressure" (DTB=3.37). Because of such thoughts, students always

feel "lacking confidence in their scores" (Meaning Point = 3.35) and "not achieving their set aspirations, feeling that they are not good enough (Meaning Point = 3.30).). Program changes will also lead to changes in learning methods, testing and evaluation methods. If students do not explore and have their own plans, it will be difficult to adapt. . The school always has specific activities to guide students as they get used to the new learning environment when entering the first grade, but each different target group and area has different pressures.

Through studying 200 students, we found that there is a difference in the level of pressure in the learning activities of male and female students, this is shown in the data table below:

Table 3.2. Differences in the level of pressure in learning activities of middle school students by gender

	N	Average score	Standard deviation	P_T-test
Female	110	3.73	0.62	0.023
Male	90	3.51	0.74	

The results showed that, among the 110 female students participating in the study, the average score for pressure was 3.73 with a standard deviation of 0.62. Meanwhile, 90 male students had an average pressure score of 3.51 with a standard deviation of 0.74. This shows that female students have a higher level of academic pressure than male students.

The P_T-test value is 0.023, less than 0.05, indicating that the difference in the level of academic pressure between male and female students is statistically significant. This means that this difference is not due to chance but has been proven to have a basis. According to the academic pressure scale from 1 to 5 (with levels from "Never" to "Very often"), the average scores of both male and female students are in the range of level 4. means "Regularly". However, the average score of female students is higher, showing that they experience academic pressure more often than male students.

During the research process, we conducted an in-depth interview with teacher NTD - chemistry teacher at MP Viet Tri Secondary School. He said: During the teaching process, especially before exams, female students often appear very worried, many students lose focus in class because they are afraid of not being able to do the exam, and although male students are also worried, they forget quickly and do not lose concentration like many female students." . NLA - a student at MP Secondary School said: "We have to do a lot of homework, while at recess the girls often sit together and worry about how to do the project exercises and whether they will complete them. Whether it's okay or not, the boys still casually hang out, but they still participate in group activities well." Female students often tend to express their emotions easily and have difficulty controlling themselves in specific situations. Children often care a lot about social relationships, friendships and self-image. Besides, during the period from 6th to 8th grade, female students often go through puberty earlier than male students, they have physiological changes, their emotions are often unstable, and they have difficulty concentrating. into studying. Children are easily pressured and hurt when they encounter difficulties or bad words from people around them. When they try to overcome pressures in academic activities, they always contradict their own perceptions, making female students always have more pressure than male students.

3.2. Measures to reduce pressure in learning activities for middle school students in Phu Tho Province

Build a friendly and supportive school environment

Create a positive classroom atmosphere: Teachers should build a friendly classroom environment where students feel safe, respected and not afraid of making mistakes. This helps students become more confident and reduces stress in studying.

Minimize unhealthy competition: Encourage students to cooperate and help each other instead of just focusing on competing for scores. Create group activities and joint projects so students have the opportunity to learn together.

Building a friendly, positive learning environment helps students feel like going to school is no longer about worrying about grades, achievement expectations or conflicts in school. Enhance training sessions for both teachers and students to identify pressures and intervene promptly. Use active teaching methods that encourage creativity and critical thinking and collaboration instead of focusing solely on scores. Actively applying testing and assessment methods according to the new 2018 high school curriculum with group projects and practical practice helps students have many experiences and enhance group solidarity.

3.2.1. Adjust assessment and testing methods

Diversify testing formats: Instead of only assessing students through theoretical tests, you should combine assessment through practice, projects, presentations, or other forms. This helps reduce the pressure from having to score high on major tests.

Fairness and transparency in grading: Ensure that the grading process is fair and transparent. Students need to clearly understand assessment criteria and receive constructive feedback from teachers.

3.2.2. Enhance psychological support for students

Establish a psychological consultation system in schools: Provide psychological consultation services to support students in dealing with stress, anxiety and other psychological problems. Counselors need training to help students develop stress management skills and build confidence.

Organize training sessions on soft skills: Guide students on time management, effective learning methods, and problem-solving skills. These skills help students feel more proactive and reduce pressure in studying.

3.2.3. Coordination between family, school and society

Families accompany their children: Parents need to understand and support their children in the learning process, instead of focusing only on test scores. Create a loving family environment and encourage your children to share about their learning difficulties. Create a loving family environment and always be ready to support, regularly share and talk with your children about learning, listen to your children's difficulties and worries to promptly support them.

Families should not focus too much on their children's academic achievements or put too much pressure on their children, but should create conditions for their children to develop comprehensively both physically and mentally.

Families need to help their children plan and always be their child's companion in all activities, guide them to plan a reasonable balance between study and entertainment time, and encourage their children to participate in extracurricular activities. to reduce pressure and develop social skills.

The school cooperates with parents: Organize parent meetings to discuss ways to support students in reducing study pressure. Encourage parents to participate in school activities to better understand the difficulties their children are facing.

Build a learning support community: Create a network between school, family, and community to support students. The community can provide resources, scholarship programs, or organize extracurricular activities to help students develop comprehensively. Raise community awareness by propagating the importance of mental health: Society needs to raise awareness of the importance of mental health for students through the media and programs. community education program. Furthermore, it is necessary to combat achievement pressure by encouraging the community to reconsider the true value of education, not only focusing on scores but also on the comprehensive development of students.

Support education policies: Promote education policies that focus on comprehensive development, including life skills, creative thinking and the ability to respond to life's challenges. In addition, it is necessary to increase investment in educational infrastructure: Ensure that all students, regardless of living area, have good learning conditions with complete and modern facilities.

3.2.4. Reduce curriculum and homework load

Adjust the amount of homework: Teachers should consider the amount of homework appropriately to avoid students being overloaded and feeling pressured.

Diversify teaching methods: Use diverse and flexible teaching methods to help students become more interested in learning and reduce feelings of fatigue.

3.2.5. Encourage students to take care of themselves

Increase physical and extracurricular activities: Encourage students to participate in sports, arts, or extracurricular clubs to help them relieve stress and develop social skills.

Education on mental health management: Organize sessions on stress management, meditation skills, and methods to help maintain mental health.

4. CONCLUSION

Secondary school students in Phu Tho Province experience pressure in academic activities at a fairly average level. Minimizing pressure in learning activities for middle school students requires close coordination between family, school and society. By creating a positive learning

environment, providing psychological support, adjusting assessments and enhancing students' soft skills, we can help them cope with pressure effectively. and achieve better learning results.

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UTILIZING STORY MAPS SOFTWARE IN TEACHING GEOGRAPHY FOR 10TH GRADE

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ABSTRACT

StoryMaps is a map design tool that provides visual information, enabling teachers and students to quickly explore and gather information. It serves as a modern tool supporting educators in introducing new teaching approaches in 10th-grade geography classes at the high school level. This article introduces StoryMaps and its applications in teaching geography according to the 2018 high school curriculum. Based on this foundation, the author proposes several appropriate teaching methods utilizing StoryMaps in the process of teaching 10th-grade geography. Furthermore, this article explores the potential of StoryMaps to revolutionize geography education at the 10th-grade level. While providing students with the tools to create interactive, multimedia-rich narratives, StoryMaps also present certain challenges that must be addressed.

Keywords: in 10th grade geography, teaching methods, StoryMaps.

1. INTRODUCTION

The 2018 General Education Program, implemented by the Ministry of Education and Training, has necessitated significant adaptations and changes in teaching and learning methodologies, particularly at the upper secondary level. Aligned with the approach of fostering and developing geographical competencies, with a focus on the ability to explore geographical knowledge, teachers are required to provide students with opportunities to utilize various geographical tools such as atlases, maps, diagrams, charts, graphs, cross-sections, models, block diagrams, data tables, and images to investigate and discover geographical information. Moreover, there is a growing emphasis on leveraging the internet for learning and organizing field trips to natural, economic, and social environments within local communities. Consequently, the integration of information technology into the teaching process has become increasingly imperative, especially in the current era where information technology plays a pivotal role in society.

The 2018 General Education Program places a strong emphasis on map skills within the 10th-grade geography core curriculum. This has underscored the urgent need for pedagogical reforms and the integration of information technology into geography teaching at this level. To facilitate effective technology-enhanced geography instruction, both teachers and students require appropriate tools. StoryMaps presents itself as a valuable resource to support educators in delivering geography-specific content.

A comprehensive review of existing literature has not yielded any studies investigating the integration of this software into 10th-grade geography instruction in upper secondary schools. This notable absence presents a promising avenue for further research, given the software's intuitive interface and robust capabilities that align well with student-centered, inquiry-based pedagogical approaches.

Furthermore, the author proposes a step-by-step guide for utilizing ArcGIS Online to create StoryMaps for 10th-grade geography instruction. By leveraging geospatial technologies, students can gain a deeper understanding of the spatial, temporal, and scale relationships between geographic phenomena. Based on these insights, the author recommends a range of active learning strategies that can be effectively implemented using StoryMaps in 10th-grade geography classes.

2. LITERATURE REVIEW

This research employed a multifaceted approach, drawing data from various sources including:

- The 2018 General Education Program's geography curriculum (Bộ Giáo dục và Đào tạo. (2018). Chương trình giáo dục phổ thông môn Địa Lý. Hà Nội)
- The 10th grade geography textbook from the 'Horizon of Creativity' series
- The thematic maps integrated within the StoryMaps platform.

2.1. Methodology

Data analysis and synthesis.

This study employed a systematic review methodology to comprehensively synthesize and evaluate prior research on the application of StoryMaps in teaching 10th-grade geography. By conducting an in-depth analysis of relevant literature, including the national education curriculum and scholarly articles, this research aimed to identify emerging trends, knowledge gaps, and the potential of StoryMaps in pedagogical practices. Through a rigorous analysis of quantitative and qualitative data from multiple sources, the study systematized effective methods of integrating StoryMaps into geography instruction.

Furthermore, by comparing and contrasting findings across studies, the author offers critical evaluations of the strengths and limitations of various approaches, thereby proposing novel avenues for future research.

Participant observation.

Throughout the implementation of 10th-grade geography curriculum incorporating StoryMaps, the author conducted ongoing observations to assess students' knowledge acquisition and the quality of their produced work. Based on these real-time observations, the author made timely adjustments to pedagogical approaches to cater to the specific needs and learning styles of individual students.

Experience analysis and synthesis

Based on a thorough examination of the practical experiences gained from incorporating StoryMaps into 10th-grade geography teaching, the author has identified both the advantages and challenges of this innovative tool. This analysis has served as a foundation for proposing creative pedagogical strategies to optimize geography instruction. Moreover, the study investigates the potential for further enhancing StoryMaps and developing aligned teaching methods to meet the evolving standards of the national curriculum.

2.2. Results

Storymaps: A comprehensive overview

As a pioneer in GIS technology, Esri introduced the innovative concept of "StoryMaps" and has since been at the forefront of its development. The company's journey began in 2011 with a vision to revolutionize storytelling by combining maps and multimedia to create rich, interactive experiences. Esri's mission has been to democratize the creation of visually captivating, location-based narratives, making them accessible to users of all technical levels. Through continuous iteration and user feedback, Esri has built a robust platform for ArcGIS StoryMaps over the past eight years.

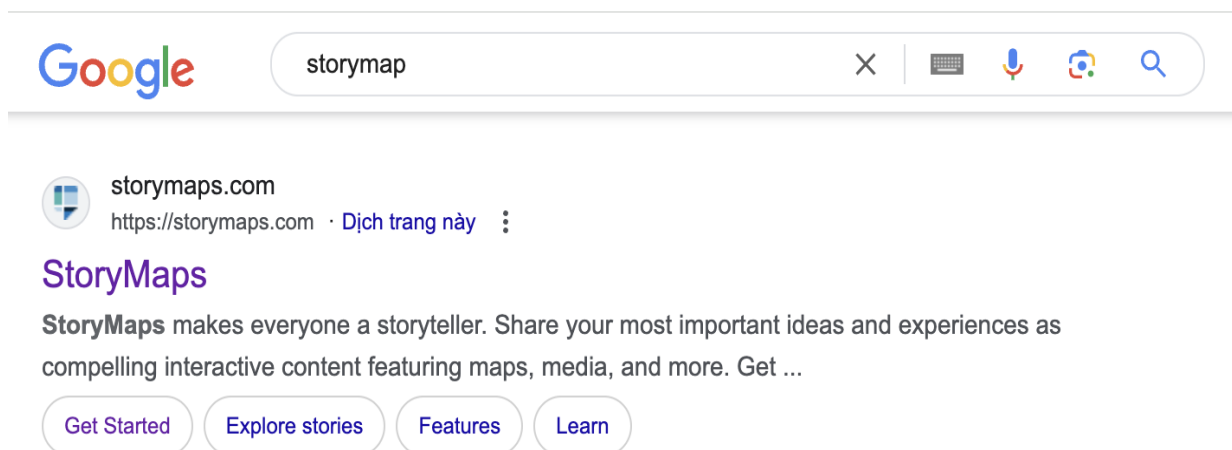


Figure 1. StoryMaps logo and website when accessed on the internet.

As intuitive software, StoryMaps enables educators to craft compelling narratives centered on maps, places, and geographical concepts. The platform's capacity to incorporate a variety of media, including text, videos, images, and web links, makes it an invaluable tool for designing dynamic and engaging lessons.

The StoryMaps platform offers a comprehensive suite of pre-designed thematic maps, readily available through the toolbar, empowering users to tailor their "map stories" to specific needs. However, while this innovative tool has gained traction globally, its adoption in Vietnamese secondary education remains limited.

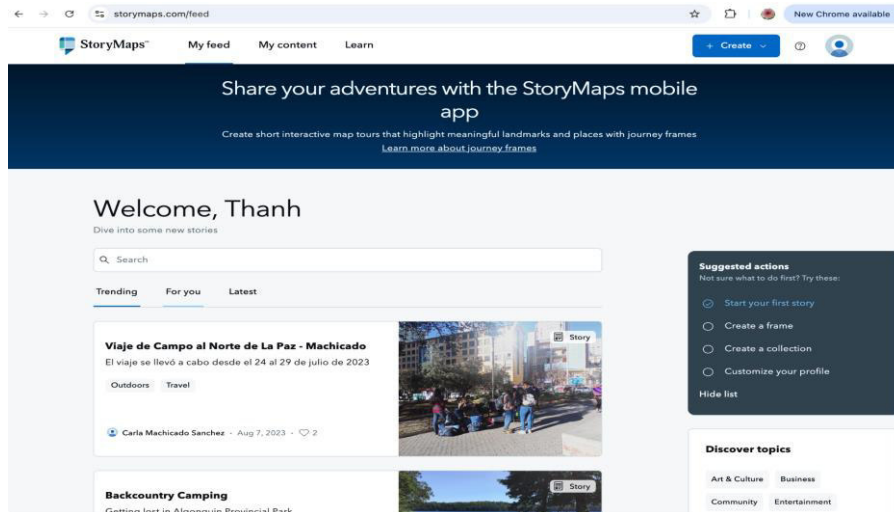


Figure 2. StoryMaps interface.

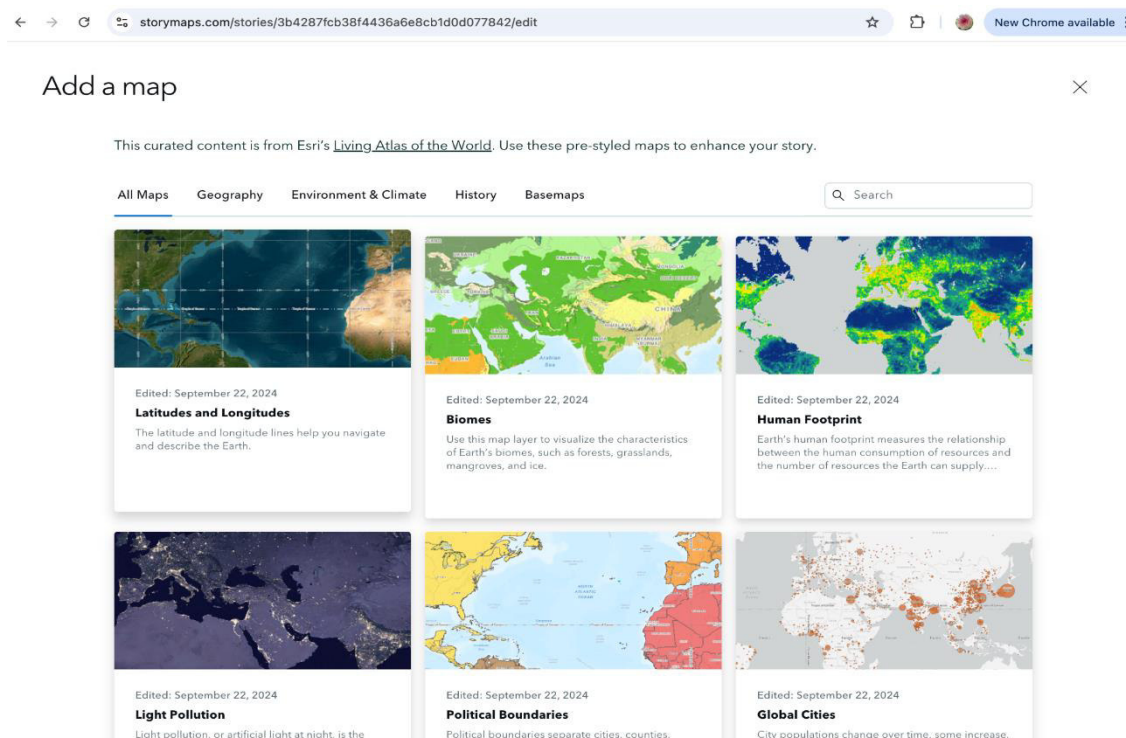


Figure 3. Thematic Maps in StoryMaps.

Introducing the 10th Grade Curriculum in Vietnam's 2018 General Education Program.

The 2018 national education program offers three primary geography textbooks for 10th grade: "Kết nối tri thức và cuộc sống," "Chân trời sáng tạo," and "Cánh diều." The variations in these textbooks' content and objectives necessitate a flexible approach to lesson planning and assessment design. Educators must carefully consider the core knowledge, specific content, and learning outcomes to create tailored instructional materials.

Table 1. Essential knowledge in 10th-grade geography

Essential knowledge	Grade 10
A number of general problems	
Geography with a career focus for students	x
Consulting a map	x
General geography	
Physical geography	x
Economic and social geography	x

Source: Ministry of Education and Training. (2018). *General Education Program for Geography*. Hanoi

Since the 2018 curriculum provides detailed content and performance expectations for all Grade 10 geography units, the author has prioritized the section on map usage, where StoryMaps can be most advantageously applied. Nevertheless, teachers have the flexibility to incorporate StoryMaps into other curricular areas, subject to local circumstances and students' abilities.

Table 2. Specific content and requirements of geography grade 10, map usage section

Content	Performance standards
<i>Working with maps</i>	
Some methods of representing geographic features on maps.	Differentiate among various cartographic techniques for representing geographic phenomena: symbols, flow lines, dot maps, zonal maps, and map-diagrams.
Methods of using maps in geography learning and in life.	Apply maps in geographic education and real-world contexts.
Some applications of GPS (Global Positioning System) and digital maps in life.	Recognize and utilize various applications of GPS and digital cartography in contemporary society.

Source: Ministry of Education and Training. (2018). *General Education Program for Geography*. Hanoi

A step-by-step guide to using StoryMaps in teaching 10th-grade geography.

Pedagogical observations highlighted the versatility of StoryMaps in enhancing student engagement. By guiding 10th-grade students in using StoryMaps for various learning activities, the author has identified a practical framework for educators to incorporate this tool into their teaching.

Step 1: Understanding StoryMaps and Defining Learning Objectives. Teachers must first familiarize themselves with StoryMaps to effectively guide students in signing up and utilizing the application efficiently. The specific learning objectives must be clearly defined. For instance, for the lesson "Using Maps in Geography Learning and Daily Life" (Geography textbook for grade 10, Education Publishing House, Creative Horizons), the learning outcome could be: "Students will be able to use maps in geography learning and everyday life."

Step 2: Activity design and resource compilation. A wide range of activities can be designed to leverage StoryMaps. Teachers should choose activities that align with the lesson objectives and are appropriate for the class. For example, a lesson on map usage might require a variety of maps, texts, and other materials to facilitate student exploration.

Step 3: Lesson Planning and StoryMap Integration. This stage involves the creation of a detailed lesson plan that outlines the specific activities involving StoryMaps. Teachers must carefully consider the sequence of steps students will follow to create their StoryMaps and actively engage in the learning process.

Step 4: Creating and Customizing StoryMaps. Teachers should utilize StoryMaps to pre-create interactive maps and map pages for integration into lesson activities. Furthermore, to enhance engagement, teachers should incorporate a variety of multimedia resources, including text, images, videos, and hyperlinks. Additional support should be provided to students who encounter difficulties in creating or accessing thematic maps within the StoryMaps application.

Step 5: Assessment and Feedback. The effectiveness of the lesson is evaluated based on the extent to which students have achieved the learning objectives and demonstrated creativity in their StoryMap creations. Teachers provide specific feedback to students, highlighting their strengths and areas for improvement in their StoryMaps.

Suitable activities and methods for applying StoryMaps in 10th-grade geography lessons.

StoryMaps, a versatile and visually appealing tool, offers a dynamic approach to geography instruction. When integrated into the 2018 Education Program, educators can fully leverage its potential to deliver geography content effectively. The following are some pedagogical approaches that can incorporate StoryMaps into teaching geography to 10th-grade students.

Project-based learning: For instance, teachers can assign students a project on "The Road to School," where they create a video, take pictures of interesting things along their commute, and then use StoryMaps to craft a narrative incorporating images and maps for a classroom presentation. Alternatively, teachers can divide students into groups to research a specific geographic issue, such as environmental pollution or climate change, and create a StoryMap to present their findings and proposed solutions. Following this, teachers can organize a classroom seminar for students to self-assess their work.

Problem-based learning: By presenting real-world geographic issues, teachers can foster student-centered inquiry. Students collaborate in groups to explore the causes, consequences, and potential solutions through the creation of a StoryMap. Teachers can then guide students in designing solutions or allow them to propose their own, fostering creativity and critical thinking.

Collaborative learning: By creating interactive Storymaps, teachers can facilitate group work where students compare and contrast concepts, definitions, and formulas. Furthermore, teachers can direct students to explore existing stories and thematic maps on StoryMaps to expand their understanding of the subject matter. For instance, when teaching about the history of cartography, teachers can guide students to find existing resources on StoryMaps to deepen their understanding.

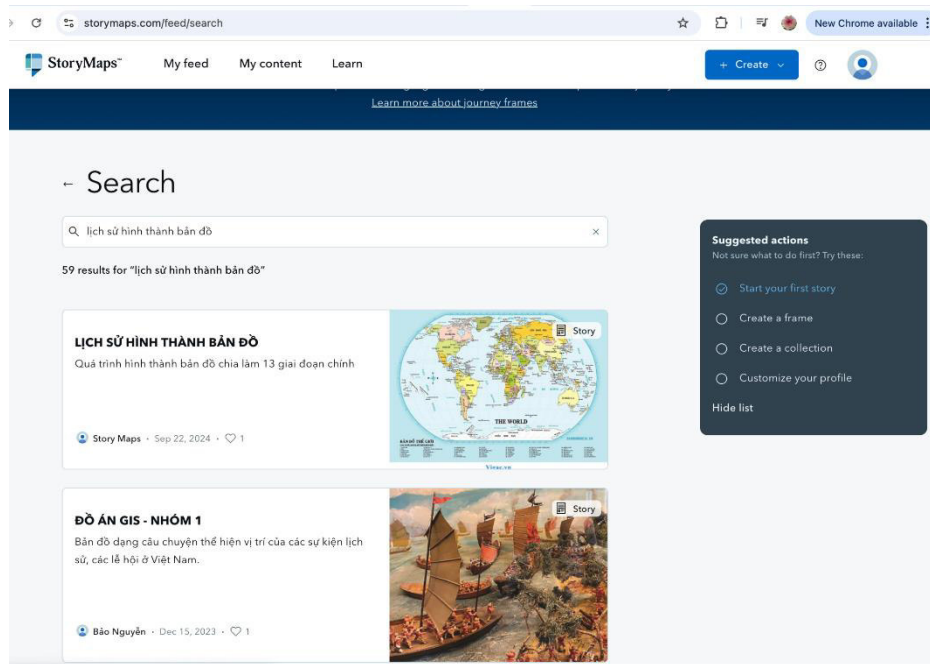


Figure 4. A collection of StoryMaps exploring the historical development of cartography

Students can leverage StoryMaps to access a rich repository of maps and narratives related to demographic indicators, facilitating in-depth analysis.

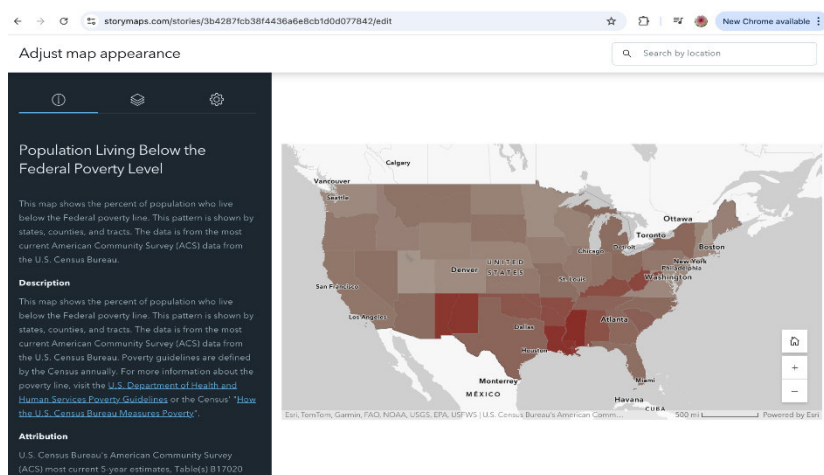


Figure 5. Thematic map of the population living below the Federal Poverty Level

To foster a deeper understanding of geographic information systems, teachers can assign advanced students to collaborative projects involving the creation of a comprehensive digital atlas. By dividing the work among group members, students can develop a holistic product that showcases their knowledge and skills.

Game-based learning: StoryMaps can be utilized to design engaging geography competitions that challenge students to locate information, solve problems, and complete objectives. Through the implementation of diverse question types such as multiple-choice, gap-

filling, sequencing, and open-ended inquiries, educators can effectively develop students' geographical knowledge and skills.

The versatility of StoryMaps can be leveraged to create engaging treasure hunts. By providing students with a customized map and a series of challenges, educators can foster a sense of exploration and discovery. The inclusion of multimedia elements such as images and videos, as well as the integration of GPS coordinates, enhances the overall learning experience and makes the activity more enjoyable for students.

In addition, teachers can integrate StoryMaps into their 10th-grade geography lessons. Teachers can guide students in creating innovative presentations using StoryMaps. Instead of traditional presentations, students can leverage StoryMaps to craft more dynamic and engaging presentations. Alternatively, groups of students can collaborate to create a shared StoryMap to showcase the outcomes of a learning project.

StoryMaps offers a versatile platform for creating engaging and interactive learning experiences. Teachers can utilize StoryMaps to create practical exercises on geographical concepts such as coordinates, maps, and graphs. By designing customized StoryMaps, teachers can provide students with opportunities to explore real-world geographic phenomena and develop their spatial reasoning skills. Furthermore, StoryMaps can be used to assess students' understanding of geographical concepts and their ability to communicate their findings effectively.

The advantages and challenges of using story maps.

StoryMaps have emerged as a powerful tool that revolutionizes geography education by placing students at the center of the learning process. By seamlessly integrating multimedia elements such as images, videos, maps, and text, StoryMaps enable students to visualize geographic phenomena with remarkable clarity, fostering deeper comprehension and retention. Moreover, the process of creating StoryMaps cultivates a range of essential skills, including critical thinking, analysis, synthesis, and effective communication. Furthermore, StoryMaps serve as a bridge connecting students to the digital realm, empowering them to confidently express themselves and engage with a broader community. By collaborating on StoryMaps, students develop essential teamwork and interpersonal skills, ultimately leading to the holistic development of both subject-specific knowledge and transferable skills. The pedagogical application of StoryMaps in 10th-grade geography encounters a multifaceted array of challenges. Technical prerequisites, such as robust network infrastructure and adequate device provisioning, are essential. Furthermore, the meticulous curation, organization, and validation of content for StoryMaps is a time-intensive endeavor. The development of objective and standardized assessment rubrics for student-generated StoryMaps poses additional complexities.

3. CONCLUSIONS

StoryMaps, with its capacity to integrate multimedia and foster high levels of interactivity, has become an invaluable tool in enhancing geography education. This platform not only provides a visual foundation for conveying geographic knowledge but also encourages students to actively engage in the learning process, developing critical thinking, creativity, and collaborative skills.

The application of StoryMaps in geography education opens up a plethora of possibilities. Students can create interactive maps to explore the diversity of ecosystems, analyze urbanization processes, or assess the impacts of climate change. By doing so, students not only solidify their theoretical understanding but also hone their abilities to gather, process, and present information effectively.

Empirical research has demonstrated that the utilization of StoryMaps in geography instruction contributes to increased student engagement, improved academic performance, and the development of self-directed learning skills. Furthermore, StoryMaps facilitate collaboration between teachers and students, as well as among peers.

To optimize the use of StoryMaps in teaching, educators should design diverse learning activities that encourage students to explore and innovate independently. Integrating StoryMaps into geography research projects equips students with scientific research skills and cultivates critical thinking.

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HOAN KIEM PLACE NAMES FROM THE PERSPECTIVE OF LANGUAGE AND CULTURE

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ABSTRACT

Place name is cultural phenomena, products of humanity's social evolution. It includes different types of names such as: river names, mountains, village names, ward names, district names, street names... Each established place name contains many types of information: history, tradition, culture, society and even the characteristics of each locality and each ethnic community. Regarding the relationship between place names and culture, Toponymy is a part of language, therefore it is in the relationship between language and culture. Hanoi is the capital of Vietnam, a land of thousands of years of civilization, with a long history of formation and development. During that process of formation and development, Hanoi has converged and crystallized within itself a unique identity that is difficult to blend with other localities. Hoan Kiem is the central cultural, political, and economic district, the heart of the Capital. This place name also owns a lot of historical remains and famous beautiful places of Hanoi. Using a linguistic approach, studying the place name Hoan Kiem to observe its linguistic and cultural specificities and gain a deeper comprehending of these features the ways of thinking of Vietnamese and Hanoians alike. The object and scope of this article's research is all the place names of Hoan Kiem district and are divided into 3 groups: Group of ward names, group of street place names and group of place names of beautiful places, historical remains and public cultural works at the present time. In terms of research methods, the article utilizes a blend of exploration techniques, lexical and phonetic investigation strategies, and vernacular study techniques. Additionally, research techniques like the map method, statistics, description, comparison, and contrast... The most general description of the place names Hoan Kiem - Hanoi will be provided by the article's research findings.

Keywords: Cultural specificities, linguistic specificities, place name, structural composition, toponymy, structural composition, history.

1. INTRODUCTION

Toponymy is a special part of lexicon, made up of phonetic units (phonemes, syllables) and follows the methods of word and phrase structure of Vietnamese. At the same time, they are also products created by native speakers, closely associated with a dialect region. Toponymy is a science that have developed in the world and has an important position in social life. As a part of language, Toponymy carries inherent characteristics of language. Therefore, Toponymy is the subject of research of both lexicology, phonetics, grammar and dialectology. In Vietnam, this field is still new and taking shape.

Author Nguyen Van Au is a leading researcher in this field in Vietnam. Research on Toponymy is often considered from the perspective of linguistics. However, currently, there are many research directions that focus on interdisciplinary factors in place name research. This is a suitable direction to exploit the issue of place names from many perspectives, if viewed only from

the perspective of language, there will be certain limitation. Research on place names in an interdisciplinary and regional direction is one of the suitable research directions, contributing to sketching a panoramic picture of history, geography, culture, language, ethnicity... in a specific geographical and cultural space. Research on the place name Hoan Kiem in the above direction will clarify many useful issues related to the name of this place name.

2. LITERATURE REVIEW

2.1. The situation of place name research in the world

In the world, the toponymy has a longer history attaching with the name of the first toponymists such as J.J. Eggi, J.W.Nagl at the end of the 19th century... However, the notes of geographical, historical place-name in both Orient and in the West appeared from very soon. In China, at the beginning of Eastern Han Dynasty, Ban Co documented more than 4,000 place-names. By the time Northern Wei, Lich Dao Nguyen wrote "Thuy kinh chu so", in which noted more than three thousand place-names. At the end of the 19th century, in the West, the toponymy subject was officially appeared. In 1872, J.J. Eggi (Switzerland) wrote Toponymy and in 1903, J.W.Nagl (Austrian) also made the work Toponymy. In the 20th century, flourished the researches on place-name attaching to the great names from many countries. J.Gill  non (1854 - 1926) wrote *Atlas French language*, research the place-name in the direction of geography development. Leading and reaching many achievements in building theoretical system is the Soviet toponymists with some typical works such as E.M.Murzaev with *The tendencies of researching place-names*, L.U.A.Kapenko *Discussing contemporary place-names*, A.V.Nhikonov with *General of place-names* (1965); G.P.Xmolixkaja and M.V. Gorbanhexki with *Moscow place-names* etc.... The person who is considered to have most contributions to the toponymy research science is A.V. Supenranxkaja with 2 great works named *Principles of toponymy* and *What is toponomyja*. In which, including the work *What is toponymy* has great value in the development of toponymy branch.

2.2. Situation of place-name research in Vietnam

The chronicle works, history of literature, geography books appearing a lot of centuries ago may be considered as the first toponymy works in our country. We may tell the name of typical works in this genre such as: Vietnamese historical summary, Vietnam Records of the Historian (Ngo Si Lien), General history summary of Vietnam, An Nam miscellaneous literary works, Geography book (Nguyen Trai), Lich trieu hien chuong loai chi (Phan Huy Chu)... Entering the 20th century, when the study of place names in the world was developing, in Vietnam, the research was just beginning to form in-depth theoretical studies. The leaders in this work were a number of authors such as: Tran Tri Doi, Dao Duy Anh, Hoang Thi Chau, Pham Duc Duong, Le Trung Hoa, ... followed by: Nguyen Kien Truong, Tu Thu Mai, Tran Van Dung. From the middle of the 20th century, some works researched place-names in the angle of language or place-name approach in interdisciplinary science type, bring the Toponymy of Vietnam into a real science subject. Starting from the years of 70th decade previous century, the issues of place-name research and theory of toponymy were taken true interest. We may quote the typical works as follows: "*Relation of*

ancient language in Southeast Asia through some names of river” (1967) by Hoang Thi Chau, *Test discussion about Viet Nam Place names*, (1976) by Trần Thanh Tâm. The research of modern toponymy must mention to Le Trung Hoa, author of the successful research work on place-names of Ho Chi Minh city and a series of other valuable researches around the field of toponymy.

3. METHODOLOGY

So as to carry out the contents of the article, we apply a synthesis of the following research methods:

- Fieldwork method to synthesize the source of place names of Hoan Kiem by collecting on maps. Thus, the article applies the operation of collecting documents on maps in the synchronic direction (current maps).

- Descriptive method to describe the structural characteristics and semantic characteristics of each identifier component.

In addition, to conduct research scientifically and accurately, the thesis also applies quantitative statistical techniques, combined with qualitative analysis, modeling, and tabulation to present the results of research analysis.

4. RESULTS

4.1. General theories of place name

Concept of place name

A toponym is the name of a natural feature, constructions, a certain administrative unit or territory. The Greek term toponym consists of two parts: topos (place) and onoma/onima (the most general noun meaning “geographical name”). A toponym, in the strict sense, is the name of a geographical feature associated with a specific area of land. Currently, there is no unified definition of place names, because each definition has its own arguments and viewpoints, depending on the argument and approach of each author. According to A.V. Superanskaja, place names are “all geographical names, sometimes with other names...” [9, p.3] and “these geographical locations and targets are natural or artificial objects that have a location and determination on the surface of the earth, from the largest objects (continents and oceans) to the smallest objects (houses, isolated gardens) all have names” [9, p.13]. According to the author's concept, place names are the names of different objects and land forms on the surface of the earth.

Author Le Trung Hoa has presented the concept of place names from a linguistic perspective: “ Toponymy is words or phrases used as proper names for natural terrains, administrative units, territories and construction works that are two-dimensional in space. Before a place name, we can put a common noun indicating that type of place name: Saigon River, Ba To Street, Bau Tram Hamlet,...” [6, p.22]. From the viewpoints of domestic and foreign authors as mentioned above, we would like to present our understanding of place names as follows for the purpose of this thesis: *Place names are words or phrases used as proper names for different geographical objects, with a definite location that is two-dimensional in space on the earth's surface.*

The relationship between place names and culture

**) Concept of culture*

Culture is a concept with broad connotations, understood in many different ways, referring to all aspects of human material and spiritual life. Because researchers rely on different methods and approaches, there are many different definitions of culture. And up to now, there have been hundreds of definitions of culture. For example:

**) Culture in Vietnamese Dictionary is defined as follows:*

1. The general sum of material and spiritual values created by humans in the historical process. For example: Oriental culture. Ancient culture.
2. Human activities to satisfy spiritual life (generally speaking). For example: Cultural development. Cultural work.
3. Knowledge, scientific knowledge (generally speaking). For example: Cultural learning. Cultural level.
4. High level in social activities, manifestation of civilization. For example: Living culturedly. Speaking unculturedly

According to the United Nations Educational, Scientific and Cultural Organization UNESCO: Culture includes everything that makes one nation different from another. However, Nguyen Duc Ton “temporarily divides the definitions of culture into the following two groups: The first group includes definitions that aim to answer the question: What is culture?

What elements does it consist of? The second group includes definitions that aim to answer the question: What is the function of culture?[10, 37-38]. And most scientists agree: “culture is a collection of results and processes of human social activities, in contrast to natural and external “activities” - the conditions of human existence that do not depend on “humans” [10, 38]. To serve as a research basis for the thesis, we accept the definition: “Culture is an organic system of material and spiritual values created and accumulated by humans through the process of practical activities, in the interaction between humans and the natural and social environment” [11].

**) The relationship between place name and culture*

Toponymy is a part of language, therefore they are in the relationship between language and culture. When place name represents the result of human cognition and thinking processes, they are products of culture. When place name uses the material shell of language to convey cultural messages, they are means of cultural expression. It is no exaggeration to consider place name as “fossils”, as “historical and cultural steles of the country”. Through the place names of each locality and each region, we can trace back to the past, and can perceive and explain many things in the history of that locality and region.

4.2. Characteristics of the structure of Hoan Kiem place names

Place name structure model

Based on the collected results of 213 Hoan Kiem place names in 3 groups: group of ward place names, street names, group of place names of scenic spots, historical relics and construction works, (For this group of place names, we only take famous place names). Through research, we can generalize the complex structural model containing those place names as follows:

Model	Place-name Complex						
	Generic component			Specific component			
	Element 1	Element 2	Element 3	Element 1	Element 2	Element 3	Element 4
Phường (Ward)				Phan	Chu	Trinh	
Đường (Road)				Trương	Hán	Siêu	
Phố (Street)				Huế			
Ngõ (Alley)				Huyện			
Hồ (Lake)				Hoàn	Kiểm		
Cầu (Bridge)				Thê	Húc		
Đền (Temple)				Ngọc	Sơn		
Chùa (Pagoda)				Quán	Sứ		
Nhà	Hát			Múa	Rối	Thăng	Long
	Theatre						
Rạp	Chiếu	Phim		Tháng	Tám		
Movie Theater							
Tháp (Tower)				Báo	Thiên		
Bưu	Điện			Hà	Nội		
Postoffice							
Bảo	Tàng			Lịch	Sử	Quốc	Gia
Museum							
Quảng	Trường			Đông	Kinh	Nghĩa	Thục
Square							
Nhà	khách			Chính	Phủ		
Guest-house							
Dốc (Slope)				Bác	Cổ		

Hoan Kiem complex structure

As can be seen the complex structure of the Hoan Kiem place names, we see that the maximum number of elements in the common element is 3 and in the specific element is 4, while the minimum number of elements is 1. The common element in the place name comes before the specific element. The specific element comes right after the common element, has a more complex structure than the common element, including smaller elements. The common element and the specific element in the Hoan Kiem place names have different structures.

- In terms of form:

The generic element of the Hoan Kiem place names is mostly of the single structure, consisting of 1 syllable such as ward, road, street, temple... Statistics of the Hoan Kiem place names, we determined that the common element that appears most in Hoan Kiem place names is *street* with 119 (accounting for 55.8%), followed by the common element *road* which appears second with 33 names with the common element road (accounting for 15.4%), the common elements with the lowest percentage are *Pagoda*, *Tower* and *Post office* all accounting for 0.46%.

+ The specific component of the Hoan Kiem place names has a more complex structure than the common component which has different lengths of syllables (1 syllable, 2 syllables, 3 syllables). Through statistics, we obtain the following table of the specific component of the Hoan Kiem place names:

Table 1. Table of the specific component of the Hoan Kiem place names

Number of syllables	Quantity	Rate	For instance
1	5	2,4%	Hue Street (phố Huế), Ngách Alley(ngõ Ngách), But Tower (tháp Bút)...
2	150	70,4%	Ho Gươm Theater (Nhà hát Hồ Gươm), Ward Hang Bac (phường Hàng Bạc)...
3	52	24,4%	Chương Dương Do street, Viet Nam National Tuong Theater (Nhà hát Tuồng Việt Nam),
4	6	2,8%	Cach Mang Thang Tam square, Phu Nu Viet Nam Museum...
Total	213	100%	

From the table of the structure of the specific elements in the names of Hoan Kiem place names above, it can be seen that: The proper element in the name of Hoan Kiem place names is composed of at least 1 syllable, at most 4 syllables and the frequency is not the same. The proper element is composed of 2 syllables which has the largest number with 150 names, accounting for 70.4%. The second is the proper element is composed of 3 syllables (with 52 names, accounting for 24.4%). The third is the proper element composes of 4 syllables (with 6 names, accounting for 2.8%). There is no street or road name that does not have a proper element. This once again shows the extremely important distinguishing role of the proper element in each name.

The structure of the length of the generic component of the Hoan Kiem place names is shown in the following chart:

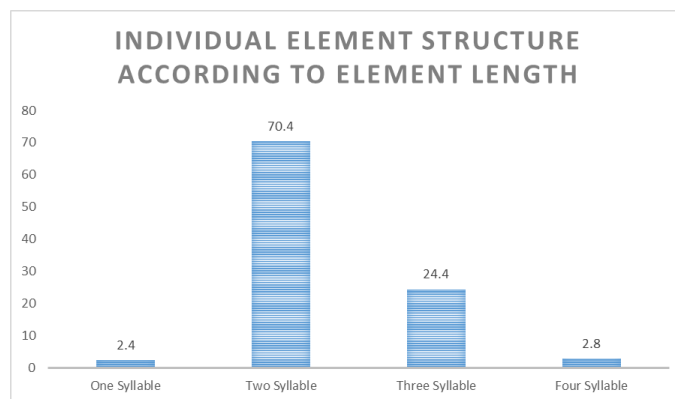


Chart 1. Generic element structure according to element length (Rate: %)

The reason why the number of Hoan Kiem place names with 2-3 syllables accounts for the majority is because: The common trend in the method of forming Vietnamese words (2 syllables); A large number of people's names are used to name major roads and streets, while a person's name usually has a structure of 3 components, equivalent to 3 syllables (surname + middle name + first name).

- In terms of the combination relationship, the specific element is structured in two types: simple structure and complex structure. The Specific elements have a simple structure, equivalent to 1 syllable. For example: Ngach, Hue, But... The specific elements which have complex structure made up of many elements, for example: Cua Nam, Cua Bac, Lo Ren... The elements in the individual element are closely related to each other (according to the types of independent relationships, main-subordinate relationships, in order to complement each other's meanings to specify the individual elements. We have created a summary table of the specific element structure according to the following combination relationship:

Table 2. Table of the specific element structure according to the following combination relationship

	Single Noun	Compound Noun
Quantity	5	208
Rate	2,4%	97,6%

The table above shows: The specific element of the Hoan Kiem place names has two types: simple structure and complex structure. The proper element with simple structure has only 7 cases, accounting for a very small percentage of 2.4%. For example: Gach, Rua... Meanwhile, the proper elements with complex structure account for a dominant number of 208 cases, accounting for 97.6%. For example: Chuong Duong Do, Ho Hoan Kiem...

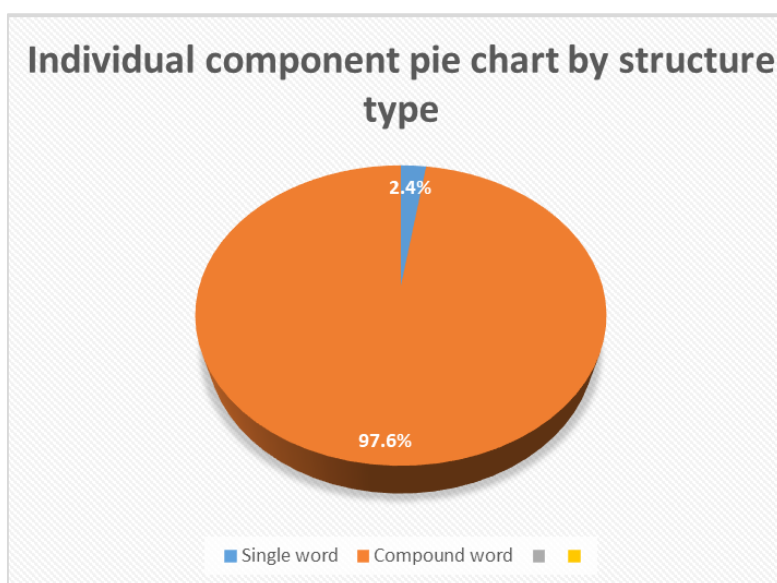


Chart 2. Generic component pie chart by structure type

Hoan Kiem place name in relationship with history and culture.

The name of the Hoan Kiem place names reflect its historical and political context.

Hoan Kiem District is the heart of the capital Hanoi, the names given to this place are representative of the way of giving a name for the entire capital. Through surveyed documents, the names reflecting the historical and political features of the Hoan Kiem place names account for a large number. The historical characteristics are shown first and most typically through 66 names of famous Vietnamese people. There is a very unique way of giving a name in Hoan Kiem district, which is that the names of these famous people are arranged in clusters, corresponding to each historical period, each certain dynasty: For example, during the period of fighting against the Chinese domination around Hoan Kiem Lake, there were many names of famous people who opened the history of the country such as:

* Cluster of Anti-Northern colonial period of Vietnam: Below Hoan Kiem Lake: Hai Ba Trung and Ba Trieu streets. Parallel to the southern section of Ba Trieu street: Mai Hac De street and Trieu Viet Vuong street. Parallel to the northern section of Ba Trieu street: Trieu Quoc Dat street, Phung Hung street and Ly Nam De street.

* Cluster “The early period of autonomy and independence”:

- East of Hoan Kiem Lake: Dinh Tien Hoang Street, Ly Thai To Street, Ngo Quyen Street (3 kings with great contributions in the early period of independence and autonomy). Intersection with Ly Thai To Street and near Trang Tien 6-way intersection: Le Phung Hieu, Ly Dao Thanh, Tong Dan, Ly Thuong Kiet street..

“Tran Dynasty” cluster

Taking Tran Hung Dao Street (a famous king of Vietnam) as a landmark. Around and intersecting Tran Hung Dao: Tran Thanh Tong, Tran Nhan Tong, Tran Quoc Toan, Tran Binh Trong, Yet Kieu, Da Tuong, intersecting with Yet Kieu is Do Hanh. At the end of Tran Hung Dao near the dike: Tran Quang Khai, Tran Nhat Duat, Tran Khanh Du, Pham Ngu Lao, Nguyen Khoi, Chuong Duong Do, Ham Tu Quan, Tay Ket, Van Kiep, Van Don, Bach Dang (These are famous people in the 2nd and 3rd resistance wars against the Yuan Mongols of the Tran Dynasty (Tran Hung Dao, Tran Thanh Tong, Tran Nhan Tong, Tran Quoc Toan, Tran Binh Trong, Yet Kieu, Da Tuong, Tran Quang Khai, Tran Nhat Duat, Tran Khanh Du, Nguyen Khoi, Do Hanh), and famous places in the two resistance wars (Chuong Duong Do, Ham Tu Quan, Tay Ket, Van Kiep, Van Don, Bach Dang). This cluster of street names is also the most intentional: Tran Hung Dao returned to Van Kiep at the end of his life, and the road connecting to the end of Tran Hung Dao Street is Van Kiep. The generals associated with any feat have names similar to the streets with the same place name: Tran Nhat Duat, Nguyen Khoi with Tay Ket - Ham Tu, Tran Khanh Du with Van Don, Tran Quang Khai with Chuong Duong Do. Two roads connect and intersect with Tran Hung Dao: Le Van HUU, Han Thuyen (Le Van HUU, Han Thuyen are famous scholars of the Tran dynasty).

- “Le Dynasty” Cluster

West of Hoan Kiem Lake: Le Thai To Street, towards Hoan Kiem Lake are the streets: Le Lai, Le Thach, Dinh Liet, Dinh Le, Tran Nguyen Han, Nguyen Xi. (Le Thai To is associated with the story of returning the sword, and the remaining famous people are famous generals in the Lam Son uprising against the Ming invaders of Le Thai To). Near Le Thai To: Le Thanh Tong (Le Thanh Tong is the best ruler of the Le Dynasty in particular and in the feudal history of Vietnam in general)

- “Tay Son” cluster

This cluster was formed later, so it is slightly interspersed with the “independence and autonomy” cluster. The streets are parallel to each other: Quang Trung, Le Ngoc Han, Ngo Thi Nham, Ngo Van So, Bui Thi Xuan, Phan Huy Chu (Famous figures who made great contributions to the uprising and the Tay Son dynasty.

- Cluster of “Patriotic Intellectuals”

Phan Boi Chau, Phan Chu Trinh, Dang Thai Than, Au Trieu, Luong Van Can, Luong Ngoc Quyen (Intellectuals who wanted to reform and improve knowledge for Vietnamese people during the French colonial period. Luong Van Can was one of the initiators of Dong Kinh Nghia Thuc, so on that street there was a square of the same name). Taking the names of historical events of the country to name places such as Dong Kinh Nghia Thuc Square (a movement to reform Vietnamese society in the early 20th century during the French colonial period), August Revolution Square, August Theater (August Revolution also known as August General Uprising is the name the official history industry in Vietnam currently uses to refer to the Viet Minh movement's uprising against the Japanese Empire, forcing the Vietnamese Empire to hand over central and local governments and forcing Bao Dai to abdicate in August 1945).

The names reflect the features of cultural life, labor and production

Hanoi has long been famous as a bustling trading place, a rich and bustling place, thousand-year-old capital, Hoan Kiem district is the center of Hanoi, therefore it has the most outstanding characteristics of the capital's culture. With a system of wards and streets named after the traditional trades and businesses of that street. That is the system of street and ward names with the element “*Hàng*” such as:

Model: Ward/Street + Hàng + X

Hang Mam Street, Hang Hom Street, Hang Bac Street... It can be seen that most of the elements that come after the element “hang” are “units belonging to the basic word class of Vietnamese”. These are words that name common, essential items that serve people's daily needs such as: Hang Luoc Street, Hang Hom Street, Hang Thung Street, Hang Non Street, Hang Vai Street, Hang Manh Street, Hang But Street, Hang Chinh Street, Hang Trong Street,...; words that name foods, simple, popular dishes of workers: Hang Dau Street, Hang Khoai Street, Hang Ga Street, Hang Bot Street, Hang Chao Street,...; words that name tools and utensils used in production: Hang Thiec Street, Hang Cot Street, Hang Bo Street, Hang Thung Street, Hang Hom Street,... Besides the “official” Hang Streets, we must also mention streets whose names

represent a certain item but the element Hang is absent from the street name structure. Streets of this type include Lo Su, Tho Nhuom, Thuoc Bac, Bat Su, Cha Ca, etc. Historically, these streets were named including the element Hang such as Hang Su, Hang Thuoc Bac, Hang Bat Su, etc. Later, due to the pressure to economize on linguistic elements, the names of goods consisting of only one syllable when used to name streets will have the structure of Street + Hang + X such as Hang Bot Street, Hang Chao Street, etc.

The Hoan Kiem place names reflect the name of culture, beliefs and entertainment.

We have compiled 12 place names that reflect the religious and entertainment characteristics of Hoan Kiem. Many elements such as Temples, Pagodas, and Theaters appear, for example: Quan Su Pagoda, Ba Kieu Temple, Ngang Communal House, Hanoi Opera House, August Theater, etc. These place names all reflect the rich cultural and spiritual life of Hanoians.

5. CONCLUSIONS

Through the survey of 213 place names in Hoan Kiem district, we have partly pointed out the following two aspects;

- In terms of structure: Place names in Hoan Kiem district are also structured like place names in other places, including two generic and specific elements. These two elements are closely linked together, forming a whole. The common element has the role of indicating a type, while the specific element has the function of naming, marking, and distinguishing objects.

- In terms of meaning: Place names are cultural suggestions. Through our research on place names in Hoan Kiem, we have partly clarified the layers of hidden meaning through the name of each place name in a place with a rich history and diverse culture.

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AN APPRAISAL ANALYSIS OF ATTITUDE SYSTEM IN FILM REVIEWS OF “MAI”

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ABSTRACT

In an era of digital media, film reviews play a crucial role in guiding audiences by providing insights into plot, acting, direction, and overall quality in order to help consumers determine whether or not a film should be seen. Furthermore, film reviews also reflect the writers' personal views and evaluations, which can be a great contribution for audiences to grasp thrilling features of the film regarding its artistic and emotional impact. The evaluative language used in the film reviews will not only motivate viewers to become big fans, but they can also boost the film industry by forming fair competitions among films. The theory of Appraisal by Martin and White (2005) is considered a master key for researchers to classify and identify linguistic expressions of the three main systems: Attitude, Graduation, and Engagement. This study was conducted to find out the subtypes of attitudinal resources and their distributions in the film reviews of 'Mai'. The research method used is descriptive-qualitative, and the data are film reviews chosen from English mainstream online media. The results show that three types of attitudes (Affect, Judgment, and Appreciation) are applied. Of these, Appreciation is the most common resource, followed by Judgment, and Affect is the least frequently used. It has also been revealed that the proportion of positive attitude resources outweighs negative attitude resources in the film reviews.

Keywords: Appraisal Theory, Attitude System, Appreciation, Judgment, Affect.

1. INTRODUCTION

The mass media is becoming a more vital means of imparting information to the general public in this age of social media explosion. The most crucial medium for mass media to fulfill the purpose of information transmission is language. In the film industry, reviewers' ability to use evaluative language in their reviews determines a film's success. Generally, consumers consult the appraisals of critics and reviewers to gain initial insights into the film they care about before deciding whether to watch it or not. As a result, these reviews are considered intellectual products and works of art, serving as a bridge between audiences and filmmakers by conveying values like truth, goodness, and beauty in cinematic stories, as well as representing a country's cultural image.

According to Martin and White (2005), appraisal is a system of interpersonal meaning that aims to clarify, characterize, and investigate the ways in which language is intended to provide an evaluation, to adopt positions, to create textual personas, and to control relationships. The framework of Appraisal Theory introduced by Martin and White (2005) is known as a new development of interpersonal function in the Systemic Functional Linguistics (SFL). Of all the three subsystems, namely Attitude, Engagement and Graduation, the Attitude system is the core of Appraisal Theory and the focus of this study. Attitude refers to a domain of Appraisal, which is concerned with our feelings, including emotional reactions, judgments of behavior and evaluations

of things. It is divided into three regions of feeling: namely Affect, Judgment, and Appreciation. In the field of film reviews, all the attitudinal resources are grouped into two categories, “positive” and “negative” to uncover the intricate ways reviewers use language to appraise and evaluate films, offering insights into the subjective and intersubjective dimensions of film criticism.

The researcher chose to review one of the most famous films in Vietnam in 2024, which is a comedy-drama titled “Mai” directed by Tran Thanh. Within 20 days after its release, on March 1, 2024, the film earned over 500 billion VND and became the highest-grossing movie in Vietnamese box office history. It stands out for its poignant storytelling and emotional depth. It follows Mai, a young woman coping with long-term illness. The film concentrates on her connection with her family members as well as friends while she tries to live through some challenges related to her health.

The film affirms that people cannot live alone, driven by selfishness or arrogance. Instead, it emphasizes the importance of mutual support, showing that success and fulfillment come through collaboration with other people. Given this central message, it is ideal for appraisal research. Therefore, the researcher conducted a study to analyze this film reviews using Appraisal System Theory, aiming to explore how reviewers use language to convey their emotions and judgments about the film.

2. LITERATURE REVIEW

2.1. Theoretical Framework

Appraisal is known as a set of resources used to negotiate emotions, judgments, and valuations, along with resources for amplifying and engaging with those evaluations (Martin & White, 2005). The researchers view appraisal resources as components of a language system within the systemic-functional framework. They divide the appraisal system into three main subsystems: Attitude, Engagement, and Graduation, each of which has its own set of subtypes. Of all the three domains, Attitude is the primary subsystem in the Appraisal framework along with the other three subtypes: Affect (emotional response), Judgment (evaluation of human behavior), and Appreciation (Evaluations of the aesthetic and functional qualities of works of art, literature, or non-human objects). Each domain offers a unique lens on how individuals convey their feelings, position themselves relative to others, and modulate the intensity of their evaluations.

Attitude is further divided into different sub-types, as illustrated in Figure 1. Specifically, Affect focuses on the expression of emotions, both positive and negative, through linguistic elements such as verbs, adjectives, adverbs, and nominalizations. It categorizes emotions into four main types: Dis/inclination (desires and fears), Un/happiness (joy or sadness), In/security (feelings of safety or anxiety), and Dis/satisfaction (fulfillment or frustration). These emotions can be expressed directly or implied, reflecting the speaker or writer’s emotional stance toward people, objects, events, or situations. Therefore, Affect plays a key role in evaluating personal feelings and emotional reactions within discourse. Judgment is divided into two subtypes: Social esteem and Social sanction. Social esteem includes three sub-types: Normality (what is considered culturally normal, e.g. normal, lucky), Capacity (related to individual capability, such

as powerful or weak), and Tenacity (related to individual dependability, such as reliable or reckless). On the other hand, Social sanction is split into Veracity (which means honesty, e.g. truthful, dishonest) and Propriety (a person ethics in relation to cultural norms, e.g. moral or immoral). The last type Appreciation is further classified as Reaction (instinctive), Composition (perceptive), and Valuation (cognitive). While Reaction relates to impart and quality (e.g. exciting, boring) Composition involves balance (e.g. logical, flawed), complexity (e.g. simple, unclear) and Valuation deals with worth (e.g. deep, fake).

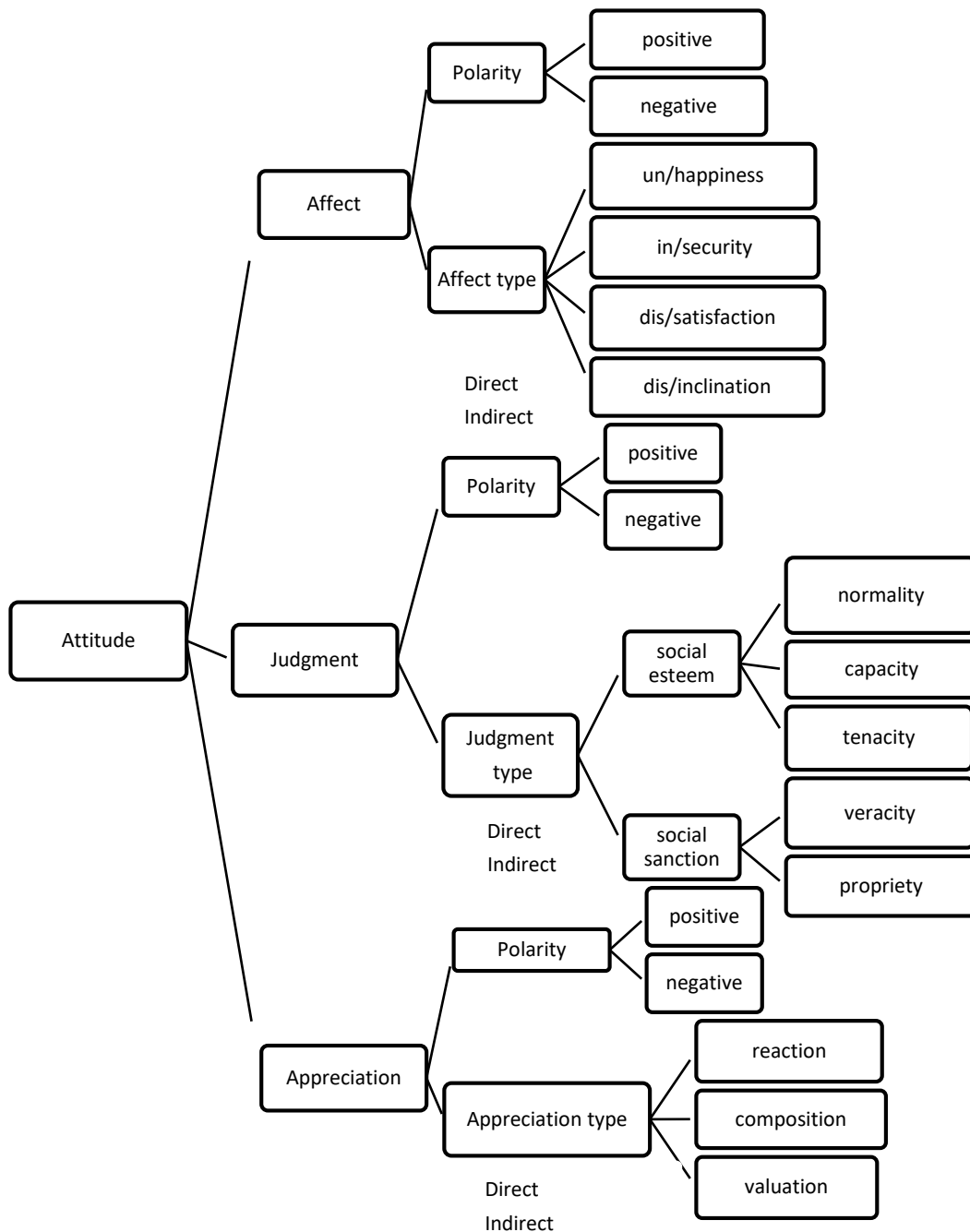


Figure 1. A detailed look at Attitude within the appraisal resources framework of Martin & White (2005)

2.2. Previous Studies

In recent years, a lot of scholars worldwide have dealt with a promising source to explore the field of evaluative language - film reviews and numerous studies on the attitudinal resources have been conducted by researchers across various fields, including discourse analysis, translation studies, and language studies. By evaluating writers' positions and communication messages in light of readers' perspectives, the theory contributes to a deeper understanding of the interpersonal meaning of language in the context of discourse, rhetoric, and communicative consequences. As a result, this is a possible method for figuring out the mindset, assessment, and implicit personal meaning that a writer is trying to convey.

In *Analyzing Appraisal Automatically*, Taboada and Grieve (2004) showed how trends in reviewers' use of Attitude, Engagement, and Graduation may be found through computational analysis of huge corpora, providing insights into evaluative procedures. Macken-Horarik (2003) found that Australian reviewers regularly use graduation to modify the degree of rigor in their evaluations, which improves their capacity to persuade viewers. Admittedly, these researches highlight the significance of Appraisal Theory and pave the ways for scholars to study subtypes of evaluative language in film reviews.

In Vietnam, Truong Thi Thanh Hien (2011) examined the use of evaluative language in Vietnamese film reviews. She examined how reviewers express their attitudes, emotions, and judgments and it has been revealed that the importance of cultural context in shaping the evaluative language used by Vietnamese reviewers. In 2021, Tran Xuan Bao Tran conducted a comparative study of English and Vietnamese film reviews to analyze how reviewers from the two different cultures employ Attitude. In her research, she highlighted both differences and similarities in evaluation expressions in terms of the influence of cultural and linguistic factors in Vietnamese writings. These studies enhance our understanding of the interplay between language, culture, and film reviews.

3. METHODOLOGY

3.1. Data Collection

According to Donald Ary (1996), there are three most common data collection techniques in qualitative research. They are observation, interview, and document or artifact analysis. The document or artifact is a process of collecting data from text written or text-based artifacts (textbooks, novels, journals, newspapers, etc.) and this is also the priority for this study. Known as a blockbuster in the Vietnamese film industry, "Mai" received significant attention from critics, resulting in numerous reviews. The study's corpus consists of 15 film reviews of "Mai", written in English with a length of 500-1000 words. These reviews come from authoritative newspaper and magazine websites in early 2024. Credible publications with specialized film sections, such as rottentomatoes.com, IMDb.com, dailyuw.com, bostonhassle.com, joysauce.com, VnExpress.net, Vietnamnews.vn, Vietnamenet.vn, and SGQP.org.vn, contributed to this collection. These sources are renowned for their trustworthy data and reliable criteria, ensuring the study's objectivity. This

allows readers to better understand how the three components of attitude are demonstrated, as defined by Martin and White (2005) in their theory of evaluative language.

3.2. Data Analysis

To achieve the study's goal - figuring out the evaluative language used by reviewers in general and the attitude system in particular in film reviews of "Mai", both qualitative and quantitative research methods have been used. The qualitative approach was used closely to examine, categorize and interpret all values and features of Attitude resources such as instances of Affect (emotional reactions), Judgment (moral and ethical evaluations), and Appreciation (aesthetic assessments) in the texts. The quantitative one was then deployed to figure out the distribution and prevalence of attitudinal markers in the reviews. The used approaches have given a great contribution to consumers in gaining a thorough grasp of the ways in which attitudes are created and expressed in the reviews of "Mai," which ensures a robust analysis, capturing both the depth and breadth of the reviewers' attitudes towards the film.

3.3. Findings & Discussion

In conducting an appraisal study of the attitudinal system within film reviews of "Mai" the author makes the following pie charts indicating the frequency of the three subsystems of attitude resources and the distribution of attitude polarity from 15 reviews collected. Then, based on the mentioned quantitative results, the author makes a further qualitative analysis of the selected reviews in order to help readers understand the underlying attitudinal patterns and how they shape the overall interpretation of the film "Mai".

As indicated in Figure 2, spans of Appreciation predominate in the reviews, which is expected since the evaluations are centered on artwork, the epitome of Appreciation (54.77%). Judgment takes second place after Appreciation and contributes greatly to the overall analysis because it provides a deeper understanding of how films resonate with cultural values and social norms. Affect, with slightly fewer instances than Judgment, makes up the smallest proportion and generally reflects the writers' emotional responses to the film.

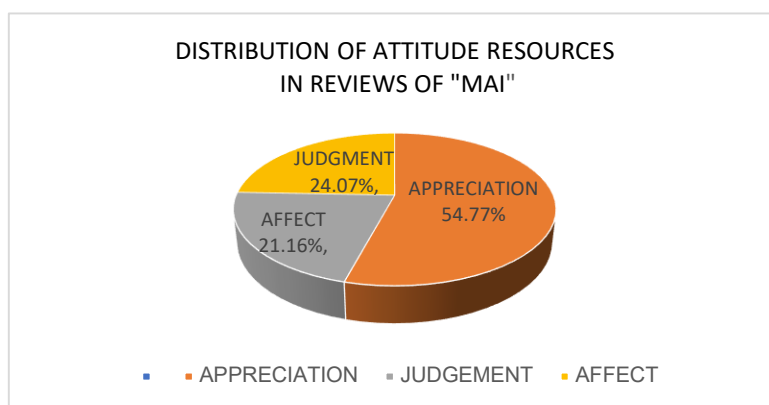


Figure 2. Distribution of Attitude Resources

Polarity refers to the expression of a speaker's or writer's attitude of approval or disapproval, which can be either positive or negative. The data analysis reveals that reviewers employed significantly more positive attitudes (a favorable assessment of the film) than negative ones (an unfavorable assessment of the film), as illustrated in Figure 3. The specific analysis is detailed below:

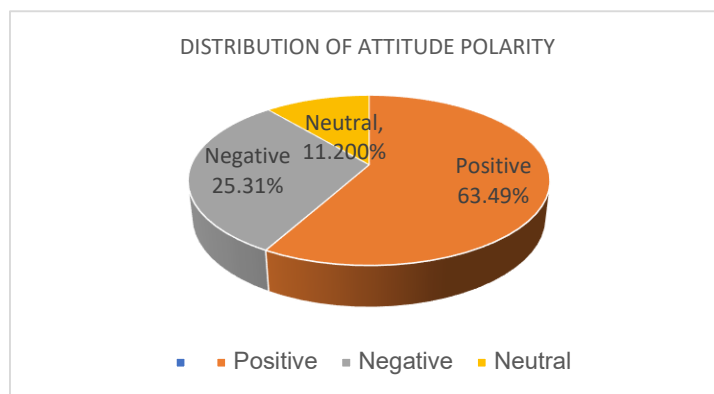


Figure 3. Distribution of Attitude Polarity

Figure 3 reveals a strong positive polarity in the analyzed film reviews, with 63.49% of instances reflecting positive sentiment. This indicates that the majority of evaluations and reactions in the reviews are favorable or appreciative. While there is a significant amount of criticism or unfavorable sentiment, positive responses outweigh it, accounting for 25.31% of the instances of negative polarity. Neutral polarity is the least frequent, at 11.20%, showing that a small number of the reviews remain impartial or balanced in their evaluations. Overall, the data suggests that the reviews are predominantly positive, with a considerable, though lesser, presence of negative sentiment and a minimal amount of neutrality.

In more detail, with 54.77% of the total cases, Appreciation is notable for dominating the polarity distribution. Positive emotion is prioritized over negative sentiment, with a higher percentage of 35.27 percent compared to 8.30 percent. The information indicates that critics give the artistic and aesthetic aspects of the film a lot of weight. Of the fifty-one Affect cases (21.16%), thirty-six show positive feelings (14.9%), and fifteen show negative emotional reactions (6.22%). The lack of impartial examples suggests biased emotional responses. 24.07% of the judgments are judgmental, with a minor bias toward positive evaluations (13.28%) over negative ones (10.79%), emphasizing critical appraisals of the acts and characters. Despite some critical and emotional reactions, the evaluations are largely positive, emphasizing artistic worth and clearly leaning toward positive feeling.

Table 1. Distribution of Attitude Polarity

	Affect	Judgment	Appreciation	Total
Positive	36 (14.9%)	32 (13.28%)	85 (35.27%)	153 (63.49%)
Negative	15 (6.2%)	26 (10.79%)	20 (8.30%)	61 (25.31%)
Neutral	0	0	27 (11.20%)	27 (11.20%)
Total	51 (21.16%)	58 (24.07%)	132 (54.77%)	241 (100%)

3.3.1. Affect

Affect captures the emotional responses expressed in the text, reflecting the speaker’s feelings or emotions. According to Martin and White (2005), Affect is categorized into four types: Un/happiness, In/security, Dis/satisfaction, and Dis/inclination. The data analysis identified 51 instances of Affect within the dataset, and the following figure illustrates its frequencies and features in the film reviews of "Mai."

Table 2. Distribution of Affect in Film Reviews of “Mai”

Attitude	Subtypes	Polarity	Frequency	Percentage
AFFECT (21.16%)	Un/happiness	(+)	12	23.53%
		(-)	4	7.84%
	In/security	(+)	7	13.73%
		(-)	4	7.84%
	Dis/satisfaction	(+)	10	19.61%
		(-)	5	9.80%
	Dis/inclination	(+)	7	13.73%
		(-)	2	3.92%
	Total		51	100.00%

The data provides a breakdown of affect resources across various subsystems. In the analyzed reviews, positive affect resources are utilized more frequently (70.59%) than negative ones (29.41%). The data in Table 2 indicates that reviewers generally express more positive emotions in their evaluations, with particular focus on categories such as happiness and satisfaction. However, the notable presence of negative resources highlights a balanced approach, where critical perspectives are also significant in the overall appraisal of the films.

Examples of affectual resources employed by reviewers in the film reviews of “Mai” are presented and discussed below:

(1) *“Although some parts of the movie are unnecessarily complicated and overwhelming (Affect: Insecurity - Negative), the emotional depth of “Mai” is striking with moments that are both heart-wrenching and uplifting (Affect: Happiness - Positive).”*

In example (1), both negative and positive affectual resources are found. The words *“unnecessarily complicated and overwhelming”* reveal that the reviewer wasn’t satisfied with certain aspects of the movie, specifically their complexity and overwhelming nature (insecurity - negative affect), but then the phrase *“heart-wrenching and uplifting”* refers to happiness - positive affect when appreciating the film’s emotional depth and impact. The example illustrates how reviewer uses affectual resources to provide a nuanced appraisal of the film, showing the reviewer's effort to convey both the strengths and weaknesses of the film in the assessment.

3.3.2. Judgment

Judgment is used to evaluate people’s character and behavior positively and negatively by reference to socially established sets of moral, legal, personal norms. Positive evaluation is about appreciation and praise, while negative evaluation is in regard to criticism and condemnation. Judgment therefore might cause controversy or arousal of undesired reactions.

The following table shows how judgment resources are used in the reviews of the film entitled “Mai”:

Table 3. Distribution of Judgment Resources

Attitude	Subtypes	Polarity	Frequency	Percentage	
JUDGMENT (24.07%)	Normality	(+)	6	10.34%	
		(-)	3	5.17%	
	Capacity	(+)	9	15.52%	
		(-)	6	10.34%	
	Tenacity	(+)	7	12.07%	
		(-)	8	13.79%	
	Veracity	(+)	5	8.62%	
		(-)	5	8.62%	
	Propriety	(+)	5	8.62%	
		(-)	4	6.90%	
	Total			58	100%

The analysis of Judgment resources in the film reviews reveals that Capacity is highly valued, receiving a strong positive rating of 15.52%. This suggests a general appreciation for people's skills and abilities. In contrast, Normality and Propriety receive some negative feedback, with figures of 6.90%. This suggests that people often view deviations from societal norms and adherence to rules critically. Overall, while skills receive positive evaluations, assessments of conformity to norms and rules, as well as persistence, are more critical.

The following sentence is taken as a sample of the findings in terms of Judgment:

(2) *"The film's greatest asset (Judgment - Social Esteem - Positive) is its ability to portray the complexities of life with authenticity".*

It is clearly shown that the resource of **Attitude** in sentence (2) is a **positive judgment**. The reviewer used phrases like **“greatest asset”**, **“its ability”** and **“portray the complexities of life with authenticity”** to highlight the film’s achievement (Capacity) in authentically representing life’s complexities. These expressions reflect a high level of favor for the plot and acknowledge the film’s success in delivering a realistic portrayal.

3.3.3. Appreciation

Appreciation is a key element in the Attitude framework that evaluates objects, processes, and entities based on their inherent qualities rather than human behavior. Appreciation focuses on evaluating the qualities of things through three subcategories: Reaction, Composition, and Valuation. These subcategories allow for both aesthetic and non-aesthetic assessments, reflecting personal and cultural values.

According to the result shown in Table 4, there are 132 appraising items classified as Appreciation:

Table 4. Distribution of Appreciation Resources

Attitude	Subtypes	Polarity	Frequency	Percentage
APPRECIATION (54.77%)	Reaction	(+)	50	37.88%
		(-)	9	6.82%
		(/)	15	11.36%
	Composition	(+)	24	18.18%
		(-)	9	6.82%
		(/)	5	3.79%
	Valuation	(+)	11	8.33%
		(-)	2	1.52%
		(/)	7	5.30%
		Total		132

The analysis of Appreciation resources in the film reviews shows that Reaction is the most frequently utilized subcategory, with 56.06% of the total instances. This indicates that reviewers often focus on their immediate emotional responses to the film, highlighting its emotional impact and overall impression. Composition, which assesses the structure and organization of the film, accounts for 28.79% of the total Appreciation resources. Valuation is the least frequently mentioned subcategory, making up only 15.15% of the Appreciation resources. This suggests that the broader significance or societal impact of the film is less of a focus in the reviews, perhaps indicating that the film is seen more as an entertainment piece rather than something with profound cultural or ethical implications. Positive feedback (64.39%) is more prevalent, indicating that the film's balance and coherence are generally well-received by reviewers. An interesting finding from our data collection process is that, while neutral remarks (/) are absent in Affect and Judgment, they are present in Appreciation. Although they make up only 20.45% of the total, this is still higher than the proportion of negative evaluations (15.16%). This suggests that reviewers are more inclined to provide balanced or neutral feedback when assessing aspects like the film's balance and coherence, rather than focusing on its shortcomings.

The followed examples show the analysis of the reviews for the 'Appreciation'.

(3) *"This is an excellent work (Appreciation - Reaction - quality) of Tran Thanh"*.

(4) *"There are not only solid scripts but also wonderful special effects and soundtrack, it is beyond my expectation of a Vietnamese-made movie"* (Appreciation - Reaction - quality)

In the two review sentences, the writers used some positive words such as "excellent", "wonderful" to express the appreciation of the film, which indicates that the film has offered the reviewer a good experience. Additionally, the reviewer expressed the significant impact of the film that brings to the reviewer by the phrase "beyond my expectation of a Vietnamese made movie", delivering a level of emotional depth that the reviewer did not anticipate.

Overall, the high frequency of Reaction resources suggests that the film "Mai" strongly influences viewers' immediate emotional responses. Meanwhile, the moderate use of Composition and limited use of Valuation imply that while the film's structure is appreciated, its deeper significance is less emphasized in the reviews.

4. CONCLUSION

This study showcases the practicality of Martin and White's (2005) concept of attitude and how critics strategically employed its various forms and attributes to express their feelings and encourage audiences to watch the film. These findings from the study show that the reviews are largely centered around the objective assessment of the film's artistic and technical qualities, rather than subjective opinions about the people, such as actors or directors. This focus on the quality of the film itself suggests that reviewers aim to provide a critical analysis that helps readers form an understanding of the film's value and impact.

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TECHNOLOGY AND ART INTEGRATION IN GRAPHIC DESIGN EDUCATION

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ABSTRACT

This project investigates how to improve teaching effectiveness and encourage students' creative abilities in graphic design education by fusing traditional art and contemporary technologies. The research, which employs a mixed-methods approach, consists of surveys of instructors and students, examination of university graphic design curricula, and instructional trials involving design projects that fuse current technology and traditional art. The findings show that this combination promotes the full development of creative capabilities as well as higher levels of student engagement, problem-solving skills, and technical competency. According to the study's findings, combining classical art and contemporary technology into graphic design education enhances instruction while also helping students' technical, creative, and problem-solving abilities grow holistically. The paper recommends the adoption of this integrated educational model to meet the evolving demands of the design industry.

Keywords: Graphic design education, traditional art, modern technology, creative skills development, art and technology integration.

1. INTRODUCTION

Graphic design education is experiencing several difficulties in an era of rapidly growing technology and a booming creative cultural business. Universities need to offer students with organised technical skills, but they also need to establish an environment that allows for unbridled creativity, based on my observations and teaching experience. This necessitates a fundamental transformation in the teaching approach - specifically, the blending of traditional art with modern technologies. This is a means of assisting pupils in utilising both contemporary technological capabilities and cultural heritage, not merely a passing fad. In an era where technology is advancing at a rapid pace and the creative cultural industry is booming, graphic design education is facing significant challenges. Based on my teaching experience and observations, universities must not only provide students with structured technical skills but also create an environment that fosters boundless creativity. This requires a substantial shift in the educational approach - specifically, the integration of traditional art and modern technology. This is not just a trend but a way to help students harness both cultural heritage and modern technical potential.

Traditional art, with its deep cultural values, plays a crucial role in developing creative thinking. Students not only gain a deeper understanding of the origins and nature of art but also find inspiration from the values preserved by our ancestors. At the same time, modern technology opens up many new avenues for development. We can see how technology enables students to actualize complex ideas with just a few clicks, which has truly transformed the way we approach graphic design. When these two elements are seamlessly combined, students are not only equipped

with comprehensive knowledge but are also capable of creating products that reflect personal style, bridging the gap between past and future.

This study aims to delve deeper into how art and technology can be combined to enhance the quality of graphic design education. I will analyze current teaching methods, refer to insights from colleagues and students, and propose several suggestions to promote the development of graphic design education. I hope to offer practical solutions to foster creativity and professional skills in students within this unique field.

2. THEORETICAL FRAMEWORK

Graphic Design Education: Analysis of Current Teaching Methods and Challenges in Balancing Technical Skills and Creativity

Graphic design education has undergone significant changes in recent decades, particularly with the rapid development of digital technology becoming an indispensable part of the field. Current teaching methods in graphic design revolve around two main aspects: technical skills and creativity. However, achieving a balance between these two elements poses a considerable challenge for educational institutions and instructors.

Current teaching methods include traditional approaches and advanced technology-based methods. Traditional teaching methods in graphic design typically emphasize learning the fundamental principles of art and design, such as color theory, geometry, composition, and hand-drawing skills. These courses help students build a solid foundation in aesthetics and art, while also fostering creativity through practical exercises. However, as technology evolves, this approach has increasingly struggled to keep pace with the new demands and changes in the industry.

Modern technology-based teaching methods: Many universities have integrated modern tools and software into their graphic design curricula. This method focuses on teaching students how to use design software such as Adobe Creative Suite (Photoshop, Illustrator, InDesign), 3D tools, and virtual reality (VR) or augmented reality (AR) technologies. This helps students acquire the necessary technical skills to work in a modern professional design environment.

Traditional Art and Modern Technology

Traditional art refers to art forms originating from various cultures and societies, encompassing crafts, painting, sculpture, calligraphy, and other art forms that have existed for centuries. These art forms often reflect the cultural, aesthetic, and philosophical values of the communities in which they were developed. In the field of graphic design, traditional art plays a crucial role as an endless source of inspiration, helping designers create products with high aesthetic value and profound cultural significance [5].

Traditional art is not only the foundation for developing basic design skills, but it also brings classical design principles such as balance, harmony, and symmetry—core elements in creating graphic designs with lasting appeal. These principles can be found in classical artworks from cultures like Egypt, Greece, India, and China, as well as in the Western classical period, and they

have become standards for art and design through generations. Understanding and applying these principles allow contemporary designers to not only honor the past but also create products with modern and cultural significance.

The impact of modern technology: Modern technology has profoundly changed how graphic design is executed and communicated. With the development of computers, design software, and digital tools, today's designers can create graphic products faster, with greater precision, and broader accessibility. Technology has opened new possibilities, from creating 3D images and processing digitized visuals to developing motion graphics and virtual reality. One of the greatest benefits technology offers is the ability to experiment and refine designs easily and efficiently. In the past, creating a work of art or graphic design could take considerable time and effort, especially if it had to be redone from scratch. However, with digital tools, designers can easily modify colors, layouts, or even entire concepts without much time investment. This not only saves time but also encourages continuous creativity.

However, the advancement of technology also presents new challenges for designers. One such challenge is how to preserve and integrate the value of traditional art in a landscape increasingly dominated by modern tools and methods. Designers face the risk of losing traditional techniques and artistry when overly reliant on technology. Therefore, one of the key goals of graphic design education is to help students not only master new technologies but also learn how to combine them with traditional artistic values to create works that are both meaningful and profound.

The combination of traditional art and modern technology in graphic design is not merely a trend but a necessary development to meet the increasingly diverse and complex demands of the creative industry. While traditional art provides the aesthetic and cultural foundation, modern technology offers powerful tools to actualize ideas more efficiently and creatively[1]. In the future, maintaining a balance between art and technology will be one of the key tasks for graphic designers. This requires a deep understanding of both elements and the creativity to transform them into products with high practical and artistic value. Graphic design education needs to develop new teaching methods that help students grasp the intricacies of traditional art while mastering modern tools and technologies, enabling them to become well-rounded designers in the future.

Overview of Research

The integration of art and technology in graphic design has been a subject of widespread interest among researchers and experts for decades. This process not only involves using technology as a tool for creating artworks but also encompasses the creation of new products where art and technology coexist and support each other. This combination has opened new horizons for contemporary art while reshaping education and training in the field of graphic design. Numerous studies have been conducted to explore the potential of merging art and technology, assessing the benefits and challenges of this process in the context of education and creative practice. Research has shown that digital technology not only transforms the way art is

created but also alters how it is consumed and experienced by the public. Bolter and Grusin's (1999) research on "remediation" has shown that new technologies frequently reimagine traditional art forms, offering new perspectives and experiences [2]. Technology does not replace traditional art but expands and enhances it, allowing artists and designers to explore new boundaries of creativity.

In the educational context, many studies have focused on integrating technology into the teaching of art and design. According to Eisner (2002), the use of technology in art education not only helps students develop technical skills but also stimulates creativity [3]. Technology provides diverse tools, enabling students to experiment and express their ideas in new and more innovative ways. At the same time, other studies emphasize the importance of maintaining a strong foundation in traditional art while applying modern technology, ensuring that students do not lose their sense of art history and aesthetics.

Recent research has developed and tested various teaching models that integrate art and technology into graphic design training programs. A prime example is the study by Lindgren and McDaniel (2012), in which the authors proposed an educational model combining traditional art courses with advanced technology courses [4]. The results from this model showed that students not only improved their technical skills but also developed creative thinking and problem-solving abilities more effectively.

The integration of art and technology has yielded many positive results, not only in improving the quality of education but also in promoting the development of the graphic design industry. One of the most evident outcomes of this integration is the comprehensive skill development for students. By combining art and technology, students can grasp both aesthetic and technical skills, making them well-rounded designers capable of meeting diverse demands in the labor market. The use of technology alongside traditional art has spurred creativity and innovation in graphic design. Students are encouraged to experiment with new tools and methods, leading to the creation of unique and groundbreaking works. This not only opens up opportunities for more creative products but also drives the development of new trends in the design industry.

Studies have also shown that integrating art and technology helps students develop effective problem-solving skills. When facing challenges in the design process, students can use traditional methods alongside modern technological tools to find creative and feasible solutions. This fosters a flexible mindset and high adaptability—crucial traits in an ever-changing work environment.

A review of previous research on the integration of art and technology in graphic design education indicates that this is a promising trend with great potential for enhancing educational quality and developing essential skills for students. Combining traditional art with modern technology not only creates diverse and innovative design products but also helps students build a comprehensive skill set that meets the increasingly high demands of the creative industry. The results achieved from this integration also lay the foundation for future research and educational practices, where art and technology continue to merge to create new advances in graphic design.

3. RESEARCH METHODOLOGY

In the study on the integration of art and technology in graphic design education, a quantitative approach was used to collect data on the effectiveness of this integration, while a qualitative approach was employed to gain a deeper understanding of the personal experiences and perceptions of students and instructors. This not only clarifies quantitative results but also provides deeper insights into how art and technology can be integrated to improve educational quality and develop more effective teaching methods in the future.

Surveys were conducted with both instructors and students to collect data on their perspectives and experiences regarding the integration of art and technology. The goal of this survey was to gather and analyze data from instructors and students in graphic design programs to better understand their views, experiences, and challenges when integrating traditional art and modern technology into teaching and learning processes. Through the survey, the study aimed to identify factors that contribute to the effectiveness of this integration and offer recommendations for improving the curriculum.

For instructors, questions focused on their teaching experience, the methods they used to integrate art and technology, and the challenges they faced during the process. For students, the questions sought to gather data on their understanding and experience with using technology in design projects, as well as their views on the importance of traditional art in their studies.

Data was collected through an online questionnaire sent to 100 instructors and 300 students from universities with graphic design programs nationwide. In addition, in-depth interviews were conducted with 10 instructors and 20 students to further explore qualitative responses and gain a better understanding of personal experiences and perspectives.

Results indicated that 80% of instructors agreed that integrating modern technology into teaching enhanced the effectiveness of graphic design lessons. Meanwhile, 65% of students felt that learning traditional art techniques improved their creative thinking when combined with digital technology.

A graphic design instructor from the University of Industrial Fine Arts shared, "Using digital tools in teaching helps students adapt more quickly to the market, but sometimes they forget the importance of fundamental art principles." A student from the School of Interdisciplinary Sciences and Art, Vietnam National University, Hanoi stated, "I find that combining traditional hand-drawing lessons with design software helps me better understand how to create innovative and unique works."

Below are some figures based on the results from the survey:

- Graphic design instructors: 85% use digital technology in at least 50% of their teaching time, 70% feel there is a need for more resources and support to integrate traditional art with technology, and 55% believe that students tend to rely too much on technology, leading to a lack of independent creative thinking.

- Graphic design students: 75% of students expressed more interest in lessons involving modern technology, 60% found it difficult to combine traditional art and technology in design projects, and 40% considered learning traditional art techniques unnecessary in the current context of technological development.

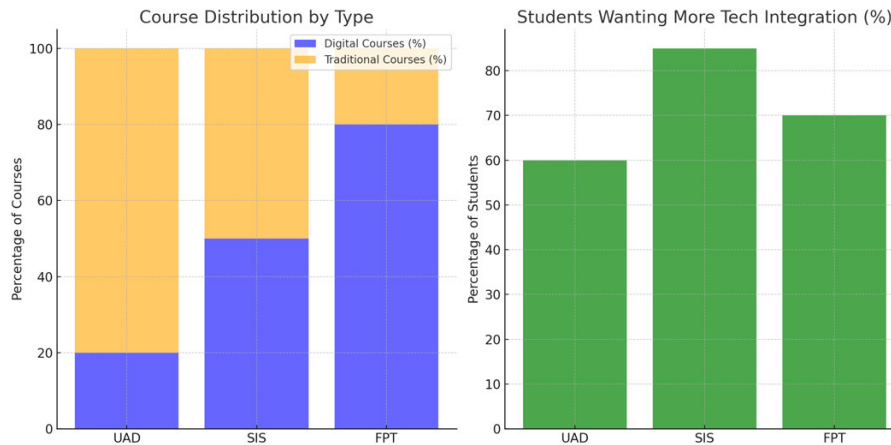
The survey results show that while both instructors and students recognize the importance of integrating art and technology, several issues remain. A prominent issue is students' overreliance on technology, which results in diminished creativity and independent artistic thinking. Additionally, instructors feel there is a need for more resources and support to help maintain a balance between art and technology in their teaching. Thus, this survey provides a comprehensive view of the perspectives and experiences of instructors and students in integrating art and technology into graphic design education. The findings serve as a basis for proposing solutions to improve the curriculum, enhance educational effectiveness, and develop essential skills for students in the future.

Evaluation of the curricula of several universities with graphic design departments focused on the integration of artistic and technological elements. The goal of this assessment was to identify the artistic and technological components included in the curriculum and to evaluate the effectiveness of this integration in developing students' creative and technical skills. The research was conducted through a review of curriculum documents, interviews with instructors, and observations of teaching sessions at three prominent universities with graphic design departments: the University of Industrial Fine Arts (UAD), the School of Interdisciplinary Sciences and Arts - Vietnam National University, Hanoi (SIS), and FPT University (FPT).

At UAD, the focus is heavily on traditional art education such as hand drawing, sculpture, and printmaking, with some supplementary technology courses. At SIS, there is a close integration of traditional art and modern technology, with courses on digital design, 3D modeling, alongside courses on art history and traditional craft techniques. The curriculum at FPT is primarily focused on digital technology, with less emphasis on traditional artistic elements.

Integration of Art and Technology

At UAD, while the curriculum has a strong foundation in traditional art, the integration of modern technology remains limited. Students often learn Photoshop and Illustrator on their own to complete design projects for school courses. This lack of formal technology instruction could result in students not acquiring the necessary tech skills upon graduation. At SIS, this is a prime example of successful integration between art and technology. About 50% of the courses focus on traditional art, such as hand drawing, sculpture, and color theory, while the other 50% are technology-based courses, including digital graphic design, 3D modeling, and direct digital applications in design. This balance allows students to develop both artistic and digital skills, preparing them well for the modern design industry. At FPT, the curriculum focuses primarily on technology skills, with 70% of courses related to digital technology and only 30% on traditional art. While students may master digital tools, they might lack a solid foundation in traditional art, which could limit their creativity and aesthetic thinking.



Source: author of the article

Chart1. Students Wanting More Tech Integration (%)

Here is a visual representation of the information you provided:

1. The first chart shows the distribution of courses by type (Digital vs. Traditional) across UAD, SIS, and FPT.
2. The second chart illustrates the percentage of students at each institution who expressed the desire to learn more about technology and its integration into design projects.

This visualization helps compare how the balance of course offerings and student feedback varies across the three institutions

The results indicate that curricula with a balanced integration of traditional art and modern technology (as seen at SIS) tend to achieve the highest educational effectiveness. Students from these programs not only master digital skills but also develop aesthetic thinking and creativity, enabling them to better meet the diverse demands of the design industry. On the other hand, programs lacking full integration of art and technology - whether overly focused on traditional art (UAD) or heavily skewed towards technology (FPT) - present certain limitations. Students from these programs may struggle when faced with challenges that require both artistic and technical skills. The data shows that programs offering a balance between art and technology help students develop more comprehensively and are better equipped to meet the demands of the creative industry. Universities should continue to adjust and improve their curricula to ensure students are fully equipped in both technical and aesthetic aspects, preparing them for future careers in graphic design.

4. RESEARCH RESULTS

The results show that integrating modern technology and traditional art helps students develop both creative and technical skills. This combination enhances their creative thinking, imagination, and problem-solving approaches, providing a well-rounded learning experience.

Exposure to both art and technology broadens students' creative scope. For instance, in poster and book illustration projects, students combined hand-drawing techniques with digital tools,

creating artistic and innovative works. One project involved using watercolor paintings for children's book illustrations, which were then digitized in Photoshop for unique effects. This blend showcased their creativity and improved the aesthetic quality of the work.

When faced with design challenges, students used various tools and techniques flexibly. Traditional art helped them develop critical thinking, while modern technology allowed quick experimentation. In a survey, 85% of students reported increased confidence in finding creative solutions, and 80% felt more confident using combined techniques.

The study highlights that integrating art and technology expands students' creative capabilities and prepares them for careers. This approach also improves problem-solving skills by allowing students to apply theoretical knowledge in real-world scenarios, enhancing critical thinking and the ability to address design challenges.

For example, in a project designing a brand identity for traditional handicraft products, students were required to thoroughly research the history and culture of the products and then apply modern design principles to develop the brand identity. This process helped students realize that understanding the cultural origins of a product is essential to creating a brand that holds both aesthetic and cultural value. Combining traditional art and modern technology requires students to develop critical thinking and problem-solving skills, analyzing design subjects from multiple angles to propose creative solutions. This process sharpens students' ability to identify and solve design problems. In each project, students must propose different approaches, which helps them develop adaptability and creativity when necessary. The use of modern digital tools allows students to offer various design solutions, while traditional art provides a strong foundation in aesthetics and artistic thinking.

This integration of technology and art in education helps develop students' skills comprehensively. Additionally, the combination greatly enhances student engagement and interest in learning. Students show higher levels of involvement in design projects when encouraged to use both elements, creating a dynamic and creative learning environment. When traditional art and modern technology are integrated into design projects, students have the opportunity to engage with a variety of techniques and tools. This diversity in teaching methods stimulates different approaches to design, helping students feel more engaged and participate actively in the learning process.

In an illustration project titled "The Old Man and the Fish," by Hoang Tran Khanh (K3, SIS), the student used traditional watercolor for sketching and digital software like Adobe Photoshop and After Effects to complete the project [Figure1]. Experimenting with different techniques increased the student's enthusiasm for the creative process as they continuously explored new methods to enhance the quality of their work. The integration of art and technology has helped students gain confidence in experimenting with creative ideas. When students realize they can confidently use both traditional and digital skills, they become more confident in engaging in design projects.

This also creates a strong motivation for students to continue learning and developing their skills. The diversity in learning styles when combining art and technology better meets the

individual learning needs of each student. Some students may be more interested in hand-drawing and have a deep appreciation for traditional art, while others may enjoy using digital tools to experiment with ideas. Allowing students the freedom to choose and combine these methods has created a flexible learning environment, encouraging participation and creativity.

When students participate in integrated projects, they often work in groups, exchanging ideas and supporting each other throughout the learning process. This creates a highly interactive learning environment where students not only learn from their instructors but also from their peers. This interaction not only reinforces knowledge but also fosters a sense of learning community, enhancing motivation and interest in learning.

The research results show that integrating traditional art and modern technology in graphic design education has had a positive impact on student engagement and interest in learning. When encouraged to experiment with diverse methods and participate in real-world projects, students become more proactive in their learning and skill development. This integration not only enhances engagement but also creates an exciting and creative learning environment, contributing to the improvement of education quality and better preparing students for careers in the graphic design industry.

5. DISCUSSION

Advantages of Integrating Art and Technology in Graphic Design Education

One of the greatest advantages of integrating art and technology in graphic design education is the ability to comprehensively develop students' skills. By simultaneously engaging with both traditional art and modern technology, students not only improve their digital skills but also enhance their aesthetic thinking, creativity, and problem-solving abilities. This combination makes students more adaptable and capable of meeting diverse demands in the creative industry.

Through teaching at several design schools, I have observed that students' practice, combining both art and technology, has led to noticeable improvements in both hand-drawing skills and digital design software proficiency. The products they create are highly aesthetic and align with modern trends. This integration creates a diverse and enriching learning environment, sparking students' enthusiasm for learning.

Students not only acquire new skills but also have the opportunity to experiment and explore different approaches to design. This enhances their engagement, making them feel more connected to the learning process and fostering the development of creative skills.

In the context of a labor market that increasingly demands diverse skills, graduates from programs integrating art and technology often have a competitive edge. They are not only proficient with technological tools but also possess exceptional creativity, enabling them to meet the diverse demands of today's cultural industry.

Limitations of Integrating Art and Technology in Graphic Design Education

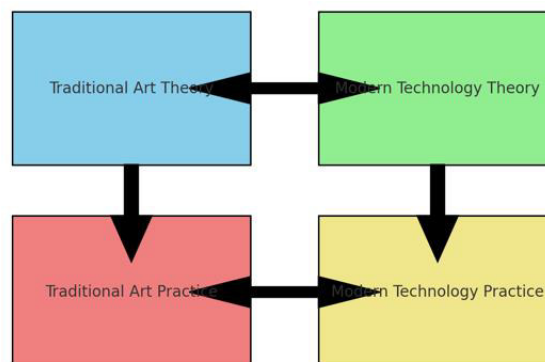
Despite the many benefits of integrating art and technology, there are certain limitations. Without a proper balance in the curriculum, students may not gain a deep understanding of either field. Unequal distribution in the program can lead to students acquiring only surface-level skills. Over-reliance on modern technology may also lead to a decline in creativity and independent thinking. Excessive dependence on digital tools could limit creative potential.

One of the biggest challenges in integrating art and technology is maintaining a balance between these two elements in the curriculum. Graphic design educational institutions must continuously adjust their programs to ensure students are trained in both technological skills and artistic development comprehensively.

Suggestions for Training

To meet the growing demands of the graphic design industry and enhance the quality of education, training institutions need to develop and implement integrated education models, harmoniously combining traditional art and modern technology. Here are some suggestions for improving graphic design curricula:

- A multidimensional learning model that combines theory and practice, traditional and modern approaches, will help students build a solid foundation in both digital skills and traditional art. Each course should include theoretical lessons on art, hands-on drawing skills sessions, and technology-based assignments to solve real-world design problems.

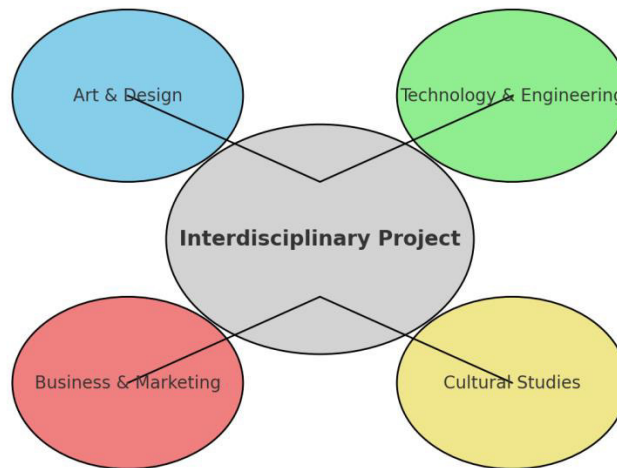


Source: author of the article

Chart2. Multidimensional learning model

This is a diagram of the multidimensional learning model, illustrating the integration of theory and practice in both traditional art and modern technology. The diagram shows how different elements interact to create a comprehensive learning model for graphic design students. For instance, in the "Digital Illustration Design" course at the School of Interdisciplinary Sciences and Arts (SIS), we start by introducing traditional hand-drawing techniques, then transition to the application of digital technology to complete the artworks. This helps students better understand the relationship between traditional art and modern technology.

- The interdisciplinary project model encourages students to engage in complex design projects that require a combination of artistic, technological, and other skills such as marketing, business, or cultural studies. This model not only helps students develop professional skills but also provides opportunities to work in teams, manage projects, and solve real-world problems.



Source: author of the article

Chart3. interdisciplinary project model

This diagram illustrates how different fields such as Art & Design, Technology & Engineering, Business & Marketing, and Cultural Studies collaborate in a central interdisciplinary project. The diagram highlights how each area contributes to the development of an interdisciplinary project, leading to creative and comprehensive solutions.

Each student has a unique learning style and creative ability, so graphic design education must be flexible and personalized. Offering elective courses allows students to focus on preferred areas and develop individualized learning paths. Educational institutions should collaborate with businesses to keep curricula up-to-date, including inviting industry experts, organizing workshops, or offering internships. New technologies like VR, AR, AI, and 3D printing are transforming graphic design, and schools must integrate these into their programs. Besides technical skills, developing soft skills like communication, teamwork, and creative thinking is essential. Programs should incorporate more courses such as Creative Design Thinking and Project Management to support comprehensive development. Integrating traditional art with modern technology is crucial to meet the labor market's complex demands. Multidimensional learning, industry partnerships, and advanced technologies enhance education, helping students prepare for future careers in graphic design. Continuous curriculum improvement ensures students are equipped with the skills, creativity, and adaptability needed in a rapidly evolving industry.

6. CONCLUSION

The integration of traditional art and modern technology in graphic design education has proven to be a comprehensive and effective educational strategy. Through this research, it has

become evident that this model not only contributes to improving the quality of teaching but also plays a crucial role in developing the core skills needed for students in the graphic design industry.

Firstly, the combination of traditional art and modern technology helps students develop creative skills in a well-rounded manner. Traditional art provides a foundation in aesthetics, visual thinking, and cultural sensitivity, while modern technology offers new tools and methods to actualize creative ideas. When these two elements are harmoniously integrated, students are not only capable of outstanding creativity but also able to produce designs that are rich in aesthetic depth and cultural meaning, while meeting high technical standards.

Secondly, this integration strongly promotes students' problem-solving skills. Faced with complex design projects, students must learn how to apply theory to practice, analyze, and solve problems from multiple perspectives. This helps them develop critical thinking and flexible problem-solving abilities, essential skills in today's labor market.

Additionally, the integration of art and technology has a positive impact on student engagement and interest in learning. When encouraged to experiment and combine different methods, students become more proactive in learning, creativity, and skill development. This multidimensional and enriching learning environment not only increases student engagement but also better prepares them for future challenges.

However, for this integrated education model to achieve maximum effectiveness, educational institutions must ensure a proper balance between art and technology in the curriculum. Over-reliance on technology or a lack of deep understanding of traditional art can diminish the learning process's effectiveness. Thus, a flexible, personalized, and constantly updated educational strategy is necessary to meet the industry's needs and trends.

In conclusion, the integrated educational model combining traditional art and modern technology is not only an effective teaching method but also a necessary direction in the context of the ever-evolving graphic design industry. Educational institutions should consider widely adopting this model while continuously adjusting and improving it to ensure students are fully equipped with the necessary skills to meet labor market demands and contribute to the future development of the graphic design industry.

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Source: Author

Figure 1. Illustration design for the animated film “The Old Man and the Fish He Beat”,
Hoang Tran Khanh (SIS)

CRIMINAL CHARACTER IN KIM TAM LONG'S *MAT NA TRANG* FROM A THEORETICAL PERSPECTIVE PSYCHOANALYSIS CRITICISM

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ABSTRACT

Psychoanalysis and detective novels emerged around the 19th century and share methodological similarities. As Sebeok and Umiker-Sebeok (1983) once mentioned: "Both psychoanalysis and detective reason backwards, postulating from an existing fact a rule that explains it. The abductive operation may rely on unconscious perceptions of the world" (Sebeok & Umiker – Sebeok, 1983, 11). In recent years, many detective novels have appeared in Vietnamese literature, creating a fever in the literary industry, including many authors who have made a mark in readers' hearts such as Duc Anh, Gian Tu Hai, Nguyen Duong Quynh, Di Li,... In that number, it is impossible not to mention the new contribution of author Kim Tam Long to attractive detective novels. Therefore, this article aims to analyze the typical criminal character in the novel "Mat na trang" by author Kim Tam Long through psychoanalytic theory. The article contributes to sketching the offender's portrait from the psychoanalytic theory perspective.

Keywords: Psychoanalysis, Psychoanalytic criticism, Vietnamese detective novels, Criminal characters.

1. INTRODUCTION

Literature is not merely an art of language but also a mirror reflecting social reality, exposing the hidden corners of the human soul. In the flow of contemporary Vietnamese literature, many writers explore the nooks and crannies of society, among whom we must mention the writer Kim Tam Long. His emergence is like a source of light illuminating sensitive, dark issues that are avoided. His novel *Mat na trang* is a typical example of this writing style, realistically portraying a criminal picture with characters who possess all the complex psychological nuances. The work does not just stop at recounting the journey of crime but also delves into the motives, thoughts, and behaviors of the characters, thereby reflecting the pressing issues of contemporary society. Through the lens of psychoanalysis, we can see that crime is not only a product of circumstances but also the result of inner conflicts, and deep-seated wounds in the soul of each character. Greed, moral degeneration, personality disorders, gender identity crises... all intertwine and layer upon one another to create a haunting picture of crime.

Although psychoanalytic theory has been widely applied in literary studies, the psychological analysis of criminals in Vietnamese detective fiction from this perspective remains

a relatively large gap. In particular, Kim Tam Long's novel *Mat na trang* with its diverse and complex system of criminal characters imbued with psychological imprints, is a potential object of study to explain criminal behavior from a psychoanalytic perspective.

This study aims to analyze the psychology of representative criminal characters in Kim Tam Long's novel *Mat na trang* based on Freud's psychoanalytic theory and Fromm's religious psychoanalysis.

To achieve the above objectives, the study sets out the following specific objectives: To explore the repressions, inner conflicts, and latent desires in the psychology of criminal characters. To analyze the motives and criminal behavior of the characters from a psychoanalytic perspective. To clarify the influence of psychological, social, and religious factors on the criminal behavior of the characters.

This study hopes to contribute to enriching the psychoanalytic approach in Vietnamese detective literary studies while providing a deeper insight into criminal psychology and the social issues hidden in the work *Mat na trang*.

2. LITERATURE REVIEW

2.1. The state of psychoanalytic criticism research in Vietnam

Nguyen Van Hanh (1936) mentioned in the research work *Ho Xuan Huong tac pham, than the và van tai* [The works, the physique, and the literary talent of Hồ Xuân Hương], it stands as a testament to the effort of synthesizing psychoanalysis, biographical examination, and socio-historical context to approach Hồ Xuân Hương's poetry comprehensively.

Nguyen Bach Khoa (1951) mentioned in the research work *Tam ly va tu tuong Nguyen Cong Tru* [The psychology and ideology of Nguyen Cong Tru], pioneered the application of psychoanalytic theory to illuminate the complex inner world of this gifted author, focusing on three main aspects: analyzing the structure of personality, exploring the depths of the unconscious, and connecting the work with the biography. However, the application of psychoanalytic theory sometimes remains illustrative and does not fully exploit the depth and richness of the work's layers of meaning and symbolism. Despite this, it is undeniable that *Tam ly va tu tuong Nguyen Cong Tru* [The Psychology and Ideology of Nguyen Cong Tru] is a pioneering research work of great significance in applying psychoanalytic theory to Vietnamese literary studies.

Nguyen Trong Hieu (2023) mentioned in the research work *The loai trinh tham trong van hoc Viet Nam hien dai* [Detective genre in modern Vietnamese literature], has presented a detailed and systematic account of the history of the reception of psychoanalytic theory in Vietnamese literary research through three main stages: before 1975, after 1975, and from 2000 onwards. The study has shown that the reception and application of psychoanalysis in research have gone through various stages of change. However, psychoanalysis has now found its position and affirmed its important role in literary research and criticism.

2.2. Research on author Kim Tam Long and his works

Regarding author Kim Tam Long and the novel *Mat na trang* mentioned in Nguyen The Bac's doctoral dissertation on the *The loai trinh tham trong van hoc Viet Nam hien dai* (2023), the dissertation highly praised Kim Tam Long's contributions and the novel *Mat na trang* in enriching the modern Vietnamese detective fiction genre. However, the dissertation did not delve into an analysis of the works or the author's writing style, only mentioning them as a typical example of the trend of horror detective fiction prevalent in recent years.

Overall, the research mentioned above works remain general and have not been specifically applied to individual works. Therefore, this study applies psychoanalytic theory to the study of criminal characters in Kim Tam Long's *Mat na trang* to gain a deeper understanding of the complex internal conflicts and psychological trauma from the past that have shaped the characters' personalities and criminal behavior.

With this research, the author aims to analyze in depth the psychology of the criminal characters in *Mat na trang* from a psychoanalytic perspective. Simultaneously, the study aims to clarify the motives, behaviors, and psychological development of the criminal characters.

2.3. Methodology

2.3.1. Theoretical Framework

Sigmund Freud's psychoanalytic theory, despite its controversial nature and ongoing development, remains one of the most influential theories in studying human psychology, particularly psychological disorders and criminal behavior. Freud argued that most human psychological activities occur in the unconscious, where repressed desires, conflicts, and traumas reside. He also proposed a model of personality structure consisting of three components: Id (instinct), Ego (self), and Superego (super-ego).

An imbalance between these three components can lead to psychological disorders and deviant behaviors, including criminal behavior. Freud also emphasized the role of childhood experiences in shaping personality and later psychological disorders.

Multiple personality disorder and psychoanalytic theory are considered an extreme defense mechanism of the psyche against severe trauma, especially during childhood. According to Freud, these traumatic experiences may be repressed into the unconscious but continue to affect the individual's psychology and behavior. Multiple personality disorder is understood as the splitting of consciousness into multiple distinct personalities, each carrying a portion of memories or emotions related to the trauma, allowing the individual to cope with trauma indirectly. Freud also argued that masculinity is associated with power, dominance, and symbolized by the penis (phallus). In patriarchal societies, men are expected to demonstrate strength, decisiveness, and control. However, these expectations can also create pressure and psychological conflict, especially when men feel their power and status threatened. In this case, violence can become a way for them to reassert their power and regain a sense of control.

Psychoanalytic criticism is not only applied to the study of individual psychology but also extended to the field of literature. Psychoanalytic critics view literary works as manifestations of

the author's or characters' psychology, through which they explore the underlying implications, conflicts, and desires beneath the surface of the text. Psychoanalytic criticism also examines the relationship between the text and the reader, arguing that the reading process is also a psychological interaction, in which the reader brings their own experiences and expectations to the decoding of the text. The theory of psychoanalytic criticism provides a useful theoretical framework for analyzing criminal characters in the novel *Mat na trang*. By exploring the repressed memories, conflicts, and underlying desires in the characters' psychology, we can gain a better understanding of their motives and criminal behavior. At the same time, psychoanalytic criticism allows us to view these characters in a multi-dimensional way, not simply as villains, but also as victims of circumstances and psychological trauma.

2.3.2. Research methods

Kim Tam Long stands out as a prominent author in contemporary Vietnamese detective fiction. His works, often steeped in psychological thriller elements, delve into the darkest recesses of society and the human psyche. *Mat na trang* exemplifies this signature style.

Set in post-war Vietnam, *Mat na trang* captures the turmoil and instability of a nation grappling with economic, political, and moral shifts. The narrative revolves around a string of mysterious murders, all linked by the recurring presence of a figure donning a white mask. As the investigation unfolds, the characters' deeply hidden secrets and profound psychological scars are gradually exposed.

The main characters in *Mat na trang* include:

Duong: A young man wrestling with dissociative identity disorder, a consequence of childhood trauma.

Hung: Duong's alternate personality, brutal and bloodthirsty, embodying vengeance and destruction.

Mr. Thanh and Mrs. Khue: A married couple epitomizing greed and moral decay, willing to commit heinous acts to satisfy their selfish desires.

The supporting characters:

On and Nha: Victims of the soldiers Tu, Hoe, and Ma, representing innocent civilians caught in a vortex of violence.

The soldiers Tu, Hoe, and Ma: Perpetrators of the atrocities against On's family, embody the dark side of traditional masculinity.

The investigators: Representing justice and righteousness, striving to uncover the truth and bring the perpetrators to light.

3. RESULTS AND DISCUSSION

3.1. The Criminals Motivated by Greed

According to Maslow, humans have many different needs that are ranked in a hierarchy from low to high. Lower-level needs must be satisfied before higher-level needs emerge. When basic

material needs are not met, individuals may be driven to commit crimes to satisfy those needs. Human nature is inherently selfish and greedy. This greed can drive people to commit crimes to achieve personal gain, regardless of the consequences for others. At the same time, the environment and society play a crucial role in promoting criminal behavior. In a society where material values are emphasized, pressure from money and status can lead some individuals to choose the path of crime.

Mr. Thanh and Mrs. Khue exhibit typical characteristics of criminals driven by greed, as evidenced by their desire to possess the property of others to satisfy their personal goals. This criminal behavior also stems from feelings of inadequacy and lack of fulfillment.

In the character of Mr. Thanh, we can see that he is a person with insatiable greed, always longing to possess the entire land of the family. When his younger brother, Phu, is seriously ill, instead of showing concern, sharing the burden of family responsibility with Phu, or helping Mrs. Xuan take care of Phu, Mr. Thanh seeks to seize his brother's property by forcing him to sign a will leaving all the property to him: *“My brother and I are blood relatives, so we must take care of each other. I'm thinking this way, for now, you should inherit the land and put it in my name. My wife and I will keep the land for you. If you find her kind and later when your child grows up, I will give it back to them. That way it's more secure”* (Long, 2022, 213). Furthermore, to achieve his goal of seizing property, Mr. Thanh does not hesitate to use any means, even resorting to cruelly ending his brother's life. This act demonstrates his cruelty, wickedness, and disregard for the lives of others, driven solely by his greed. In Mr. Thanh, we always see him wearing a mask of hypocrisy. He always pretends to be a responsible father, a loving brother, caring for his children. But that is just a mask, a rosy disguise to hide his greedy, selfish nature. He always seeks to justify his actions with pathetic excuses like protecting the family's property: *“The ancestral graves are all on this land. If anything happens, my wife and I can easily take care of it. We can't leave it to outsiders”* (Long, 2022, 213). It can be seen that he always uses pretenses to persuade his brother, but in reality, it is to seize the land.

Regarding Mrs. Khue, Mr. Thanh's wife, although she did not directly participate in the murder, she was an accomplice in her husband's criminal act. Mrs. Khue always supported her husband's wrong decisions, even encouraging him to do things that went against morality: *“Your brother is right. People's hearts are hard to understand nowadays. You should think further for your children”* (Long, 2022, 213). This demonstrates Mrs. Khue's support for her husband's plan and her encouragement for her brother-in-law to follow what Mr. Thanh had said. Additionally, she was an accomplice in Mr. Thanh's crime. She always supported and assisted her husband in every action, even encouraging him to commit crimes: *“Be careful, Xuân might find out, hurry up”* (Long, 2022, 215). This complicity reveals that Mrs. Khue was also blinded by greed, willing to turn a blind eye to her husband's cruel actions to achieve her goal of seizing the property of Phú and his wife. She did not oppose or stop her husband, but instead, she created conditions, even assisting him in carrying out his crimes. Mrs. Khue always craved a wealthy and prosperous life, and this blind greed made her willing to abandon morality and conscience to achieve her desires. She always considered her interests without caring about the consequences of the cruel actions she and her husband had committed.

The murder of Mr. Thanh's brother and Mrs. Khue's complicity are not just simple crimes, but also manifestations of a psychological dependence on power and wealth. In their worldview, the land - a symbol of power and wealth - becomes an "idol" that must be protected at all costs, even if it means sacrificing family ties and morality. Their guilt does not stem from empathy for the victim, but from fear of punishment by a supernatural power, a "dictatorial God" whom they believe will punish those who dare to violate the rules.

According to Fromm, in authoritarian religion, God is the symbol of absolute power, while humans are weak and powerless creatures. Therefore, guilt is not a conscious awakening, but a fear of punishment by the supreme power. Mr. Thanh and Mrs. Khue live in the shadow of this fear of punishment, believing that misfortunes in life, from the lack of a grandson to the death of their eldest son, are punishments from "heaven" for their past sins.

Fromm argues that humans can idolize anything, from money and power to abstract concepts. In the case of Mr. Thanh and Mrs. Khue, they have idolized the land - a symbol of power and wealth - to the point of blindness. This idolatry has turned them into slaves of their own "idol," making them lose the ability to love and think independently. Their crime is not only murder but also a betrayal of their human nature.

It can be said that Mr. Thanh and Mrs. Khue are characters who embody people blinded by greed, leading to inhumane actions. Through these characters, Kim Tam Long has vividly depicted the dark side of society, where greed can destroy everything.

3.2. Dissociative Identity Disorder and Criminal Behavior

In the novel *Mat na trang* the character Duong suffers from a complex psychological disorder: multiple personality disorder. His second personality, Hung, is a clear manifestation of the deep psychological trauma Duong endured during his childhood. From the perspective of Erich Fromm's psychoanalysis and religion, we can better understand the formation and impact of this disorder on Duong's life.

According to Fromm, the need for a guiding system and a purpose to strive for is inherent in every human being. When individuals are unable to find this direction and purpose within humanistic religion, they may regress to more primitive, even distorted forms of religious belief. In Duong's case, past traumas have prevented him from developing a healthy, integrated personality. The absence of love, the abuse inflicted by his stepfather, and the helplessness he experienced witnessing his mother's suffering have created a profound void within Duong's soul. To cope with this anxiety and trauma, Duong has constructed the persona of Hung, a strong, decisive, and powerful man, a stark contrast to his own weak, passive self. Hung becomes the "idol" Duong worships, a symbol of the strength and protection he has always craved.

Duong's character exhibits multiple signs of dissociative identity disorder, manifested through the presence of two distinct personalities. The first personality is Duong, a gentle, honest, and introverted individual. He is constantly consumed by remorse and regret for what happened to his family in the past and yearns to uncover the truth to avenge his father. The second personality is Hung, a cold, brutal, and violent individual. Hung is the complete antithesis of Duong, always

displaying anger and an intense desire for revenge. Hung emerges when Duong faces stressful situations or those related to his traumatic past. Even Duong himself has no memory of Hung's actions, and Hung, in turn, lacks Duong's memories. This is demonstrated in situations like when Duong has no recollection of killing Giang, while Hung remembers the act vividly. The shift between these two personalities occurs abruptly and uncontrollably, often triggered by stressful situations or reminders of past traumas.

Hung's initial emergence appears as a coping mechanism for Duong's psychological wounds. However, this persona gradually becomes domineering and brutal. Hung not only kills those who have wronged Duong's family but also takes the lives of innocent individuals. This action reflects the distortion in Duong's need for faith. Instead of seeking redemption and self-improvement through love and reason, Hung turns to destruction and revenge to assert his power.

It can be argued that Duong and Hung represent the good and evil within a single individual. Each time the evil persona emerges, it signifies the dominance of the Id over the individual's mind, and this dominance dictates the actions of Hung. In the novel *Mat na trang* of Kim Tam Long successfully portrays the characters of Duong and Hung, two opposing sides of the same individual, burdened by complex feelings of guilt.

Duong is a kind and honest man who always lives for his mother and carries a longing for love. However, his unfortunate childhood, filled with physical and emotional trauma, has left him with deep-seated guilt. Duong constantly reproaches himself for failing to protect his mother and feels guilty towards his lost brother. This guilt has permeated Duong's subconscious, causing him to live in constant self-reproach and suffering. Duong's conscience stems from within, from the moral values and love he cherishes. He does not fear external punishment but constantly blames himself, tormenting himself for the actions he has taken or the things he couldn't prevent.

Hung is Duong's second personality, born from trauma and the desire for revenge. Hung is brutal, cold, and shows no mercy towards those who have inflicted pain on Duong and his mother. He kills without hesitation, viewing it as a way to release the resentment he has harbored for so long. Hung's criminal behavior also stems from his traumatic past experiences, but it manifests in a different form. He does not feel guilty for his murders; instead, he sees them as justified punishment for the wicked. However, beneath his brutal exterior, Hung cannot accept the fact that he is the son of Mrs. Xuan, a woman he despises and looks down upon. This truth shatters his entire belief system and life purpose, plunging him into a state of crisis and despair.

Duong's multiple personality disorder and the emergence of the Hung personality serve as a stark testament to the profound psychological trauma he has endured. The Hung personality embodies a distorted manifestation of religious needs, where violence and revenge become the means to compensate for feelings of powerlessness and hurt. Through Duong's story, Kim Tam Long paints a realistic and haunting portrait of the devastating consequences of domestic violence and the erosion of humanistic values.

3.3. Power and Domination

In Kim Tam Long's novel *Mat na trang* the actions of the soldiers Tu, Hoe, and Ma towards the characters On and Nha expose the dark underbelly of traditional masculinity, particularly when

examined through the lens of Sigmund Freud's psychoanalytic critique and Cristiana Cimino's theory of "The Wounds of the Masculine."

Freud posits that masculinity is intrinsically linked to power and dominance, symbolized by the phallus. The soldiers demonstrate this imposition of power through their forceful entry into On's home. This lust for power can lead to the use of violence to maintain control. From the very beginning of the story, the soldiers barge into On's house, not only searching it but also brutally beating him when they find no evidence of his supplying the Viet Minh. This act reveals their use of violence as a tool to assert their authority and punish anyone who dares to oppose them. This action demonstrates their use of violence to maintain power and punish those who dare to resist. The brutal oppression is evident in the soldiers' treatment of Nha as a prize, an object to satisfy their desires after suppressing On. Furthermore, according to Cristiana Cimino, women are victims of the "phallic economy" where a man's value and power are measured by his ability to conquer and possess women. When Nha appears, the soldiers immediately shift their attention to her, viewing her as a prize, an object to satisfy their desires, rather than a human being with dignity. This incident highlights how women are reduced to commodities, symbols for displaying masculine power. The soldiers' behavior towards Nha exposes a distorted view of women, seeing them as possessions. When Nha appears, they immediately shift their focus from On to her, viewing her as a reward for their victory, an object to satisfy their desires. This action demonstrates their disregard for women's dignity, seeing them as possessions, aligning with Freud's view of masculinity being inextricably linked to power and dominance. The brutal use of violence to suppress On when he dares to resist further reinforces the connection between masculinity and violence, where violence becomes a tool to maintain power.

In the context of war and the collapse of traditional societal structures, these soldiers may feel their masculinity threatened and undermined. Their brutal use of violence against On and Nha can be seen as a desperate attempt to reaffirm their power, to compensate for the wounds and insecurities about their masculinity in a world in flux.

The entire actions of the soldiers and the couple On and Nha fall within the "phallic economy" that Cimino describes. In this system, a man's value is measured by his ability to dominate and possess, both materially and in terms of women. On is seen as an enemy for daring to challenge their power, while Nha is viewed as a rightful reward for the victor. Overall, the soldiers' behavior exposes the dark side of traditional masculinity, where power, violence, and dominance become measures of worth, exposing the dark underbelly of traditional masculinity, where violence and oppression are used as tools to maintain power and control. Women, within the "phallic economy," become victims of objectification and are stripped of their autonomy. The work also highlights the devastating consequences of wounded masculinity and the desperation to reclaim lost power.

However, all three characters, Tu, Hoe, and Ma, also carry within themselves feelings of guilt after committing unspeakable crimes against the blacksmith On's family.

Tu, the most vicious and cruel mastermind of the three soldiers, not only directly killed On and his wife but also committed depraved acts against Nha. Tu's ruthlessness and inhumanity were

demonstrated by his gouging out the victim's eyes after her death. He seemed to have no remorse or regret for the crimes he committed. However, deep within his mind, guilt still smoldered. It manifested in his constant obsession with Nha's curse before her death and his desperate attempts to deny the existence of the vengeful ghost.

Although not the mastermind, Hoe was still an accomplice in Tu's crimes. He not only directly participated in beating On but also witnessed and did nothing to stop Tu's brutal acts against Nha. After Nha's death, Hoe was the first to feel fear in the face of her curse and death with eyes wide open, full of resentment. Guilt was present in him from that moment and haunted him relentlessly until his death.

Of the three soldiers, Ma was the least vicious. He did not directly kill or rape the victim. However, his silence and indifference to his comrades' crimes made him an accomplice. Ma's guilt simmered for years and only erupted when he saw the White Mask appear. Fear and torment led him to his desperate death when he was struck on the head by the very hammer he used years ago.

It can be seen that the guilt of the three characters, Tu, Hoe, and Ma, is strongly authoritarian. Initially, they showed no remorse or regret. Only when confronted with punishment from a supernatural force, believed to be On's ghost, did fear arise and drive them to torment, ultimately leading to their deaths. This shows that they never truly faced their guilt from a humanistic perspective; they only feared punishment from external forces.

Overall, *Mat na trang* is not just a simple detective story but a complex portrayal of the hidden corners of human psychology, particularly masculinity in a wartime context. The work successfully reveals the brutality, authoritarianism, and deep psychological damage hidden within seemingly strong characters.

4. CONCLUSIONS

This paper applies psychoanalytic theory to analyze the criminal characters in Kim Tam Long's novel *Mat na trang*. By exploring the hidden desires, conflicts, and underlying desires in the characters' psychology, we can better understand their motives and criminal behavior. At the same time, psychoanalytic criticism allows us to view these characters in a multifaceted way, not simply as villains but also as victims of circumstance and psychological trauma.

The paper has shown that the criminal acts of the characters in *The White Mask* are not merely the result of greed or moral degeneration but also stem from deep psychological disorders and past traumas. Mr. Thanh and Mrs. Khue are obsessed with wealth and power, losing their affection and morals. Duong, with his alter ego Hung, is a victim of domestic violence and the collapse of humanistic values. Tu, Hoe, and Ma, who carry deep-seated guilt, are haunted by the punishment from supernatural forces.

Through the analysis of these characters, we not only gain a deeper understanding of the nature of crime but also recognize pressing social issues and the hidden corners of human psychology that need attention and resolution. The paper also contributes to affirming the value of psychoanalytic theory in the study of literature and criminal psychology.

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ANCIENT MODELS IN NGUYEN THI HOANG'S NOVELS

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ABSTRACT

In recent years, Carl Jung's study of the collective unconscious, especially the decoding of cultural symbols through archetypal theory, has attracted special interest from literary researchers. In this context, it is impossible not to mention the author Nguyen Thi Hoang, a famous writer of Southern literature in the 1950s – 1960s. She writes about human fate with works of profound cultural and social value with the presence of traditional archetypes and symbols in literature, adding depth to the story. This article will study the archetype in Nguyen Thi Hoang's novel in order to better understand the psychology, journey and development of the characters from the perspective of the archetype.

Keywords: Archetype, Archetypal Criticism, Collective Unconscious, Psychoanalysis

1. INTRODUCTION

In the current of modern Vietnamese literature, Nguyen Thi Hoang stands out as a female writer with works rich in philosophy and symbolism. Her works not only reflect human thoughts and feelings, but also deeply explore the depths of consciousness and the unconscious. This creates a strong connection between Nguyen Thi Hoang's work and archaic theory – a theory that has been providing important analytical tools in literary research.

The archetype theory, developed by Carl Jung, emphasizes the existence of images, symbols, and patterns that are universal in the collective unconscious of humanity. These archetypes often appear in literature, art, and cultural traditions in the form of familiar symbols such as journey, motherhood, death, rebirth, and many others. The application of archaic theory to study literary works allows us to access and decipher the layers of hidden meaning, thereby better understanding the inner world of people as well as cultural and social factors that affect the author.

Nguyen Thi Hoang, with her thoughtful writing style and philosophical inspiration, is an ideal object of study from the perspective of an ancient model. In her works, readers can encounter images and symbols that are bold in antiquity, hiding deep meanings about existence and human status. Studying Nguyen Thi Hoang's works from the perspective of archetypal theory not only helps us better understand the content and meaning of each work, but also opens new depths in the exploration of modern Vietnamese literature.

For the above reason, the research topic of Ancient Patterns in Nguyen Thi Hoang's novels is built to approach her works from a new angle, through the application of ancient model theory to explore and analyze familiar symbols and images. Thereby clarifying the artistic value and philosophical significance of Nguyen Thi Hoang's composition.

2. LITERATURE REVIEW

The study of archetype has flourished globally since the mid-twentieth century thanks to Carl Gustav Jung. Researchers such as Maud Bodkin, Mircea Eliade, Joseph Campbell, and Northrop Frye have extended this theory in various directions. Maud Bodkin, a pioneer in archetype criticism, analyzed literature through *Archetypes in Poetry* (1934). Joseph Campbell extends the theory to explain symbolic periods in modern life, while Northrop Frye uses archetypes to construct the legendary critical system. Researchers such as “archaeologists” look for traces of the past and remnants of primitive humans in literature. Archetypal criticism has attracted widespread attention thanks to its ability to unravel the connection between past and present thinking.

In his study of *The Mystery of Supermodels from Psychoanalysis and Art Culture*, Carl Jung emphasized that the imagery in the work should be analyzed to identify hidden symbols, rather than just taking them literally. This reflects the spirit of archetypal criticism: deciphering figures and symbols to understand archetypes in the work.

In Vietnam, archetypal theory appeared late, from the end of the twentieth century and the beginning of the twenty-first century. Do Lai Thuy and Nguyen Thi Thanh Xuan have applied this theory to Vietnamese literary criticism. Do Lai Thuy pioneered the introduction of theory and analysis of medieval and modern literature, while Nguyen Thi Thanh Xuan expanded the study of archetypes in Vietnamese literature, emphasizing the sustainability and universality of cultural symbols.

Archaeological research not only detects and decodes ancient symbolism, but also extends to cultural studies, anthropology, and reader theory, showing the versatility and widespread application of this theory in understanding the structure of human thought and psychology through literature. With the contributions of many scholars, archaeology has become an important branch of modern literary criticism.

For Nguyen Thi Hoang's novels, current research mainly focuses on writing style, character psychology, and inner life, while the archaic perspective has not been focused. This research will exploit the academic gap by discovering and analyzing ancient specimens in her novels, thereby clarifying the artistic value and cultural significance of the works.

3. METHODOLOGY

3.1. Theoretical basis

Archetype Theory, developed by Carl Gustav Jung (1875-1961), is an important concept in psychoanalysis and literary criticism. This theory not only opens a new approach to human consciousness but also serves as a useful analytical tool for literary works. Jung divides consciousness into three levels: individual consciousness, individual unconscious, and collective unconscious. The collective unconscious contains common memories and images of humanity, independent of the era or culture. Archetypes, or “big images”, are primitive symbols that emerge from the collective unconscious, expressed through dreams, myths, religions, and literature.

According to Jung, archetypes do not exist in a specific form, but psychological patterns that have a profound influence on human behavior and thinking. These patterns are frequently

reproduced in literary works as icons, symbols, or common plot structures. The image of “hero”, “mother”, “teacher”, or motifs of death and rebirth are all universal archetypes, appearing in many different cultures and periods.

Carl Jung developed Archetypal Criticism from the concept of archetypal, emphasizing the analysis of repetitive figures and motifs in literature to explore deep and universal meanings. Classical critics, like the “archaeologists” of the mind, search for and decipher the psychological imprints of primitive man in modern literature. Archetypal criticism has garnered global attention, with researchers such as Charles Bauduin, Joseph Campbell, Mircea Eliade, and Northrop Frye, each contributing in their own ways. Bauduin analyzes “heroic” archetypes, Campbell explores archetypes of “heroes”, “gods” and “prophets”, while Eliade and Frye focus on archetypes in religion and literature.

In Vietnam, archetypal theory appeared late but quickly became an important critical method from the late twentieth and early twenty-first centuries. Researchers such as Do Lai Thuy and Nguyen Thi Thanh Xuan have applied this theory to the analysis of Vietnam's medieval and modern literature. Do Lai Thuy is a pioneer in introducing archetypal theory in Vietnam, applying it to the study of medieval poetry and literature. Nguyen Thi Thanh Xuan also made an important contribution to the analysis of images and symbols in Vietnamese literature.

Archetypal theory stands out for its universality and wide applicability, helping to explore cultural and psychological values. Archetypes not only appear in ancient cultures but are also reborn and transformed in modern literature, reflecting basic human experiences such as circle images, heroic figures, initiation rituals, and themes of death and rebirth.

3.2. Research Methodology

Based on the above reasoning, the writer applies basic operations such as analysis – synthesis and coordination of the following methods:

Type method: The writer uses this method to investigate the formation and development of archetypal theory. From there, the core aspects of archetypal theory are exploited to apply to the study of Nguyen Thi Hoang's novels.

Comparison method: In this method, we highlight the similarities and differences between the archetypes in Nguyen Thi Hoang's novel and the archetypes in Vietnamese and world literature. At the same time, this method also contributes to affirming the uniqueness of the way Nguyen Thi Hoang applies and transforms ancient patterns.

Systematic method: The archetypes that appear in Nguyen Thi Hoang's novels are not separate but in a unified system. The systematic method helps us organize and classify archetypes, thereby finding artistic characteristics in the construction of the author's images and symbols.

4. RESULTS AND DISCUSSION

4.1. The Ancient Model of the Old Road – A Journey Back to the Past

In many fairy tales, myths, and legends, the old path is often the way to return characters to traditional values or rediscover the past. It appears in medieval literature as a familiar passage in

poetry about love, separation, or nostalgia, and has become a symbol of escapism from reality in modern literature, where characters find solace from the past in the face of present pressures. The meaning of the “old way” paradigm changes according to the cultural context: in the East, it is associated with a return to ancient morality and philosophy, while in the West, it is associated with a specific mental state or historical period. This archetype reflects a shift in the way we look at time and memory: from a symbol of a return to nature and the gods of the Middle Ages to nostalgia and antagonism to reality in modern times.

In art, the “old road” often symbolizes return, personal journey, and connection to the past. It evokes emotions, leads the viewer and reader into a state of reflection, and connects to the depths of the mind. This path represents an inner journey, where the character discovers himself, confronts memories and emotions, and seeks understanding, liberation, as well as spiritual rebirth after difficulties.

The ancient pattern of the old road flourished in literature, representing the journey back to the past and the search for the meaning of life. When the characters walk the old path, they not only reminisce about the memories, but also face themselves, seeking understanding and liberation, revival and regeneration, where people find peace and happiness after difficulties.

In Blue Honeymoon, the characters Nhung and Dong return to the old road in Hue, which is reminiscent of the past and sad memories. This journey, a popular archetype in literature, represents the search for oneself and facing the past to better understand the present. The old road is not only a physical place, but also a symbol of memory and the past, recreating floods, lost friends, and traumatic experiences. Nhung's reflections when remembering the path of Tran Hung Dao are not only memories but also the struggle and facing the pain that has passed. This journey back is a process of self-awareness, where the character looks back on life, notices the change of space and time, and finds peace of mind.

Nguyen Thi Hoang portrays Hue space with vivid memories, highlighting grief and nostalgia. The great floods and losses not only create the setting but also deeply explore the mood and inner life of the characters. The past is not only part of the story, but also the mental journey of the characters, where they face and accept what has passed to move on. Hue emerges with decay, abandonment, and abandoned structures, reflecting decay and change over time. The detailed portrayal of Hue, with its ancient architecture, deserted streets, and old memories, highlights the difference between the past and the present, expands the space of thought, and expresses the inevitable transformation of time.

The path in The Bell Waiting for the Return of Nguyen Thi Hoang is a journey of the character, not only a physical movement but also a search and discovery of oneself. Huyen's character always walks on an empty road, searching for the meaning and purpose of life. In contrast to Huyen, Bang chose the path of escape, reflecting his insecurity and wanting to escape from the reality of suffering. Each path that the character passes represents searching, rebelling, fleeing, and even confronting himself. The path that Huyen walks is “deserted, only glimpses of the silent silhouettes of the guards” is a journey to find herself and her own aspirations. This is a path of rebellion, against social stereotypes and rules, expressing a desire for freedom and personal

discovery. For Bang, the path he chooses is “a way to escape”, symbolizing the avoidance of reality, fear and helplessness in life. Meanwhile, Diep's path is filled with turmoil, reflecting his desolate soul and his desire for self-destruction. Diep sees himself as a “graveyard” where each person is a tomb, symbolizing despair and disillusionment. The road in Nguyen Thi Hoang's novels also serves as a symbol of freedom, happiness, and aspiration. It is not merely a path but a journey of self-initiative, construction, and hope. These roads do not appear naturally but are created by people, through persistent and determined steps. The path also represents the invisible boundaries of the human heart and social prejudices. Characters like Tram, Minh, Nguyen, Nhung, and Dong have gone against society, choosing their own paths to assert their values and existence. Despite facing many tragedies and difficulties, they remain persistent and strong, living true to their authentic selves, without pretense or vanity. The path also serves as a medium for characters to reassess reality and themselves. Nhung clearly sees the shabbiness and pettiness of Loc, Nguyen realizes the purity of his feelings lost when he sees An's retreating figure, and Hao recognizes the mistakes in her marriage to Hiep. These roads help the characters gain a clearer understanding of life, of what has been lost, and of what they must continue to confront, filled with regret and awareness.

The path that Bangs traverses in the final stage of his journey is a painful realization of the values he had inadvertently lost. Bang worries about his wife's life, his family, and becomes aware of the decay within his own household. He sees the overwhelming problems and the irresponsibility of family members, but at the same time, he recognizes what Huyen has done to sustain the family. This path allows Bang to see more clearly the responsibility and sacrifices of his wife, awakening him to reassess himself. It is a journey of commitment, an unpredictable journey with unknown outcomes, symbolizing risk-taking, and the search for meaning and life. The space on this path is cold, illuminated only by small patches of light or the flash of explosions, reflecting the harshness and intensity of wartime reality. The sounds of explosions, the crackling of fire, and the thunder of running footsteps represent the madness and ferocity of war, intertwined with the fates of those who refuse to rest in peace. The people on this path constantly rise, asserting themselves and their human dignity. They refuse to be forgotten or defeated by circumstances, persistently and strongly overcoming obstacles.

4.2. The old model of the house – the room – the place where it begins and ends

In many fairy tales and legends, the house serves as the starting and ending point of the journey, where the protagonist finds safety, protection, or faces the final challenge. The house holds family secrets, curses, or spiritual legacies. The room, especially a locked or hidden one, is often a mysterious space where the truth is revealed, or the protagonist must confront themselves. These rooms symbolize exploration, self-understanding, or facing deep-seated fears.

In Eastern culture, the house is associated with family, ancestors, and traditional values, while the room symbolizes the private part of life, where rituals and customs take place. In the West, the house symbolizes personal freedom and independence, and the room represents self-exploration or repressed emotions. In medieval times, the house and room represented social and

religious order, where people found protection and guidance. In modern times, these images represent the fragmentation of the self, a sense of disconnection, or isolation in society. Many works of art use the image of the house to convey safety, comfort, or, conversely, confinement and isolation. Artists use the house to express the contrast between external society and the inner human psyche.

In popular culture, the room is a personal space where transformation, exploration, or confrontation with one's mysteries occur. In horror films, the room contains dark secrets or supernatural forces. The cold prison cell symbolizes brutality and inhumanity during wartime. Patriotic young people, though passionate and brave, pay a heavy price for their struggle. The prison cell becomes a symbol of sacrifice and loss, where the dreams and ambitions of youth are buried.

Despite being imprisoned and oppressed, characters like Nga in *It's been a day* continue to embody indomitable spirit and steadfastness in their ideals. The prison cell, therefore, is not just a place of brutality but also a witness to human struggle and spiritual strength. It becomes a symbol of resistance and unwavering will.

The house, though not directly mentioned in the excerpt, can also carry similar meanings when considered within the broader context of the work. In many literary works, the house is often seen as a place of safety, shelter, and a symbol of family and stability. However, when the house becomes a place of imprisonment, it takes on an entirely opposite meaning, becoming a symbol of injustice and captivity. The space of the room or house is a private area associated with the image of women and their desires for happiness in relationships. It is a space that allows characters to express deep emotions, the intense fluctuations of rebellion, and the longing for destiny. In this space, they introspect, confronting the harsh circumstances of life and society.

Nguyen Thi Hoang uses the room as a setting for characters to confide and reflect. It is a narrow space, filled with suffocation, confinement, concealment, and repression. However, within this suffocating space, the characters reveal rebellious thoughts and actions. They isolate themselves, separating themselves from the outside world, but at the same time, they also rebel and yearn for freedom.

The room is where Huyen faces loneliness and sorrow. When alone in the room with the extinguished candle, Huyen feels a deep sense of loneliness. However, this suffocation and loneliness prompt Huyen to act. The door bursts open under the dark sky, and Huyen runs outside, hair flowing, frantically searching. The clothes, belongings, and warmth left by Bang in the room motivate Huyen to bravely begin her journey to find her husband.

On the other hand, Diep finds the house cold and dreary. The scene is quiet, with the door closed, trapping the musty, cold smell of the furniture inside. However, after the tumultuous events of his youth, Diep realizes that the house, despite everything, is better than any other place. The room is where Diep and Duc meet, and it is in this room that Duc pulls Diep out of her delirium and madness when she wants to end her life.

The unexpected reunion in Hiep's room helps Diem realize the reason she was abandoned. It is in this very room that Diem decides to let go of Hiep from her mind, allowing him to return to his married life with Hao. This turning point brings about a renewal in Diem's life and love, paving the way for her later encounter with Vi. The room's space here is where self-awareness occurs, leading to important decisions that influence the character's future.

For Nguyen, the house, lacking her mother's love, becomes the place where she expresses her rebellion and defiance. From actions like skipping school, running away from home, to going to Đà Nẵng and Sai Gòn to find her mother, Nguyen constantly seeks to break away from her family's control. Her rebellion is also manifested in the empty schoolroom, where Nguyen can express thoughts that oppose societal norms. She enjoys the feeling of being confined because when she steps out of the enclosure, everything feels new and more valuable.

Nguyen Thi Hoang adds dark tones to the rooms, creating a suffocating and imprisoning atmosphere. Even though there is yellow light, it still glimmers faintly as if swallowed by darkness. This space highlights human desires, living life to the fullest, and living with aspirations.

When Huyen is left alone in the wide room with the extinguished candle, she feels deep loneliness and sorrow. She sits huddled in a large chair, trying not to think about anything. This suffocating space amplifies Huyen's suffering but also spurs her into action, beginning her journey to find her husband in Nha Trang.

In the pitch-dark space, Bang stands still, his mind whirling with sudden anger and pain. This suffocation and pain are described as a sharp, cold blade, illustrating the powerful impact of the space on the character's mood.

Tram's ancient but mysterious house is where the teacher-student relationship develops. All the thoughts and judgments about each other occur in this space. The rebellion and resonance between the two souls regarding life views are also clearly expressed. The house becomes a place that fosters connections and empathy between the characters, laying the foundation for the development of feelings and awareness.

Despite its bustling atmosphere, the tearoom creates a special private space for the characters to rediscover themselves and reflect on life. Minh goes to the tearoom to lose himself in music and alcohol, trying to forget Tram and the family's gossip, seeking liberation from social pressure. Bang visits the tearoom to temporarily forget the harshness of life and find himself again, but ultimately realizes that To Lan cannot replace Huyen in his heart. The tearoom becomes a place where Nhung senses the emptiness of her current life; despite the music and alcohol, she finds no interest in Lộc, her fiancé, and feels that the routine of life is dull.

The tearoom is not only a place for the characters to experience freedom and indulgence but also helps them realize the value and choices in life. It allows them to reflect on themselves and important relationships. Diem realizes why she was abandoned and decides to let go of Hiep, opening the door to change and renewal. For Nguyen, the tearoom is a place that manifests defiance and rebellion, helping her find empathy with herself and recognize the value of ordinary things in life.

4.3. Rain specimen

Rain plays a vital role in human life, providing essential water for daily needs, agriculture, and religious rituals. It symbolizes life, growth, and fertility, as well as purification and the preparation for new beginnings. In many cultures, rain is associated with gods like Zeus, Indra, and Thor, who control nature and bring rain either to save or to punish. Rain rituals, especially during droughts, are often conducted to seek salvation or renewal.

Rain can also represent sadness, suffering, or repressed emotions, while simultaneously symbolizing healing and psychological rebirth. In dreams, rain often signifies the cleansing of the soul or uncontrollable emotions. In literature, rain represents change, transformation, or the end of suffering, paving the way for a new phase. In painting and cinema, rain often highlights a character's emotions, such as loneliness or melancholy, while also signifying purification and liberation. In agricultural societies, rain is revered and plays a crucial role in daily life. In Eastern cultures, rain is associated with harmony between nature and humans, whereas in Western cultures, it may symbolize purification, new beginnings, or melancholy. From being a symbol of life in ancient times to representing more complex meanings in modern literature, rain reflects the diverse emotions and psychological states of humanity.

In Nguyen Thi Hoang's novels, rain is not merely a natural phenomenon but carries profound symbolic meanings. Rain appears frequently in her works, often described in tandem with the harshness and bitterness of war, creating an atmosphere of gloom, loneliness, and fear. "In the afternoon, the rain came and lasted until late at night. Water rose across the pond banks and drains, rushing through the rows of low-hanging plants and flowers in the garden. The roaring sound of the water pouring like a waterfall drowned out all the small noises in the vast, empty house".

The rain is depicted as lasting from afternoon until late at night, evoking a sense of sadness and darkness. The rising water flows through the garden's plants and flowers, creating a roaring sound reminiscent of a waterfall. This sound not only drowns out the small noises within the house but also heightens the feeling of emptiness and loneliness. Here, rain becomes a symbol of negative emotions, accentuating the loneliness and fear people experience in the context of war. The rain, combined with the harshness and cruelty of war, amplifies the brutality and devastation of this era.

The image of rising and rushing water evokes a sense of chaos and loss of control, reflecting the destruction and suffering brought about by war. The roaring water, like a cascading waterfall, silences all the small noises within the house, symbolizing the overwhelming and dominating presence of war in human life. Rain here is not just a natural occurrence but a symbol of the destruction and horror of war. The roaring rain outside contrasts sharply with the silence and emptiness inside the house. This contrast highlights the sense of loneliness and helplessness that individuals feel in the face of natural and social upheaval.

The rain not only silences the small noises but also creates a quiet, unsettling space filled with anxiety and fear. The vast, empty house symbolizes the emptiness and loneliness of the human spirit, which is overshadowed and drowned out by the intense sound of the rain.

In *A Love in Prison*, rain serves as a recurring motif throughout the narrative, from the couple's escape journey to their fateful encounters, evoking feelings of loneliness, helplessness,

and melancholy. Right from the beginning, the couple's escape is depicted against the backdrop of a “pitch-black sky”, setting a gloomy and tense atmosphere. The rain lasts for days, described as “a darkened region”, “a sky full of storms” and “a season of wind and rain” all of which symbolize the relentless difficulties and turmoil in their lives.

Rain is not merely a natural element in the story but also a reflection of the upheavals and challenges the characters must endure. The persistent rain mirrors their emotional struggles, the overwhelming obstacles they face, and the uncertainty that pervades their existence. This use of rain deepens the sense of despair and emphasizes the unyielding forces that seem to trap the characters in a cycle of suffering.

In *The Blue Honeymoon* by Nguyen Thi Hoang, rain serves as a powerful symbol that permeates the narrative, reflecting the inner turmoil and emotional states of the characters. The persistent rain in Hue, described as endless, contributes to the city's ancient and melancholic atmosphere, reinforcing the introspective mood of the characters.

The rain is intricately linked to significant moments in the story, such as the fateful meetings between Nhung and Y Lan. The downpour at the airport, where they meet, evokes feelings of distance, loneliness, and sorrow. The description of the rain as having a “sad, rhythmic, and still voice” likens it to a melancholic melody, a warm scent of liquor, or a comforting embrace—all symbols of sadness and isolation.

Rain also symbolizes the inevitability of separation and helplessness, especially during the final meeting between Dong and Y Lan. The stormy night of their farewell, with the image of a solitary boat swaying and drifting, epitomizes the futility and disconnection in their relationship. The rain acts as a catalyst, helping them realize their estrangement and helplessness in their tenuous connection. Their encounter begins and ends in the rain, with the downpour marking both their union and their separation, underscoring rain as a symbol of parting and loneliness.

Moreover, rain stirs up imagination and ambiguity in the narrative. After the intense storm, raindrops lingering on the eaves and the faint sounds that can only be “heard through imagination, distant and dreamy” create an ethereal, distant atmosphere, akin to a woman's gentle fingers smoothing out wet, tangled hair. The scene of raindrops falling on the boat, with the sky growing darker and the boat tilting and swaying, evokes a sense of darkness and uncertainty, mirroring the characters' unsettled emotions.

In Nguyen Thi Hoang's works, rain is often associated with tense and gloomy situations, reflecting the characters' moods and circumstances. However, the final rain in *The Blue Honeymoon* carries a different meaning, signaling positive change and a bright future. This rain is described as “a gentle rain refreshing the parched soul”, contrasting with the earlier stormy rains. It not only soothes the external heat and dryness but also cleanses the pain and fatigue, bringing relief and hope to the characters. Rain becomes a symbol of renewal, revival, and happiness. After the hardships, the final rain brings a sense of freshness and joy, marking a transition from suffering to happiness. Nguyen Thi Hoang skillfully uses the imagery of rain to depict the characters' emotional and circumstantial transformations, adding deep layers of meaning to the work.

5. CONCLUSIONS

Studying Nguyen Thi Hoang's novels through the lens of archetypal criticism provides a deep and rich approach to analyzing her works. Archetypal criticism allows us to identify fundamental motifs, symbols, and themes in Nguyen Thi Hoang's novels while gaining a deeper understanding of how these elements reflect human psychological and cultural structures. Research shows that although her novels may not be consciously constructed with archetypes in mind, they still contain powerful archetypal elements through characters, plots, and themes, offering a deeper insight into the inner lives and human experiences depicted. Applying archetypal theory to the study of Nguyen Thi Hoang's novels not only enriches our understanding of her works but also extends the applicability of archetypal theory in modern literary analysis. This approach not only provides a valuable analytical tool for scholars but also clarifies the profound impacts of psychological and cultural factors on literary creation. The results of this research are a significant contribution to enriching literary analysis and setting the stage for further studies in the field of archetypal criticism.

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LINGUISTIC FEATURES OF NOVEL TITLES FOR CHILDREN: A STUDY ON SYNTACTIC AND SEMANTIC PERSPECTIVES

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ABSTRACT

This article contributes to the ongoing discourse by examining a relatively underexplored category of texts: children's novels. By analyzing 100 titles from this genre, the study seeks to elucidate the syntactic structures and the diverse meanings these titles convey. The results of the study indicate that, first; the average length of titles of children's novel are brief with average text length of 3.4 words. Second, the dominant structure of surveyed titles is noun phrases. Last, the content words of title provide a rich array about the content of the story. The findings of this study have implications for teachers in their teaching strategies, with the broader objective of promoting a love for reading among children, whose reading habits are increasingly compromised by the pervasive influence of online videos and movies.

Keywords: titles study, novel titles, titles of novels for children, encouraging reading interest for children.

1. INTRODUCTION

In all genres of written and spoken literature, including novels, a critical rhetorical device that has garnered recent scholarly attention is the title. Researchers not only in Vietnam but globally have increasingly focused on the significance of titles, leading to the development of a specialized field known as "titleology" (Baicchi, 2003). Titles, which are often restricted by space, must effectively convey the content of a publication, making it essential that they are informative. As Haggan (2004) notes, title acts as the initial connection between the writer and the potential reader, playing a pivotal role in determining whether a text will be read, as according to Afful (2005) and Hartley (2005, 2007) it can either attract or repel a reader. Soler (2011:1) succinctly describes titles as "succinct descriptive labels of texts" that fulfill various purposes, such as individualizing a publication, summarizing its content, and appealing to its audience. For a title to be effective, it should clearly indicate the main content, the topic of the text, and be self-explanatory.

Over time, the scholar interest in titles has grown. Regardless of genre, the title of a text is undeniably a crucial element, often viewed as a 'window' into the literary work—a symbolic key that unlocks the complex world within the text. Numerous studies have examined the relationship between titles and the content they represent, with particular attention to the connotative meanings that titles may carry. This interest has spurred recent research on various literary genres, such as research articles (e.g., Caren Irr, 2011; Levin, 1977; Gerard and Bernard, 2009), theses and

dissertations (e.g., Nguyen Thi Minh Hanh, 2009), and textbooks (e.g., Trinh Sam, 1995). However, postmodern novel genres, including children's novels, remain relatively underexplored, despite their significant role in fostering the interactive relationship between the novel and its readers. For these reasons, this study is performed with an aim to explore the syntactic structures and lexical choices (considered in terms of informativeness) of English children's novel titles, as well as their relationship with the content of the novels. The research is guided by the following questions:

1. What are the syntactic patterns found in children's novel titles?
2. What lexical variations are present in the titles of children's novels?
3. How do the titles of children's novels correspond to the content of the books?

2. METHODOLOGY

To address these questions, both qualitative and quantitative research methodologies have been used on the corpus of 100 titles of novels for children, selected from the BBC's list of "The 100 Greatest Children's Books of All Time." The quantitative approach was used to determine the quantity, frequency of occurrence, and percentage ratio of the various components that make up the titles of works in English. The qualitative one was used to conduct thematic analysis of selected titles to uncover deeper meanings and patterns. The used approaches have given a great contribution in gaining a thorough grasp of the way novel titles are created and used to engage the readers with the works.

3. LITERATURE REVIEW

3.1. Theoretical Framework

The theoretical framework for analyzing novel titles in this study is synthetic and pragmatic discourse analysis centering on understanding how language shapes meaning and conveys cultural context. Synthetic discourse analysis focuses on the structural and linguistic features of titles, examining their phonetic, syntactic, and semantic characteristics. This approach helps identify patterns in title construction, such as common syllable counts, figurative language, and stylistic devices, which helps to gain insights into how these elements contribute to a title's aesthetic appeal and communicative effectiveness.

In contrast, pragmatic discourse analysis delves into the contextual factors influencing title interpretation. This perspective considers how titles function within specific cultural, social, and historical contexts, analyzing the implied meanings and reader expectations that arise from these settings. It emphasizes the interaction between the title and its audience, exploring how titles can evoke emotions, prompt curiosity, and shape the reading experience.

These frameworks, together, enable a comprehensive examination of novel titles revealing how their linguistic features act in conveying meaning and engaging readers.

3.2. Previous Studies

Research on titles, particularly those in languages other than English, is extensive. Gerald G. & Bernard C., in their article "Structure and Functions of the Title in Literature," analyze how French authors have historically titled their works, highlighting an increasing focus on both content and form. They identify three primary functions of a title: designation, indication of content, and public appeal. However, they argue that while designation is essential, the other two functions are optional. Titles serving solely as labels without indicating content can be as compelling as those fulfilling all three functions, often prompting readers to reconsider their significance after engaging with the work.

Franco Moretti, in "Style, Inc. Reflections on Seven Thousand Titles (British Novels, 1740-1850)," studies the stylistic and conceptual trends in 7,000 British novel titles. His findings indicate a shift toward brevity, with titles often reduced to one to three words, including a significant use of proper names. Moretti also examines patterns in title construction, such as the use of summarizing phrases, adjectives, noun clauses, metaphors, metonymies, and the employment of definite and indefinite articles.

More recently, Jenifer L. Barnes and Jessica Black, in their article "What's in a Name? Book Title Salience and The Psychology of Fiction," explore the effectiveness of book titles through four theories explaining the appeal of fiction: access to others' minds, fulfillment of the desire for gossip, provision of moral satisfaction, and the unique pleasures fiction offers. Titles aligned with these themes (minds, gossip, morality, pleasure) received higher ratings than control titles from bestsellers. Interestingly, participants were less likely to recall titles containing mind-related words and more likely to remember gossip-related titles, especially when the titles were short. The study also explores the impact of word-level features and prior genre exposure on these effects.

In Vietnam, numerous research projects have focused on the titles of literary works. Some studies provide a general analysis of titles, while others delve into specific genres. Among the most prominent scholars in this field is Trinh Sam, who has made significant contributions through a series of publications, including the book *Title and Research Aspects on Titles in Vietnamese and Southern Ethnic Languages* (1992), *Title of Vietnamese Texts* (2000), and his doctoral thesis *Title of Vietnamese Texts and Its Development from 1986 to Present* (1995), along with several articles in academic journals. Notably, his monograph *Title of Vietnamese Texts* offers a systematic theoretical framework for understanding titles across various text styles, including artistic language. Trinh Sam identifies specific characteristics of titles in artistic prose and poetry.

Nguyen Thi Dieu Trang (2013) explored the elements of titles in literary works and identified several key functions: titles serve to identify and distinguish texts, convey the theme and content concisely, define the scope of the text, and act as signals of inspiration, advertising, and aesthetics. Titles can feature conventional or unconventional structures, employing various sentence types, rhetorical devices, and word classes for aesthetic impact. She also notes differences between prose and poetry titles—prose titles often consist of identifying phrases, while poetry titles encapsulate the full range of artistic style and linguistic expression. In terms of content, titles may either clearly reveal or subtly imply the theme, requiring readers to interpret them in the context of the main

text. Furthermore, the process of choosing a title reflects the author's style, personal identity, and evolving aesthetic sensibilities, as well as the characteristics of literary trends within different stages of Vietnamese literature.

In her study in 2009, Nguyen Thi Minh Hanh examined the linguistic characteristics of modern Vietnamese novel titles published in the period from 1996 to 2006 using discourse analysis. The research revealed several key findings: structurally, four-syllable titles were the most common, favored for their balance and harmony, while seven-syllable titles were rare. Semantically, titles that utilized implicit meanings, particularly metaphors, were more appealing to readers, as they invited multiple interpretations and connections to the narrative. Additionally, the study identified two types of relationships between titles and novel introductions—direct and indirect—finding that indirect relationships, often thematic or semantic, better engaged readers' curiosity. The analysis emphasized the interplay between titles, themes, characters, and plot elements, showcasing how these components collectively enhance a title's significance and attractiveness.

4. FINDINGS AND DISCUSSION

4.1. Syntactic features of children's novel's title

4.1.1. Title length

As defined by Gesuato (2008), the length of title was determined by counting the number of words, where words are considered as sequences of letters surrounded by spaces or punctuation marks. Accordingly, such elements as non-hyphenated compounds, capitalized abbreviations, and numerical word sequences are all considered as single words. Table 1 below illustrates a quantitative analysis of the selected corpus.

Table 1. Quantitative analysis of novel titles

Number of titles	100
Number of words	340
Average title length	3.4
Number of words for shortest title	1
Number of words for longest title	7

As shown in table 1, the average text length of title for children is 3.4 words. This is quite consistent with findings of Franco Moretti (2009) which stated that the title of British novels in the researched period tend to be brief with the average number of words from 2 to 3. In comparison to findings of Gesuato (2008) who found the average title length of academic paper and text book of 10.8 and 9.2 respectively, novel's titles seem to be shorter. The shortest titles comprise of only one word meanwhile the longest one includes up to 7 words but the number is limited. Here are some of the longest and shortest titles taken from the collected data:

11. Matilda

22. Heidi

41. Momo

85. Wave

64. From the Mixed-Up Files of Mrs Basil E Frankweiler

4.1.2. Syntactic Structures Of Title

According to Gesuato (2008), the phrase ‘syntactic structures’ encompasses components like nouns phrases, prepositional phrases, verb phrases, and all types of clauses. To analyze the syntactic structure of the titles in the data set, two main factors which are taken into account are structural organization and syntactic coding.

First, regarding structural organization, the data set revealed two structural categories of titles: single-unit titles, which contain one information unit and multi-unit titles, which comprise of two or more units. As in Gesuato (2008), the structural units of the titles were identified based on the presence of certain punctuation marks such as colons, semi-colons, full stops, question marks or dashes. Any other punctuation marks were excluded as boundary markers. After considering those criteria, the research came to a finding that most of the titles in the data set are single unit with the frequency of 97 out of 100 titles whilst there are 3 two-unit titles of all. Examples of 1-unit and 2-unit titles found in the research data are presented below:

15. The Very Hungry Caterpillar

33. The Snowy Day

8. The Lion, the Witch and the Wardrobe

30. Ronia, the Robber’s Daughter

58. Roll of Thunder, Hear My Cry

As to syntactic encoding, the term ‘syntactic encoding’ is used to refer to the word order used to construct the titles in the list, following Gesuato (2008). Of all kinds of syntactic order, noun phrases, preposition phrase and clauses appeared in the corpus in which noun phrases are dominant due to its most frequent presence. The title unit of the data set are distributed into the three categories as illustrated in the following table:

Table 2. Frequency distribution of 3 categories found in the data set

Categories	Frequency
Noun phrases	93 (93%)
Prepositional phrase	1(1%)
clauses	6 (6%)

According to above table, the number of noun phrases in novel titles is dominant with the total of 93 out of 100. Most of the noun phrases has nominal adjective heading. This result aligns with earlier research on syntactic encoding like Gesuato (2008), Irr(2011) and Hanh (2009). Some examples of noun phrases (NPs) identified in the data are provided below:

86. The Black Brothers

- 87. The Velveteen Rabbit
- 88. The Bad Beginning
- 90. Haroun and the Sea of Stories

Another categories in Table 2 consist of prepositional phrases, and clauses. Here are some examples:

- 64. From the Mixed-Up Files of Mrs Basil E Frankweiler
- 27. I Want My Hat Back
- 49. We're Going on a Bear Hunt
- 53. Julián Is a Mermaid

Also, the two unit titles were characterised by combinations such as NP/NP or NP/VP. Nevertheless, the combination of NP/NP is still striking as it highest frequency in the data set. Some typical syntactic structures on NP/NP are as below:

- 8. The Lion, the Witch and the Wardrobe
- 30. Ronia, the Robber's Daughter

The dominance of the NP/NP structure is not surprising as these findings are consistent with previous findings of Gesuato (2008). They appear to provide researchers with a chance to make their title formulation more accessible.

4.2. Semantic Features of Titles

One way to assess the informativity of titles in the data set is by considering the lexical density.

The topic of lexical density in titles has been explored by multiple researchers (e.g., Fortanet et al., 1998; Busch-Lauer, 2000; Gesuato, 2008). These scholars generally concur that a text with higher lexical density is more informative or densely packed. In my study, I employed a content analysis method to identify the various lexical choices that influenced the creation novel's title. It was hypothesized that titles would contain more content words than function words. To determine this, function words were counted first and then subtracted from the total word count to calculate the total number of lexical or content words. The lexical density was then calculated using the following formula: $\text{Lexical density} = (\text{Total number of content words} : \text{total number of words} \times 100)$.

Table 3. Lexical density of novel titles

Categories	Frequency
Total number of words	340
Number of content words	231
Number of function words	109
Lexical density	68%
Average content words per title	2.3
Average function words per title	1.1

As shown in table 3, the number of content words significantly exceeds that of function words in the data set, with an average of 2.3 lexical words per title compared to 1.1 function words per unit. The lexical density of the 100 titles analyzed in this study is 68%, in comparison to 68.2%, 68.6% and 69.4% for book, dissertation, and journal article respectively as reported by Gesuato (2008). This result suggested that novel titles are tend to be highly informative due to their generally high lexical density. Below are examples of content and function words found in the data set :

- 20. Charlie and the Chocolate Factory
- 21. Danny the Champion of the World
- 15. The Very Hungry Caterpillar
- 23. Goodnight Moon
- 24. The Adventures of Pinocchio

The content words are mostly nouns and adjectives meanwhile function words are article “the” and prepositions.

Another striking semantic features of the titles in the data set is the range of lexical choice that underpins the formulation of title of novels for children. Table 4 summarizes the distribution of lexical categories in the analyzed titles.

Table 4. distribution of lexical choices in children’s novel’s titles

Lexical items	Frequency	Percentage
Names of things	147	63.6
Places	19	8.2
Names of main character	77	33.3
Total of content words	231	100

The figures in the table once more time prove the density of lexical in children’s novel’s title as all content words mention the main things or/ and main character and places appear as the theme of the whole story. Of all the three domains, content words referring to the main theme in the text are used the most frequently at 147 words (63.6%), followed by words that are main character’s names at 33.3 %. Below are some examples chosen from the data set which help to provide reader an idea of varying range choice of content words:

Table 5. Main categories of lexical items in novel’s titles

Lexical items	Examples
Names of things/ objects	Wild things, lion, witch, wardrobe, adventures, long stocking, hungry caterpillar, dark, summer, chocolate factory, champion, goodnight moon, snowy day, moving castle, robbers, rabbit, midnight garden, treasure island
Places	Ferdinand, Moominland, Avonlea, Ingleside, Rainbow valley, Wonderland, Northern
Names of main character	Alice, Pippi, hobbit, Winnie-the-Pooh, Charlotte, Matilda, Charlie, Heidi, Danny, Pinocchio

4.3. Relation between title and its content

As reflected in table 4 and 5, the lexical density of content words in novel's titles show their profound relation with the content of the whole story. Each title refers to at least a denotation image which appear throughout the story as the main theme, main character or sometimes both. Here are some examples of the relation between children's novel's title and its content:

The title "*16. The Dark is Rising*" by Susan Cooper directly relates to the central conflict and themes of the book. It signifies the emergence of dark forces and the impending battle between good and evil.

Or the word "arrival" in title *17. The Arrival* encapsulates the protagonist's journey to a strange, new land, symbolizing the beginning of a new chapter in his life. The title reflects the central theme of entering the unknown, the emotional and physical transitions involved in starting over in a foreign place, and the universal experiences of immigrants as they arrive and settle in new, unfamiliar surroundings.

Another example is title *18. The rules of summer*, the "rules" in the title serve as a framework for the narrative, guiding the reader through the different episodes that shape the brothers' summer.

In title *2. Alice's adventure in Wonderland* encapsulates the essence of the story: a young girl's surreal journey through an imaginary and magical world, where she encounters a series of extraordinary adventures. In this title, all three lexical categories are embraced including: the protagonist, a young girl named "Alice", the word "adventure" suggests a series of exciting and unusual experiences or challenges. In the book, Alice embarks on a journey filled with bizarre and whimsical encounters, and "Wonderland" which is a fictional, fantastical place where the usual rules of reality do not apply. It's a land full of wonders, strange creatures, and nonsensical happenings.

Another easily recognizable characteristic in the lexical choice for the titles of the surveyed children's novels is that the words used in the titles are all very cheerful, playful, and appealing, making them well-suited to children's psychology. Below are some examples of engaging words with children from the data set:

1. *Where the wild things are*: the "wild things" implies a journey or exploration into a world that is wild, unpredictable, and possibly a little scary, yet filled with wonder and adventure.

2. *Charlie and the Chocolate Factory*: little readers will immediately be impressed by the phrase "chocolate factory" as it is the forever dreamland of all child.

5. CONCLUSION

The goal of this study was to investigate the syntactic features, and semantic characteristics of novel titles for children. This research was based on a corpus of 100 renowned children's novels, employing a qualitative content analysis method, supplemented by quantitative analysis with an aim to find out answers to three main research questions. First, the study found that the average length of novel title is 3.4 words, offering a reference point for the typical word count considered suitable in the creation of title for literary works. Also, the study revealed noun phrase as the

dominant syntactic structure with most of the content words relate to person, things or places appearing throughout the whole story. Third, the analysis showed a lexical density of 68% across 100 selected titles. The result indicated a high frequency of certain lexical items, with names of things appearing 147 times (accounting for 63.6%), names of places 19 times (8.2%) and names of characters 77 times (33.3%). These findings contribute to the broader field of Applied Linguistics research, and more specifically to the emerging area known as 'titlelogy.' As far as I am aware, this paper presents the first analysis of titles in children's novels. By examining text length, syntactic structures, and lexical choices, the study offers both seasoned and novice researchers in Applied Linguistics valuable insights into the practices surrounding novel title formulation. The findings also reinforce previous scholarly views on the potential for discipline-specific and field-dependent cultural influences that shape the style and structure of different genres.

Pedagogically, understanding the choice of title length, syntactic structure, and lexicon of novel titles, as well as the relationship between the title and its content, can guide both teachers and parents in developing effective reading strategies for children. Teachers can employ a "metacognition" strategy alongside guided reading comprehension to help students develop their thinking and judgment about how the title relates to the content. This can be achieved through teachers thinking aloud about the title, reading it aloud, or posing a series of questions to stimulate students' thoughts about the title, thereby sparking their curiosity about the content and engaging them more deeply in their reading.

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INTEGRATING BUSINESS ETHICS EDUCATION IN TEACHING MARXIST - LENINIST POLITICAL ECONOMY SUBJECTS FOR STUDENTS OF EAST ASIA UNIVERSITY OF TECHNOLOGY

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ABSTRACT

Summary: Business ethics is one of the important factors that create success in production and business activities in the economy. The article presents the viewpoint and role of integrating business ethics education in teaching Marxist-Leninist political economy on the basis of synthesizing and analyzing documents related to the research issue. At the same time, conducting an investigation and survey of 455 students at East Asia University of Technology to evaluate the current status of integrating business ethics education in teaching Marxist-Leninist Political Economy for students at school. From there, propose measures to improve the integration of business ethics education in teaching Marxist-Leninist political economy for students at East Asia University of Technology, helping to equip professional knowledge and develop Developing business ethics for students to meet the demands of society.

Keywords: Integration, business ethics, teaching, Marxist-Leninist political economy, students.

1. INTRODUCTION

Integrated teaching is one of the important requirements in innovating university teaching methods. In addition to the knowledge content in the curriculum, students need to access and comprehend relevant practical knowledge content related to the content of the subject program. Business ethics is an important factor for producers and businesses in the current digital technology context, and is the foundation for success and sustainable development in production and business activities. The subject Marxist-Leninist Political Economy provides students with basic concepts, categories and laws of economics. The content of this subject is directly related to the views and policies of the Party and State on economics. At the same time, between economics and ethics and law, there is a dialectical relationship with each other. If economics wants to develop, it requires producers and businesses to comply with business ethics and legal regulations. Appropriate legal regulations will promote economic development and vice versa. Therefore, integrating business ethics education in teaching Marxist-Leninist political economy is completely appropriate and necessary.

The issue of business ethics education has been researched and published by a number of scientists, specifically: Hoang Van Hai and Dang Thi Huong (2022), introduced an important theoretical basis on the origin of culture. Business ethics is business ethics and affirms that it is extremely important and necessary in the context of the 4.0 industrial revolution (Hoang Van Hai and Dang Thi Huong, 2022); Dang Hung Vu and Tran Cao Minh Ngoc (2022), said that business ethics education "helps students orient their thoughts correctly, thereby having behavior consistent with ethical standards" (Dang Hung Vu and Tran Cao Minh Ngoc, 2022); Chau Thi Le Duyen (2012),

affirms that the awareness of business ethics of economics students at Can Tho University still has certain limitations, requiring the need to strengthen business ethics education activities for students majoring in economics (Chau Thi Le Duyen, 2012); Le Huu Ai, Le Van Thao (2013), affirmed, "it is necessary to strengthen business ethics education in schools, especially schools in the economic sector (Le Huu Ai, Le Van Thao, 2013); Pham Van Duc (2013) said that "the cause of weakness in business ethics and corporate responsibility is cognitive causes, economic causes, and legal causes" (Pham Van Duc, 2013); Cao Thu Hang (2014), proposed "integrating business ethics programs with other business development programs such as social responsibility and corporate culture, branding" (Cao Thu Hang, 2014, 29). Thus, the above studies all affirm the importance of business ethics in general and business ethics education in particular. Some studies have proposed solutions for business ethics education from the research perspective of me. However, there have been no studies on the issue of business ethics education in teaching Marxist-Leninist political economy to students. Therefore, researching this issue is necessary, not only to enhance professional knowledge but also to equip students with important qualities in cognition and behavior in production and business.

2. THEORETICAL BASIS AND RESEARCH METHODS

2.1. Theoretical basis

Author Phillip V. Lewis (1985) said: "Business ethics are all the rules, standards, laws or principles that guide standard and honest behavior in certain circumstances determination" (Lewis, PV, 1985). Brenner (1992), gives the definition: "Business ethics are accepted principles to determine right from wrong, to regulate the behavior of businessmen" (Brenner, SN, 1992). According to Nguyen Hoang Anh (2009), "Business ethics not only includes compliance with the law but also concerns about protecting the rights of those involved in business operations and the interests of the community" (Nguyen Hoang Anh, 2009). Thus, business ethics are ethical elements that are recognized by society and legal regulations are being applied to change awareness and adjust human behavior in production activities business to achieve certain goals.

According to Mac Quoc Anh (2019), "Business ethics education is the process of influencing educational subjects (state management agencies on enterprises, business leaders...) on subjects (management personnel, employees and workers in the enterprise...) to form in them specific business ethical qualities, including: correct awareness of business ethics, skills demonstrate business ethics and a serious, professional attitude in business" (Mai Quoc Anh, 2019). Thus, business ethics education is the process in which the educational subject acts to form correct awareness and behavior for the subjects being educated about practical production and business activities, specifically, ethics. Respect ethical qualities recognized by society and prescribed by law in production and business activities.

From the above viewpoints, I believe that: Integrating business ethics education in teaching Marxist-Leninist Political Economy is the integration of values, ethical principles and legal regulations on production, business into the subject's teaching content, to help students not only understand Marxist-Leninist political economic theory but also realize the importance of ethics and law in business activities. From there, students are both equipped with professional knowledge and ethical qualities and successfully applied in business practice.

Business ethics education for students is an important element in modern education, especially for fields related to business administration, economics, and finance, which is reflected in the following roles:

Firstly, raise awareness and change students' behavior in business. "Ethical education contributes to raising awareness and action for students" (Hoang Thi Thu Trang, 2017). Many students entering university often focus only on learning professional skills and ignore ethical factors in business. But when exposed to business ethics education, students will better understand issues such as fairness, social responsibility, and the importance of acting properly in all business and production situations joint.

Second, help students comply with ethics and laws in business. Business ethics education helps students become more clearly aware of the importance of complying with the law in business activities, thereby avoiding legal risks and building reputation for their businesses. "Always maintain a correct professional attitude, helping to protect and enhance the reputation of the profession" (Le Doan Minh Duc and Thai Thi Cam Giang, 2018).

Third, contribute to building a healthy business environment. "Ethics are an essential requirement for a healthy and complete society" (Mahdavikhou, M., & Khotanlou, M., 2012). When students are educated in business ethics, they will become people with a sense of responsibility and always aim to build a fair and transparent business environment.

Fourth, create a foundation for sustainable development of individuals and businesses. "For unethical business enterprises, bribery or corruption will cause negative effects on the trust of investors and everyone in Vietnam" (Nguyen, LD, et al., 2013, 41). When fully equipped with knowledge about business ethics, students are able to make business decisions based on sustainable values, instead of just focusing on short-term profits, and build successful businesses. The business is not only economically successful but also socially and environmentally responsible.

Fifth, form students with responsibility for themselves and society such as contributing to solving social problems, such as protecting the environment, reducing inequality, and improving the quality of life for people. "Ethical behavior is very important to modern society, including the business world in general" (Kerr, DS, and Smith, LM, 1995).

Sixth, business ethics education not only helps students create profits but also enriches the country. "Enrich yourself and enrich the country at the same time" (Cao Duy Ha, 2009). "Building business ethics as a basis for implementing social responsibility is one of the important factors in the overall development of the market economy" (Do Thi Kim Hoa, 2009). As businesses grow, the country will also benefit from increases in national income, improving people's lives and creating conditions for comprehensive development.

Thus, business ethics education in teaching Marxist-Leninist political economy plays an important role in forming future producers and businesses who are ethical, law-abiding and responsible social responsibility. At the same time, students are not only better prepared for their careers but also contribute to building a fair, sustainable and prosperous society. Therefore, business ethics education is an indispensable issue in the current education system, which " professors also agree that ethics should be included in all courses " (Smith, LM, 1993).

2.2. Research methods

Data collection and analysis method: Research using relevant published documents, then conduct analysis to provide a comprehensive picture of the issue of business ethics education in general. From there, the author's perspective on the concept and role of integrating business ethics education in teaching Marxist-Leninist political economy for students is presented.

Methods of investigation, survey and data processing: Conducted investigation and survey for 455 first and second year students, majoring in Pharmacy, Nursing and Automotive Engineering Technology of East Asia University of Technology in June 2024 using google form to collect data on the current status of business ethics education in teaching Marxist-Leninist political economy at the school. Investigation and survey data are compiled and processed on Microsoft Excel software, calculating percentages and using a 5-level Likert scale.

Evaluation method: Investigation and survey factors are evaluated according to the level of importance based on the average score value of each factor as follows: **Very Good level** from 4.21 - 5; **Good level** from 3.41 - 4.2; **Good level** from 2.61 to 3.4; **Average level** from 1.81 - 2.6; **Weak/poor level** from 1.0 - 1.8. Based on the analysis of research results to clarify the current status of business ethics education in teaching Marxist-Leninist political economy at East Asia University of Technology.

3. RESULTS AND DISCUSSION

3.1. Result

- *Level of awareness of the importance of integrating business ethics education in teaching Marxist-Leninist political economy*

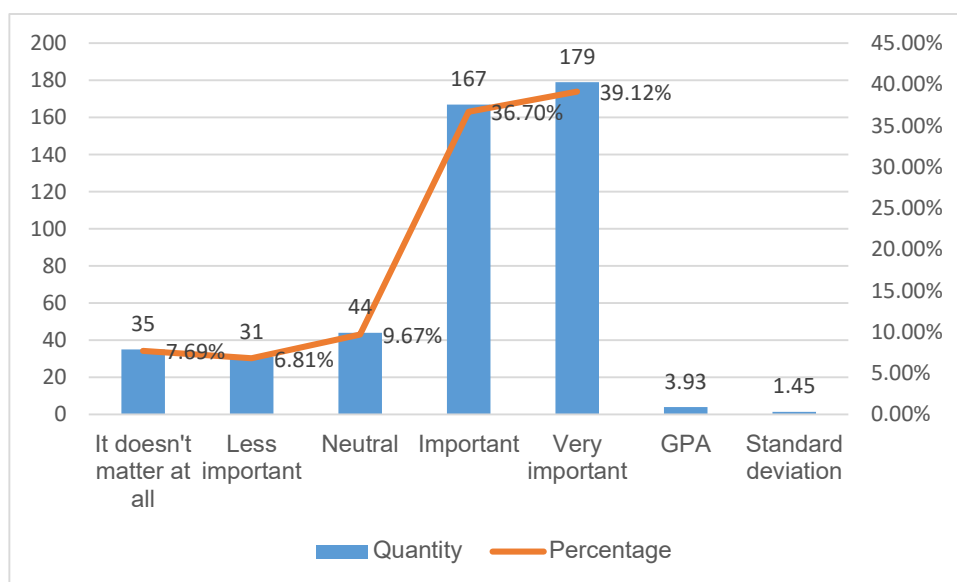


Figure 1. Students' assessment of the importance of integrating business ethics education

Thus, students' awareness of the importance of integrating business ethics education is at a good level, with an overall average score of 3.93 points. The standard deviation is 1.45, showing that the majority of students choose to differentiate at a very important and important level.

- *Content and frequency of integrating business ethics education*

Table 1. Content and frequency of integrating business ethics education in the subject

Integrated content	Integrated frequency					Medium	Standard deviation
	Very often	Frequent	Sometimes	Seldom	Never		
Ethical standards in business	14.81%	25.98%	18.87%	18.29%	22.05%	2.93	1.93
Law in business	10.15%	22.33%	25.54%	20.80%	21.18%	2.77	1.67
Build a healthy business environment	12.32%	21.05%	34.86%	14.13%	17.64%	2.97	1.53
Responsibility to self and society	20.58%	30.25%	25.54%	15.90%	7.73%	3.40	1.43
Transparency, honesty, fairness	21.05%	25.54%	21.05%	21.05%	11.31%	3.16	1.79
Benefits of employees and customers	5.25%	18.87%	34.86%	21.05%	19.97%	2.68	1.27
Overall GPA						2.98	1.60

From table 2, it shows that the relatively integrated content includes many issues related to ethical and legal issues in production and business activities, and the frequency of integrating these contents in teaching is only at a low level quite good with an overall average score of 2.98 points. However, there is a huge difference in the integration of teaching business ethics content, that is, there is content that is selected to be integrated with high frequency and there is content that is integrated with low frequency, with The standard deviation is 1.60.

- *Teaching methods integrating business ethics education*

Table 2. Student evaluation of teaching methods integrating business ethics

Teaching methods	Rating level					Medium	Standard deviation
	Very often	Frequent	Sometimes	Seldom	Never		
Group discussion	19.03%	19.03%	39.33%	15.45%	7.16%	3.29	1.30
Project teaching	0.00%	3.25%	14.55%	47.60%	34.60%	1.84	0.59
Case study	7.16%	29.35%	27.42%	17.04%	19.03%	2.88	1.50
Role play	0.00%	5.05%	17.04%	36.40%	41.51%	1.84	0.76
Interdisciplinary integration	9.20%	18.73%	24.75%	28.94%	18.38%	2.68	1.47
Practice	2.05%	12.35%	18.73%	37.60%	29.27%	2.18	1.11
Document analysis	12.75%	28.94%	28.94%	17.04%	12.33%	3.07	1.52
Self-study, self-research	22.30%	34.57%	17.04%	10.89%	15.20%	3.40	1.75
Other methods	12.75%	12.33%	17.04%	24.75%	33.13%	2.48	1.87
Overall GPA						2.46	1.03

Students' evaluation of the teaching method of integrating business ethics education in teaching this subject is only average with the frequency of using these teaching methods, the average score is 2.46 points, but there is a big difference in the choice of teaching methods at different levels with a standard deviation of 1.03.

- Student satisfaction level with integrating business ethics education in subject teaching

Table 3. Level of student satisfaction with integrating business ethics education in teaching Marxist-Leninist political economy

Evaluation content	Rating level					Medium	Standard deviation
	Very satisfied	Satisfied	Normal	Not satisfied	Very dissatisfied		
Integrated teaching content	12.05%	18.33%	19.25%	27.40%	22.97%	2.69	1.77
Integrated teaching method	15.68%	21.27%	22.97%	20.83%	19.25%	2.96	1.85
Overall GPA						2.82	1.81

The level of satisfaction of students with the integration of business ethics education in teaching Marxist-Leninist Political Economy is at a good level, specifically: For integrated teaching content, the overall average score is 2, 69 points, while the integrated teaching method has an overall average score of 2.96 points. But there is a large difference between the levels of student choice with a standard deviation of 1.81.

- The effectiveness of business ethics education

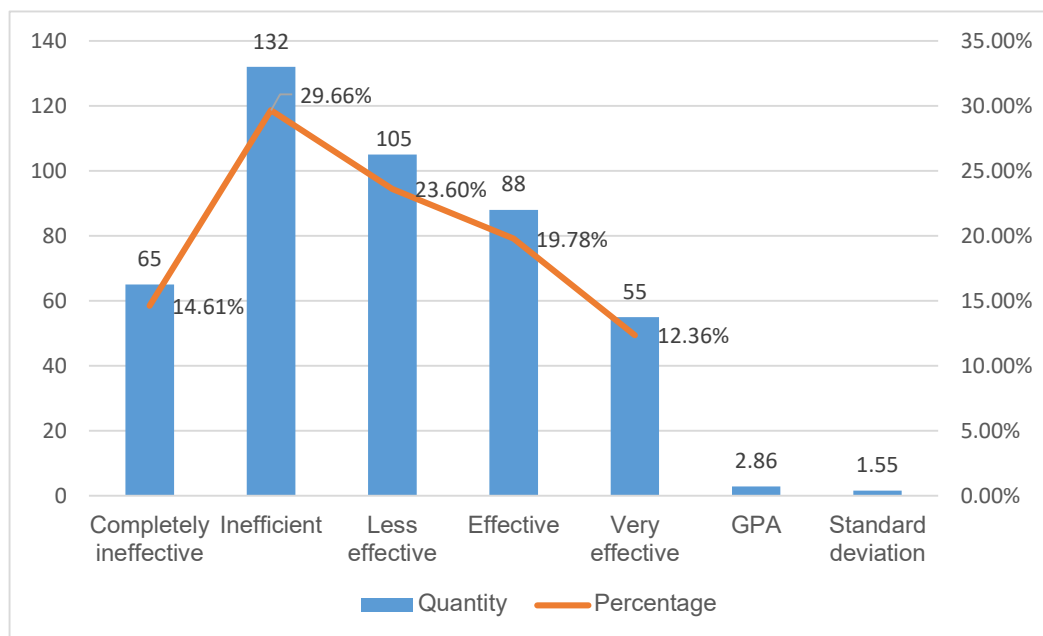


Figure 2. Students' assessment of the effectiveness of integrating ethics education business in teaching subjects

The effectiveness of integrating business ethics education in teaching the subject is assessed by students at a good level, with an overall average score of 2.86, however there is a large dispersion with a standard deviation of 1.55, which means there is a big difference in students' choice of performance levels.

- Difficulties in integrating business ethics education

Teaching methods	Rating level					Medium	Standard deviation
	Strongly agree	Agree	Neutral	Disagree	Completely disagree		
Lack of appropriate documents and resources	15.30%	20.12%	23.27%	23.27%	18.04%	2.89	1.78
Lecturers' teaching time is limited	21.05%	27.65%	22.06%	18.04%	11.20%	3.27	1.69
Lack of school support	15.30%	17.41%	21.05%	21.05%	25.19%	2.73	1.93
Complex integrated content	7.35%	12.77%	11.20%	38.85%	29.83%	2.28	1.48
Lecturers lack skills and experience	17.41%	20.12%	23.27%	23.90%	15.30%	3.01	1.73
Students' prejudices towards the subject	24.06%	29.83%	18.04%	15.30%	12.77%	3.39	1.75
Students' self-study and self-research awareness is not high	29.83%	31.75%	20.12%	10.02%	8.28%	3.63	1.55
Overall GPA						2.79	1.72

The number of surveyed students evaluated the difficulties and challenges of teaching integrated business ethics education at a good level, with an average average score of 2.79 points. However, there is high dispersion, meaning that there are causes that students assess will have a very large impact and there are causes that will have a low level of impact.

3.2. Discuss

- Most students have been aware of the importance of integrating business ethics education in teaching Marxist-Leninist Political Economy, this comes from the practice that students have access to real life as well as the process of participating in the economy through normal product buying and selling activities on the market. However, there is still a small portion of students who do not have the correct awareness due to students' limited participation in the commodity market as well as learning information about business ethics.

- The integrated content of business ethics education offered by students is quite diverse. The frequency of use with an average average score is quite good but there is a dispersion of frequency of use at quite large levels. For example, in the content of ethical standards in business, the percentage of choices at very often only accounts for 14.81%, often accounts for 25.98%, the remaining choices at low levels are sometimes, rarely and never are now 18.87%, 18.29% and 22.05% respectively. Among the integrated content, responsibility for self and society is used with the highest frequency of 3.40 points. Thus, the frequency of integrating content in teaching is still quite limited, affecting the formation of students' business qualities and ethics.

- There are many teaching methods that integrate business ethics education in teaching the subject used by lecturers, but the frequency of use is quite limited, there are methods with very

low frequency of use. Among the teaching methods, group discussion teaching methods and self-study methods, self-research and document analysis are used by lecturers with the highest frequency. The remaining teaching methods are used with very low frequency such as project teaching 1.84 points, role playing 1.84 points, interdisciplinary integration 2.68 points,... while these are teaching methods In addition to actively forming expertise, it also develops other necessary skills for students. This limitation may stem from the fact that lecturers have not really focused on using a variety of more active teaching methods. Furthermore, there are still a number of students who have the psychology of letting the subject pass and not paying attention to learning results.

- Teaching content and teaching methods integrating business ethics education in teaching Marxist-Leninist Political Economy are also shown through the results of assessing student satisfaction. In particular, for integrated teaching content, the percentage of students who are very satisfied accounts for 12.05%, satisfied accounts for 18.33%, normal accounts for 19.25% and unsatisfied accounts for 27.40%, very satisfied. Dissatisfaction accounts for 22.97%. Regarding the integrated teaching method, the percentage of students who are very satisfied is 15.68%, satisfied is 21.27%, normal is 22.97% and dissatisfied is 20.83%, very dissatisfied accounting for 19.25%. Thus, the rate of dissatisfied and very dissatisfied students is higher than the rate of very satisfied and satisfied students, which shows that the teaching content and integrated teaching methods in teaching have not been met meet students' academic requirements.

- The integration of business ethics education in teaching Marxist-Leninist political economy has not been effective, specifically the proportion of students choosing the ineffective level is the highest at 29.66%, with little effectiveness effective accounts for 23.60%, completely ineffective accounts for 14.61%, while the proportion of students choosing very effective level accounts for only 12.36% and effective level accounts for 19.78%. Thus, most students believe that the integration of business ethics education content in teaching the subject is not really effective, this stems from the limited integrated content and integrated teaching methods, moreover, the self-study and self-research awareness of a part of the school's students is not high.

- Integrating business ethics education in teaching the subject still faces many difficulties. Through the results of surveys and surveys, the biggest difficulty in integrated teaching is that students' low self-study and self-research awareness, many students' prejudices about the subject, and teachers' lack of skills and experience (this is the biggest reason), classroom teaching time is limited. In addition, there are many other difficulties such as lack of documents and teaching resources, and lack of some support from the school. To teach integrated business ethics education content successfully and effectively, it is necessary to solve these difficulties.

3.3. Solutions to improve the effectiveness of integrating business ethics education in teaching Marxist-Leninist political economy for students at East Asia University of Technology

Starting from the current situation of integrating business ethics education in teaching Marxist-Leninist Political Economy at East Asia University of Technology, the introduction of measures to improve the integration of business ethics education in teaching the subject is necessary.

Firstly, continue to raise awareness for lecturers and students about the importance of business ethics education in general, integrating business ethics education in teaching the subject of Marxist-Leninist Political Economy, he said. Particularly, a small group of students in the school are not properly aware of the importance of this issue. Awareness raising is done through practical lessons, business stories, situations, etc. so that students understand that only by complying with ethics in business can they succeed and develop sustainable development in its economic activities, especially generating profits.

Second, add more integrated content to strengthen students' knowledge of business ethics. In addition to the content already integrated in teaching, it is necessary to add more new integrated content such as business situations, legal situations in business, leadership and management in business, respect in business and production and business environment, corporate culture,... especially increasing applied content associated with practice in production and business activities, strengthening business ethics situations associated with teaching methods learn situations, role play.

Third, increase the use of active, modern integrated teaching methods. Through analysis results, the use of active teaching methods is quite limited and infrequent, leading to low teaching quality and not meeting students' requirements in learning the subject. In particular, it is necessary to increase the awareness of self-study and self-research on business ethics for students through the guidance activities of lecturers.

For example, when teaching the content "*Production of goods*", the lecturer uses the group discussion teaching method combined with raising the following problem: *Suppose you register to produce a fast food product. In order to supply to the market, what ethical factors need to be ensured?* Through this, students understand that the product production process needs to ensure ethical factors in business such as food safety, honesty in advertising and communication.

Or when teaching the content "*The role of some market participants*", the lecturer presents a problem situation for students to learn and research as follows: *A fast food production company decides to Cut costs by using cheap and poor quality ingredients. After a while, many customers reported food poisoning after using the company's products. However, the company did not accept responsibility and blamed customers for using it incorrectly. This resulted in the company's reputation being seriously damaged, and they had to face lawsuits from consumers. Question: What is the manufacturing company's role in ensuring consumer safety?* Through the above problematic situation, students realize that in production and business, they need to be responsible for ensuring their products meet food safety standards, including using quality ingredients and complying with food safety standards. Strict production process, and responsible if the product causes harm to consumers.

Or lecturers guide students to improve their knowledge of business ethics by guiding students to self-study and self-research through the content "*Industrialization and modernization in Vietnam*" by raising issues as follows: *In the process of industrialization and modernization, what challenges regarding business ethics are Vietnamese businesses facing? How can businesses grow strongly while maintaining social responsibility and business ethics?* Then, ask students to

research and exploit knowledge to deeply understand the importance of business ethics in the context of industrialization and modernization, while also developing critical thinking and research skills independent rescue.

Fourth, regularly apply integrated content and diversify integrated teaching methods in teaching subjects. Through investigation and survey results, it shows that there are still some students who evaluate that they are not satisfied and ineffective in teaching integrated business ethics education, largely due to the lack of diversity of integrated content along with The frequency of applying integrated content and integrated teaching methods is not frequent. Regular application will improve teaching effectiveness, especially active teaching methods that are used regularly increase students' motivation and excitement in learning, in comprehending, exploiting and Gain access to new knowledge about business ethics.

Fifth, it is necessary to effectively overcome difficulties in integrating business ethics education in teaching, including further enhancing students' sense of self-study and self-research, especially in search and research activities exploit knowledge from sources outside the textbook and provided by instructors; Raising students' awareness of the importance of the subject Marxist-Leninist Political Economy and integrating business ethics education in teaching this subject not only provides a system of knowledge about viewpoints and themes the Party and State's policies on economics but also equip them with knowledge of ethics in production and business activities, thereby changing the prejudices of a small group of students about the subject; Lecturers need to equip themselves and improve their professional knowledge and pedagogical skills to build integrated lectures with integrated content and rich integrated teaching methods, maximizing knowledge capacity, skills and competencies for students; Building electronic learning materials integrating business ethics education including electronic lectures, essay questions combined with multiple choice, business ethics situations, images, etc. to guide students in self-study, Self-study knowledge to develop business ethics capabilities.

4. CONCLUSION

Innovating teaching methods in a positive direction, including integration in teaching, is a necessary requirement in the current teaching context, especially in university teaching. The foundation that creates solidity for production and business development in economic activities is business ethics. Through analyzing the results of investigations and surveys, the issue of integrating business ethics education in teaching Marxist-Leninist political economy has received attention from teachers, but the effectiveness is not high due to The main reason is that integrated content and integrated teaching methods are limited in variety and frequency of application in teaching. To improve the effectiveness of integrating moral education in subject teaching, it is necessary to flexibly and synchronously implement solutions to improve the effectiveness of the integrated teaching process, equipping students with a system of perspectives economics of the Party and State and knowledge of business ethics in the economic market.

Acknowledgment: The author would like to express sincere gratitude to the students of East Asia University of Technology for their support in data collection, which contributed to the completion of this research.

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SOLUTIONS TO DEVELOPMENT AND IMPROVEMENT OF THE QUALITY IN SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES AT HIGHER EDUCATION INSTITUTIONS IN MODERN TIMES

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ABSTRACT

Scientific and technological information (S&T) has truly become an indispensably important resource in the information society in the context of the Fourth Industrial Revolution taking place on a large scale, developing strongly and extensively around the world. S&T information has effectively served state management activities as well as scientific research (NCKH), technology development and innovation (DT). The scope of the article focuses on clarifying a number of solutions in order to improve the quality of S&T activities by 2030 and the coming years of higher education institutions (HEIs) according to the Strategy for Science, Technology and Innovation Development by 2030 issued by the Prime Minister on May 11, 2022 and Decree No. 109/2022/ND-CP dated December 30, 2022 by the Government regulating science and technology activities in HEIs.

Keywords: Science and technology activities; Strategy for Science, Technology and Innovation Development; HEIs.

1. PROBLEM STATEMENT

Scientific and technological information has truly become an indispensably important resource in the information society in the context of the Fourth Industrial Revolution taking place on a large scale, developing brutally and profoundly all over the world. Both science and technology are increasingly becoming a directly productive force of society, which manifests in many different aspects on a large scale. This results in the emergence of many new scientific and industrial sectors, developing rapidly, and greatly impact the entire industry as well as social life. The Fourth Industrial Revolution has been having a multi-dimensional impact on higher education institutions, namely, education and training and scientific research. Proactively approaching to scientific and technological achievements to establish schools that meet the requirements of education and training tasks in the new era is an issue that needs focusing on and promoting. In the recognizing of the role and the importance of science and technology activities, in recent years, science and technology activities in tertiary education institutions have been in the focus and have achieved some remarkable advancements. Higher education institutions have continuously trained lecturers and educational managers, improved training quality, and developed highly qualified human resources through closely combining science and technology with education and training activities. However, besides the early gained results, science and technology activities of many higher education institutions still face up with limitations and shortcomings that need to be compensated. This article analyzes the current status of science and technology activities in some typical higher education institutions. On

that basis, it proposes some basic measures to enhance the quality of science and technology activities in higher education institutions in the future.

2. RESEARCH OVERVIEW

In response to not only the increasing demands of education and training, but also on the basis of objective and comprehensive assessment of the results of science and technology activities in higher education centres, focusing on concretizing and implementing the Prime Minister's Strategy for Science, Technology and Innovation Development to 2030, on December 30, 2022, the Government issued Decree No. 109/2022/ND-CP regulating science and technology activities in higher education institutions. This is an important legal reference with new contents such as lecturers and postgraduates shall be facilitated to participate in or be the heads of science and technology teams at all levels. Students are encouraged to take part in scientific research and science and technology activities in higher education institutions. Higher education institutions stipulate lecturers in terms of the quantity of scientific research hours for supporting students' scientific research themes; preferential policies for lecturers guiding students' scientific themes which won science and technology awards at all levels. In addition, higher education institutions are allowed to establish enterprises according to the law on enterprises, in accordance with the development orientation of higher education institutions. Enterprises under higher education institutions that meet the prescribed conditions are allowed to register for certification as science and technology businesses. That the state-owned higher education institutions are allowed to contribute capital as intellectual property is the result of science and technology tasks at the State's expense. The mentioned capital has been blue penciled by relevant authorities to manage and use for joint ventures and associations if they meet the prescribed conditions.

From the overview of the research, it is necessary to comprehensively assess the theory and practice of science and technology activities at higher education institutions, thereby proposing fundamental measures to improve the quality of science and technology activities at higher education institutions in the future in order to successfully implement the Prime Minister's Strategy for Science, Technology and Innovation Development projecting to 2030.

3. RESEARCH METHODS

To achieve the research objective in a systematic and comprehensive manner, the article uses the structural system method, based on data, information from the summary report of the Ministry of Education and Training; annual reports, self-assessment reports, statistical data of a number of Vietnamese higher education institutions, from which data is analyzed, systematized, using logical thinking operations to draw scientific conclusions necessary for the research problem. Through comparison, description, selective statistics inherit the results of many domestic and foreign works while continuing to clarify the theoretical and practical tasks in the research problem. The article uses the structural system method; historical - logical; data collection and data analysis methods. Secondary data are collected from the report titled Summary of 10 years of fundamental and comprehensive innovation in education and training on science, technology and international

cooperation on October 31, 2023 by the Ministry of Education and Training; annual reports, self-assessment reports, statistics issued by a number of Vietnamese higher education institutions, whose data are analyzed, systematized, and synthesized to serve the research problem.

4. RESEARCH FINDINGS

4.1. Current status of scientific and technological activities of higher education institutions

Over the recent years, scientific and technological activities of higher education institutions have achieved very important results. Namely, scientific research activities have been implemented synchronously and have maintained its order; strictly complied with current regulations of the State and the Ministry of Education and Training on intellectual copyrights; there are more and more scientific research works on the field of arts, engineering, social sciences and humanities with high applicability applied in educational and training practices at schools and applied in business and production in enterprises and agencies. In particular, many State-level and ministerial-level themes and initiatives at the Industry and Institutional levels have been successfully implemented; including products with high applicability in practice to ensure mass production. Along with the management of scientific research activities, more and more potential research groups, young scientists with creativity and good research competence have been trained, a number of specialized, multidisciplinary research groups have been formed; favoured conditions to promote the scientific research movement, technical innovation initiatives. They actively participate in digital transformation, building digital databases, compiling textbooks, electronic lesson plans, applying information technology, writing software, building simulation equipment... making scientific research activities a standard for approving professional - technical - vocational titles, a criterion for evaluating the completion of tasks of lecturers and educational management staff (QLGD).

According to the Summary Report on 10 years of implementing Resolution 29-NQ/TW dated October 31, 2023 by the Ministry of Education and Training on fundamental and comprehensive innovation of education and training in science, technology and international cooperation. In the 10 years from 2013 to 2023, the Ministry of Education and Training has proactively and presided over negotiations and signed 161 international treaties and agreements and promoted relations with more than 100 countries and territories; participated in a number of sub-regional, regional and inter-regional mechanisms of ASEAN, ASEM, APEC, etc., contributing to raising the level of international cooperation in education and training; there have been over 3,500 memorandums of understanding and agreements on cooperation in training, scientific research, student and lecturer exchange signed by both Vietnamese and foreign educational institutions. These signed documents have created conditions for expanding and developing cooperation and international integration activities of Vietnamese education.

In the period of 2013-2022, there were 3,535 university and college lecturers studying and working abroad. Currently, there are nearly 200,000 Vietnamese students studying abroad at high school, university and postgraduate levels, equivalent to about 40,000 people studying each year (as many as about 2.5 times compared to the period prior to 2013). The number of foreign learners

studying in Vietnam has also increased over the past 10 years, with the current number of about 22,000 people, including nearly 4,000 are students under the Agreement.

According to data managed by the Ministry of Education and Training, by June 2023, there had been 408 joint training programs approved by 44 Vietnamese higher education institutions with 102 foreign higher education institutions from 26 countries and territories. Via relatively comprehensive and synchronous solutions, investment activities in Vietnam's education have made great strides after 10 years of implementing Resolution 29. According to statistics from the Foreign Investment Agency, Ministry of Planning and Investment, by June 2022, the total FDI capital in the education sector nationwide had become more than 4.5 billion USD with 605 projects from 33 countries and territories.

With the consistent view emphasizes that human resources are of the most importance, over the recent years, our country's scientific and technological human resources have been strong in both quantity and quality. During period from 2015 to 2019, the number of research staff in Vietnam has increased sharply, from 167,746 to 185,436 people, an increase rate of 10.5%. The number of research and development human resources working for higher education institutions increased from 77,841 (in 2015) to 96,400 staff (in 2019). The scientific and technological potential of higher education institutions is demonstrated through the quantity and quality, as well as the types of scientific and technological organizations. Up to 2021, throughout the country there have 47 high-tech newly-established institutes, high-tech enterprises and so-called businesses, 43 start-up establishments, centers and support clubs, and 636 science and technology enterprises under higher education.

In 2021 alone, higher education institutions hosted 95.78% of the number of international articles on Scopus, equivalent to 17,625 ones, ranking Vietnam 5th in ASEAN, 12th in Asia and 45th in the world in terms of the number of international publications on Scopus. In 2022, among the 10 organizations with the highest number published on Scopus in Vietnam, there were 9 tertiary education centers.

Vietnam is making efforts to improve its position in science and technology development at higher education institutions. Scientific and technological activities at higher education institutions are implemented in a systematic and comprehensive manner: from basic research, applied research and technology transfer, intellectual property, to scientific research of students, associated with human resource training. Scientific and technological potential, especially high-quality scientific and technological human resources, have significantly contributed to improving the position of Vietnamese universities in the prestigious rankings in the world and contributing to improving the quality of education and training. The number of international publications in Vietnam has increased sharply, significantly improving the ranking position of Vietnamese science in the world. In 2009, Vietnam published 1,768 scientific articles, ranking 65th in the world. By 2021, Vietnam had risen to 45th place, entering the top 50 in the world with 18,381 published articles. The number of international publications by Vietnamese scientists has increased by an average of over 20% per year, demonstrating strong growth in research and innovation. In 2021, five Vietnamese universities were among the top 500 universities in emerging economies, including Vietnam

National University, Hanoi, Vietnam National University, Ho Chi Minh City, Ton Duc Thang University, Duy Tan University and Hanoi University of Science and Technology.

However, there are shortcomings in science and technology activities; some scientific research tasks have ambiguous research orientations, research scopes are not diverse; the number of outcomes used for practical training is still limited, the scientific content is still not in-depth enough; facilities, equipment serving research activities and management tasks are in lack of uniformity; some theoretical research topics are not anew; the database on scientific research is still restricted, not timely updated, and not connected; there is imbalance among sectors; the number of leading experts is still small, most research groups are small in size, and scopes of research is relatively narrow; coordination and research cooperation with one another among units, which are under and outside the school are still not as much as expected; innovation in thinking about digital transformation is still slow; research activities and environmental protection have not received relevant attention. A number of lecturers and education management staff are not active and proactive in self-studying and self-improving to improve their professional qualifications; their foreign language and IT skills do not meet the previous set requirements.

4.2. Solutions to improve the quality of scientific and technological activities of higher education institutions

In response to the new requirements of education and training and the impacts of the Fourth Industrial Revolution, schools have actively researched and approached to progressive, scientific and modern educational and training methods, constantly innovating procedures, programs, contents, training methods and scientific research. On the basis of thoroughly grasping the Prime Minister's Strategy for Science, Technology and Innovation Development to 2030. To implement the goals, tasks and some key points in putting S&T work into practice projecting to 2030 and the coming years, the following solutions should be focuses on:

First, carry on the research jobs, thoroughly grasp the resolutions, directives and instructions by the superiors; strengthen the leadership and direction of Party committees at all levels, raise awareness and responsibility for all cadres, lecturers and students in scientific research and innovation.

This is a very important solution that has the meaning of guiding and directing all stages and steps in the orientation of developing science and technology activities, ensuring unity in perception and action of all groups and individuals. Meanwhile, the Party Committee and the School's Board of Directors focus on their leadership to minimize the existing weaknesses and weak aspects through annual summaries and assessments of the implementation of the leadership content of science and technology and innovation work; thoroughly grasp and seriously implement new development issues in the Prime Minister's Strategy for Science, Technology and Innovation Development to 2030 and Decree No. 109/2022/ND-CP of the Government regulating science and technology activities in higher education institutions; actively foster and improve the leadership and direction competence of Party committees at all levels; build correct awareness for all lecturers and education management officers on the orientation of science and technology development activities, create high consensus in awareness, thereby building motivation, sense of responsibility,

and high determination in performing tasks. Practice shows that the scientific research movement develops strongly, with activities having breadth and depth when Party committees and leaders at all levels really care and clearly define responsibilities: Party committees and leaders are the leading, commanding and operating subjects; At the same time, he is the manager and supervisor of the implementation of the plan for implementing scientific research tasks from determining the objectives, scope, and orientation of the research to product application. The individual is a dynamic subject, constantly innovating, actively researching, selecting solutions for implementation, testing; concretizing the targets and tasks into feasible solutions in the implementation organization.

Second, actively developing scientific research activities, experimental research and development, technology application, scientific and technological services, promoting initiatives and other creative activities to develop science and technology associated with training high-level human resources, contributing to the socio-economic development of the country in a systematic, comprehensive, in-depth direction, close to new practical conditions.

Developing scientific research activities, experimental research and development, technology application, scientific and technological services, promoting initiatives and other creative activities to develop science and technology associated with training high-level human resources, contributing to the socio-economic development of the country in a systematic, comprehensive, in-depth direction, close to practical conditions is one of the priorities of the leadership of science and technology work. Actively innovate and apply achievements, technical solutions, technology, and management solutions of higher education institutions to improve productivity, quality, and increase the value of products and goods, contributing to improving the efficiency of socio-economic development. Thoroughly grasp the viewpoint of linking theory with practice, schools with agencies and enterprises, combining knowledge training and thinking capacity with training in practical capacity and management style; focusing on imparting experience and educating traditions to learners; continuing to research, apply and develop Marxist-Leninist theory and Ho Chi Minh thought; constantly innovating the content and methods of training and political education; perfecting the leadership mechanism and protecting the Party's ideological foundation; in-depth research on solutions to enhance the nature of the working class, the effectiveness and efficiency of Party and political work activities; leadership capacity and fighting strength of grassroots Party organizations; Continuously improve solutions to build a strong school in terms of politics, ideology, and organization; enhance political capacity and qualities to meet the requirements of tasks in the new situation.

Third, boost applied research, technology transfer, effectively exploit and use machinery and equipment in the establishment, gradually master the core techniques and technologies in the design, manufacture and improvement of machinery and equipment, especially high-tech equipment.

This is also one of the focuses in leading scientific and technological research activities. Regarding science and technology, promote applied research activities, technology transfer, effectively exploit and use machinery and equipment in the establishment, gradually master the

core techniques and technologies in the design, manufacture and improvement of machinery and equipment, especially high-tech equipment. On the one hand, nurture the spirit of proactiveness, constant innovation, self-reliance, self-reliance, actively apply advances in science and technology, apply software in the design, manufacture of equipment; testing equipment, and evaluate results; Closely combine research on urgent issues with adjusting new design and manufacturing research directions in a fundamental, long-term direction and improving and enhancing technical features. On the other hand, strengthen coordination and research cooperation activities with units inside and outside the school, inside and outside the country to research solutions to improve the quality and efficiency of labor production, apply science and technology in combating climate change and protecting the environment.

Fourth, innovate the management and textbooks and documents; accelerate the progress of building digital learning materials, upgrade the electronic information portal, build a multidisciplinary information system, and effectively implement the digital transformation plan.

This is a crucial aspect of leading science and technology activities. On the one hand, the school actively innovates the management of science and technology, promotes novelty and practicality, increases the scientific content of themes and initiatives; innovates the content and form of specialized information, research orientation, and the quality of scientific publications; focuses on perfecting the available coursebooks and documents, focusing on documents on newly improved machinery and equipment; effectively implements breakthrough content in compiling the system of textbooks and documents. On the other hand, continue to invest in and upgrade information technology facilities and equipment; gradually modernize the facilities; upgrade the electronic information portal; encourage the development of application software in teaching and scientific research; cooperate in technology transfer; speed up the progress of writing electronic textbooks, digitizing textbooks and documents, building shared digital databases; effectively exploit and use information technology projects and digital libraries; manage and exploit according to regulations, ensure information security and network security.

Fifth, effectively use the investment sources, step by step modernize facilities, equipment, and facilities; take care of the scientific research teams to ensure the quantity and quality in the direction of streamlining, compactness, and standardization of titles.

Effectively use investment sources; gradually modernize facilities, equipment, facilities, and facilities serving education, training, and scientific research is an important content of science and technology work. Synchronically actively and sustainably prepare to implement the upgrading of digital infrastructure which should be fast, stable, and safe in terms of transmission speed; moreover, the mentioned infrastructure should be capable of operating independently even when in each group and each industry; and capable of interconnecting throughout the system. In time of implementing the development of digital learning materials, we are to continue to invest and upgrade information technology equipment and facilities, modernize facilities, improve the ability to connect to high-speed Internet, broadband information networks, multimedia, interconnectivity, and facilitate teaching and management of scientific research activities.

Continue to innovate the policy system, care about building and developing a team of staff who are in charge of doing scientific research in the direction of streamlining, streamlining, and

standardizing titles. Furthermore, we need to continue to innovate and improve the quality of postgraduate training; prioritize planning, source discovery, and building a team of leading scientists and experts for key industries; closely combine training and education at schools with practice at agencies, enterprises, and production units; Actively send lecturers and young scientists to study and receive advanced training at prestigious training institutions at home and abroad to improve their professional qualifications and skills, gradually overcoming the shortage and imbalance of human resources.

Sixth, build a modern basic science foundation, focusing on application-oriented basic research to move towards innovation, autonomy and technological competitiveness in key areas where Vietnam has needs, potential and advantages. Creating a suitable environment for Vietnam's basic research to continue to consolidate its foundation and develop rapidly, making worthy contributions to general scientific and technological activities as well as long-term goals for national development.

Basic research is a research activity aimed at discovering the nature and laws of things, natural phenomena, society and thinking. Basic research, together with applied research and experimental implementation, forms a system of scientific research and technological development activities, an important factor promoting economic growth and sustainable development of countries around the world. For developing countries like Vietnam, paying attention to investing in basic research is also investing in the future of the country's science and technology; contributing to the development of highly qualified human resources at the forefront of knowledge, especially at the postgraduate level; consolidating the foundation, research capacity and talented scientific staff in universities and research institutes; thereby increasing the capacity to anticipate, absorb, apply and develop new research directions and advanced technologies of the world to serve the national sustainable development goals.

To achieve that goal, in the coming period, it is necessary to create space for basic research, pay due attention to basic research to prepare capacity, staff and knowledge foundation for the fields that serve as the basis for the development and application of advanced technologies in the future. Continue to allocate resources to effectively organize and implement basic science development programs in areas where Vietnam has strengths in the period up to 2030 (mathematics, physics, chemistry, life sciences, earth sciences and especially focus on marine sciences), in order to comprehensively and synchronously deploy solutions to improve Vietnam's basic science capacity and potential, making practical contributions to the country's sustainable development. Promote international integration and cooperation in basic science through multilateral institutions such as UNESCO, the European Union (EU) and with countries with advanced science and technology. Promote connections, academic exchanges, and organize international scientific conferences and seminars in Vietnam. Develop a cooperation network between Vietnamese scientists and the international scientific community, especially in cutting-edge research fields. Quickly catch up with the trend of open science and open innovation in the world to exploit and apply appropriately, bringing benefits to Vietnam. (Giải pháp bổ sung)

5. CONCLUSION

The current education, training and scientific research career at schools bring forward many new requirements that are both urgent and fundamental in the long term. To effectively implement the Prime Minister's Strategy for Science, Technology and Innovation Development to 2030, the S&T activities of schools must be comprehensively and synchronously deployed in all aspects of work. In particular, improving the quality of leadership and management, promoting the combined strength of organizations; the capacity and intelligence of all individuals; developing S&T human resources in the direction of streamlining, streamlining, and standardizing titles; improving the quality of scientific research products; Promoting applied research, technology transfer, effectively exploiting and using equipment in the establishment, gradually mastering core technology in design, manufacturing, and improving machinery and equipment and so forth are very important orientations in leading science and technology work to 2030 and the following years, building schools with modern learning and scientific research environments that meet the requirements of tasks in the new situation, ensuring closer and more synchronous connections, turning aspirations into practical and effective actions, turning potential into resources for development; promoting creativity in thinking, breakthroughs in action./.

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THE EFFECTIVENESS OF DICTOGLOSS IN DEVELOPING LISTENING COMPREHENSION OF VIETNAMESE PRE-INTERMEDIATE EFL LEARNERS

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ABSTRACT

Listening comprehension is often regarded as the most challenging skill by novice EFL learners. While various approaches for teaching listening to novice EFL learners exist, usage of the dictogloss method to improve listening skills has yet to be fully explored within the Vietnamese EFL context. For this reason, the present research employed a quantitative action-research study to investigate the effectiveness of dictogloss on Vietnamese pre-intermediate EFL learners' listening comprehension. A group of 10 Vietnamese pre-intermediate EFL students aged 15-17 were selected to engage in weekly dictogloss sessions over a period of 10 weeks. For data collection, participants were administered pre-tests in week 1 and post-tests in week 10 to assess performance changes. Data analysis showed that there was moderate improvement in the students' listening comprehension following the dictogloss sessions. The findings of this research suggest pedagogical implications for ELF instructors in developing learners' listening comprehension, especially for those at lower proficiency levels.

Keywords: action research, dictogloss, listening comprehension.

1. INTRODUCTION

In the process of learning English, listening comprehension is ubiquitously considered by both educators and learners as a highly demanding skill. Bloomfield et al. (2010) and Gilakjani and Ahmadi (2011) stated that listening comprehension places greater pressure on the learner's cognitive abilities in processing immediate input and requires longer, more focused teaching sessions to reach adequate competence compared to other language abilities. For pre-intermediate EFL learners, this task is particularly strenuous, as a lack of knowledge, practice and exposure to English can negatively impact their performances and attitudes toward learning listening (Rintaningrum, 2018).

Despite the perceived difficulty, listening remains an underemphasized skill within the context of EFL education in Vietnam. The reason can be attributed to the exam-focused format of English education in Vietnam, where priority is given to studying grammar, reading and writing in favor of passing compulsory examinations, rather than developing communicative competence (Denham, 1992; Duong, 2014; Bui & Duong, 2018). This system is inadequate to the current demands of producing efficient English users; wherein subpar listening comprehension can hamper the acquisition of other critical language skills and prevent students from achieving proficiency for practical usage (Hasan, 2000; Rost, 2001; Thao & Long, 2022). Even among

institutions that provide listening programs, a teaching method which meets the needs of learners has yet to be widespread. The current prevalent method involves students passively completing exercise sheets while listening to audio passages, followed by instructor-led answer checking. Although this activity improves accuracy, it is not designed to promote active feedback nor communicative understanding (Ngo, 2015; Ngo, 2017; Aminatun et al., 2021).

Recognizing the current challenge, several research has been conducted in Vietnam to test the application of newer approaches in listening instruction. A few approaches have been studied by Vietnamese EFL educators. For example, Ngo (2016) and Lan (2015) respectively demonstrated the effectiveness of listening strategy instruction and computer-assisted language instruction in enhancing the listening skills and autonomy of pre-intermediate English EFL learners. Among innovative approaches to listening instruction, one promising technique that attracted the support of scholars is dictogloss. Several studies have highlighted dictogloss' efficiency for enhancing not only listening, but also writing, reading and collaboration skills in lower proficiency EFL users. Notably, Jibir-Daura (2013) described dictogloss as a radical method which promote learner's autonomy and communicative competence, two aspects listening instruction in Vietnam finds deficient. Despite this, there is a dearth of studies exploring the impact of dictogloss in Vietnam's EFL teaching context. For this reason, this research investigated the effectiveness of dictogloss in enhancing the listening skills of pre-intermediate students in Vietnam. The findings of this study could provide insights for educators seeking to improve listening instruction and overall language learning outcomes.

2. LITERATURE REVIEW

2.1. Listening Comprehension

The term *listening comprehension* is widely defined in language theory. Listening comprehension is commonly viewed as the active process in which the listener concentrates on an aural input and attempts to decode what they hear based on previous knowledge (Underwood, 1989; Hasan, 2000; Rost, 2002). Mendelsohn (1994) described listening comprehension as the listener's understanding of the input's language in various linguistic aspects. Vandergrift (1999) expanded on this, explaining that the process of comprehending spoken input requires attention to several linguistic features, such as sounds, intonation and vocabulary. Meanwhile, O'Malley et al. (1989) emphasizes the role of context within listening comprehension, in that the process demands the listener to "constructs meaning by using cues from contextual information and from existing knowledge".

Structurally, listening comprehension involves complicated cognitive and psychological functions (Rost, 2011; Holden, 2004). NamazianDost (2017) described listening comprehension as a process happening "on an intellectual level inside individuals' heads". Holden (2004) noted that a complex mental attempt from the listener is needed to form listening comprehension. This is supported by Vandergrift (2006) who connected listening comprehension to metacognition, highlighting the importance of the listener's conscious, self-critical engagement in the process.

2.2. Dictogloss

Originally introduced by Wajnryb (1990), dictogloss is a classroom activity where learners reconstruct a text collaboratively after listening and noting it down by key words. The dictogloss procedure proposed by Wajnryb (1990) followed four key steps:

- a. Preparation: The teacher reviews the topic and key vocabulary which will appear in the text
- b. Dictation: The learners listen to the text twice. In the first time, the learners only need to listen to get the main ideas. The second time, they take notes while listening.
- c. Reconstruction: The learners form groups of two or more to reconstruct a version of the text from their shared sources.
- d. Analysis and Correction: The learners analyze and compare their text with the reconstructions of other learners and the original text, then make necessary corrections.

Compared to traditional dictation, dictogloss provides a more communicative and integrative approach to language teaching (Vasiljevic, 2010, Robinson, 2011). Through dictogloss, students are given the chance to be involved in cooperative endeavor and provided with active feedback, prompting them to identify their linguistic weaknesses and develop strategies to address them (Swain & Lapkin, 2000). This process, as stated by Jacobs (2003), serves to promote learner autonomy, cooperation and critical thinking. While initially implemented as a grammar instruction technique, dictogloss also benefits the development of writing, reading and listening skills. Puspita (2016) explained that the method integrates the application of all four fundamental language skills throughout the process— listening during the first 3 steps, speaking during group reconstruction, reading during all steps, and writing during dictation and reconstruction. For these reasons, dictogloss is regarded as a well-rounded and comprehensive approach to language learning.

2.3. Dictogloss In Listening Comprehension

In literature, many studies have explored the effect of dictogloss on improving second language listening comprehension. Research conducted by Iwanaka (2010), Puspita (2016), Azmi (2017), Asrobi and Amni (2017), among others, consistently demonstrates the positive impact of dictogloss on EFL learners' listening proficiency. Notably, an experiment done by Prince (2013) on intermediate level EFL users reported that dictogloss helped the students process unfamiliar English aural input more efficiently. Jose (2022) also reported affirmation from the learners with dictogloss implementation, stating that the technique improved their listening skills the most out of the basic language skills. Meanwhile, Vasiljevic (2010) approached dictogloss at a more nuanced perspective by acknowledging the methods' advantages and disadvantages in improving listening skills. The consensus among researchers is that this technique can effectively promote learner autonomy and provide valuable formative feedback. However, it is also subjected to unbalanced peer-coaching, where one member with a higher proficiency may try to dominate a group, potentially hampering the listening development of lower proficiency students.

Within Vietnam, a few studies have been conducted regarding the effect of dictogloss in listening classrooms. Ngoc and Mai (2023) found a small but noticeable improvement in listening comprehension among EFL university students after the application of dictogloss. An experimental research Thoa (2023) conducted on English major freshmen in UNETI substantiated this result. The findings showed that the experimental group who received dictogloss treatment significantly outperformed the control group in listening comprehension. Meanwhile, the findings of a study performed by Minh and Lan (2021) on non-English major undergraduates revealed that through dictogloss, students of different proficiency levels were able to support each other and create a more engaging learning atmosphere, which is positively linked to their listening performances. Minh Hai and Hanh (2020) demonstrated that the context-based design of dictogloss helped enhance linguistic awareness, leading to improved listening comprehension.

3. METHODOLOGY

3.1. Research Site and Participants

The current study was carried out in a private classroom hosted by an English Language Centre (ELC) located in Ha Noi, Vietnam. The ELC site was chosen to replicate the learning environment commonly found in EFL classrooms.

A group of 10 EFL learners were selected to participate in the study. The age range of the participants was 15 to 17 years old. They were students attending public high schools in Ha Noi. All participants were EFL users at A1 or A2 level as scaled on the Common European Framework of Reference (CEFR).

3.2. Research Design

The present study was an action research conducted through quantitative methodology. Firstly, an action research model was suitable for the educational setting of this study, because it helps the researcher, in the role of an educator, to closely investigate problems from their own classroom and directly bring about change to the situation (Hien, 2009). Secondly, a quantitative approach, specifically a paired sample t-test, was used for data analysis. The method was ideal for comparing the listening comprehension performance of participants at two different time points, as recommended by Okoye and Hosseini (2024).

3.3. Research Instruments

Two tests administered as a pre-test and post-test were used to realize the participants' listening comprehension level before and after the treatment. The tests' content was obtained from the listening module of retired IELTS Academic tests. To ensure data integrity, a different listening sample from the source material was selected for the post-test.

The test format consisted of 4 parts and 40 questions. One recording was played at the beginning of each part, and participants were expected to answer questions as they listened along. The duration of one test was 30 minutes. Based on Cronbach Alpha formula, the reliability of the pre-test and post-test were measured at 0.89 and 0.86, respectively.

3.4. Data Collection Procedure

To gather relevant data for analysis, the present study was conducted within the period of 10 weeks. Prior to the experiment, participants were briefed through the concept of dictogloss and the procedure of the treatment, to which all 10 participants gave their consent to partake.

On week 1, participants were given the pre-test to measure their listening comprehension proficiency before the intervention. From week 2 to week 9, the researcher implemented the dictogloss intervention. At the beginning of each session, a set of vocabulary was introduced for the students to familiarize themselves with the topic of dictogloss activity. Students subsequently listen to a short recording twice, the first time without taking notes and the second time transcribing what they hear. After the second recording, students were asked to reconstruct their transcriptions in groups of 2 or more. Finally, the researcher revealed the text of the recording for students to compare their versions with the original and each other. The dictogloss session was performed once a week. On week 10, participants took the post-test to measure changes in listening comprehension level after the intervention.

After the experiment period, the results of the pre-test and post-test were collected and analyzed.

3.5. Results

To deduce findings for the research, the scores of the participants in both the pre-test and post-test were inputted into SPSS version 28.0. All formulas are employed with the level of significance at 0.05. The results are presented as follows.

Table 1. Descriptive statistics for pre-test and post-test

	N	Mean	S.E. Mean	Std. Dev
Pre-test	10	4.35	.30	.94
Post-test	10	4.80	.23	.71

Table 1 displays the descriptive statistics of the participants' performances in the pre-test and post-test. The mean scores were 4.35 and 4.80 in the pre-test and post-test, respectively. To determine whether the difference in the mean of scores were statistically significant, a paired samples t-test was run.

Table 2. Paired samples t-test for pre-test and post-test

Mean	Std. Dev	S.E. Mean	95% Confidence Interval of the Difference		t	Sig. (2-tailed)
-45	.60	.19	Lower	Upper	-2.38	.041
			-.88	-.02		

Table 2 reported the results of the paired samples t-test. It is shown that there was a statistically significant difference between the mean of scores ($t = -2.38, p < .05$). Thus, it can be inferred that dictogloss was effective in improving the listening comprehension of the pre-

intermediate EFL learners. Although moderate, the students' improvement in performances after the treatment was obvious.

4. CONCLUSIONS

The findings of this study indicated that dictogloss has a moderately positive impact on enhancing the listening comprehension proficiency of pre-intermediate EFL learners in Vietnam. By engaging learners in active listening, note-taking, and collaborative work, dictogloss is a useful tool for enhancing listening skills. The outcomes of this research suggested the potential of dictogloss to be a valuable and innovative instructional technique in Vietnam's EFL classrooms, particularly when directed at learners of the pre-intermediate level.

Despite the study's possible contribution to the pedagogical field, a few limitations were present. Firstly, the current study was conducted on a small scope and the sample was limited to high school students. This makes the study's application in bigger generalizations subjective. Secondly, the study could benefit from the inclusion of more diverse research methods to provide further extensive findings on the effectiveness of dictogloss. Therefore, it is recommended that future research address these limitations by diversifying the sample and incorporating a variety of methodological approaches to better assess the impact of dictogloss in different contexts.

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COGNITIVE AND METACOGNITIVE STRATEGY TRAINING ON STUDENTS' LISTENING COMPREHENSION: A QUASI-EXPERIMENTAL STUDY

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ABSTRACT

This quasi-experimental study aims to determine the impacts of cognitive and metacognitive strategy training on 61 English-non major sophomores' listening comprehension at a public university. To assess the effectiveness of the intervention with experimental and control students, the TOEIC listening pre-and post-tests were conducted. Moreover, the Listening Strategy Use Questionnaire adapted from Lee (1997) and Ho (2006) was employed to explore the extent to which the students' cognitive and metacognitive strategies as well as attitudes were affected. The findings showed that the experimental group had a higher listening comprehension achievement than the control one. The results also showed a positive shift in the level of cognitive and metacognitive strategy use among experimental participants. In addition, they reported positive attitudes towards the strategy training. This study provides empirical evidence for the benefits of strategy training for improving listening comprehension and has implications for furthering listening instruction at higher education level.

Keywords: Cognitive and metacognitive strategy training, listening comprehension, The Listening Strategy Use Questionnaire, quasi-experimental research.

1. INTRODUCTION

Listening is a crucial and complex process in language acquisition (Graham, 2006; Vandergrift & Goh, 2009; Zeng & Goh, 2018), with people spending 40-50% of their working day listening. However, it is often neglected in second language (L2) acquisition compared to speaking, writing, and reading (Vandergrift, 1997; Vandergrift & Goh, 2009; Zeng & Goh, 2018). The interest in learners' strategies has increased since the 1990s due to the shift from teacher-centered to learner-centered classrooms. Scholars have focused on defining how learners can set and use successful strategies to improve their learning (Vandergrift & Baker, 2015; Vandergrift & Goh, 2012; Zeng & Goh, 2018).

Language acquisition involves the use of cognitive and metacognitive strategies, which are key components of effective study skills (Rubin, 1975). Cognitive methods involve mental processing related to learning activities, such as writing, paraphrasing, and making conclusions. These strategies help learners deal with and comprehend language input efficiently. On the other hand, metacognitive strategies involve planning, monitoring, and evaluating learning processes, allowing learners to be more independent and self-regulated. These strategies are crucial in intensive language programs where motivation and high results occur over time and demand self-regulated learning.

In Vietnam, English language learning has traditionally focused on grammar rather than listening and speaking, leading to an imbalance in students' listening comprehension (Hoang, 2018; Le et al., 2024). Hoang (2018) states teachers often prioritize reading over listening, neglecting listening activities and teaching necessary listening skills. Vietnamese students face challenges in listening comprehension, including limited opportunities to interact with native English speakers, worn-out listening materials, anxiety, and low self-confidence. There is a lack of research on the effectiveness of cognitive and metacognitive strategy learning for non-major English learners, particularly sophists in higher education (Le et al., 2024). Many non-major English sophomores are required to take English as part of their general education courses, which may not directly or explicitly address listening strategies. This lack of diversity-oriented research contributes to the absence of concrete findings on the efficacy of strategy training with this population.

The researcher aims to investigate the effects of cognitive and metacognitive strategy training on students' listening comprehension and their perceptions of the approach. Two research questions are presented to address these issues and provide insights into the effectiveness of strategy training in improving listening skills among Vietnamese students.

- *To what extent does the cognitive and metacognitive strategy training impact students' listening comprehension?*

- *What are the students' attitudes towards the cognitive and metacognitive strategy training?*

2. LITERATURE REVIEW

2.1. Listening comprehension

2.1.1. Definitions

Listening comprehension is a complex and active process that involves various cognitive operations (Buck, 2001; O'Malley et al., 1989). It is considered the most complex skill in language learning, and several factors contribute to its complexity (Lynch & Mendelsohn, 2002). These include students' personality, nervousness in spoken language, lack of appropriate listening skills, poor prior knowledge about the topic, and low energy levels (Rost, 2002).

2.1.2. Factors affecting listening comprehension

Cognitive and metacognitive strategy training is crucial for addressing these concerns. Hasan (2000) suggests that bottom-up processing skills are essential for understanding ideas, such as managing unfamiliar words and syntactic analytical functions. Graham (2006) agrees with these findings on speech rate and perceived listening skills, recommending specific learning strategies for L2 students. Richards (1983) notes the role of background knowledge in comprehension, but also highlights learners' lack of culturally appropriate scripts. Miyake and Friedman (1998) review the effects of working-memory capacity on listening, stating that it is easier and more efficient to retain and process information when working memory is large.

Listening comprehension is a complex and active process that involves various cognitive operations (Buck, 2001; O'Malley et al., 1989). It is considered the most complex skill in language learning, and several factors contribute to its complexity (Lynch & Mendelsohn, 2002). These include students' personality, nervousness in spoken language, lack of appropriate listening skills, poor prior knowledge about the topic, and low energy levels (Rost, 2002).

Cognitive and metacognitive strategy training is crucial for addressing these concerns. Hasan (2000) suggests that bottom-up processing skills are essential for understanding ideas, such as managing unfamiliar words and syntactic analytical functions. Graham (2006) agrees with these findings on speech rate and perceived listening skills, recommending specific learning strategies for L2 students. Richards (1983) notes the role of background knowledge in comprehension, but also highlights learners' lack of culturally appropriate scripts. Miyake and Friedman (1998) review the effects of working-memory capacity on listening, stating that it is easier and more efficient to retain and process information when working memory is large. Additionally, other aspects of spoken language, such as the oral environment, speaking pace, rhythm, and stress, make it difficult to attempt listening comprehension (Hasan, 2000; Richards, 1983; Vandergrift & Baker, 2015). Therefore, it is vital to establish adequate cognitive and metacognition strategies for improving listening comprehension. These strategies will facilitate the management of cognitive load, activation and elaboration of prior knowledge, and fruitful processing of real-time spoken language environments, leading to the enhancement of learners' comprehension skills (Miyake & Friedman, 1998; Richards, 1983; Vandergrift & Baker, 2010; Vandergrift & Tafaghodtari, 2010).

2.1.3. Listening strategies

Scholars have also put emphasis on listening strategy applications to second language learning because of their profound influence on listening performance (Zhang & Goh, 2006; Oxford, 1992; Vandergrift, 1997; Vandergrift, 2012). Listening strategies are distinguished into metacognitive, cognitive, and social-affective employing different mental, social, and affective procedures (Goh, 1998; O'Malley et al., 1989; Vandergrift, 1997). The proper usage of these strategies can foster the listening comprehension, knowledge acquisition, and recall among learners and can consequently enhance overall listening skills among the learners. Especially for maximizing L2 listening, there must be equal emphasis on both cognitive and metacognitive approaches (Graham & Macaro 2008, Vandergrift, 2003).

2.1.4. Cognitive Strategies

Cognitive strategies refer to the mental organizations of tasks to assist in comprehending and language articulation. Some of the strategies include: adopting, reproducing and assessing information (O'Malley & Chamot, 1990). Listening particular cognitive strategies facilitate the direct processing of listening input, which helps learners understand the meanings of words and evaluate messages (Goh & Hu, 2014). Metacognition strategies are different from cognitive strategies where the latter involves direct management of content learnt as compared to planning and regulation of content to being learned (Graham, 1997). Previous research has shown that university students employ significantly higher cognitive methods than social, affective, and metacognitive ones (Zhang, 2007).

2.1.5. Metacognitive Strategies

Metacognitive processes involve planning, monitoring, and evaluating actions for learners to enhance their listening skills (Goh, 2000; Vandergrift & Goh, 2012). These processes include listening purpose, background knowledge, prediction, dynamic approach, attention control, and context evaluation. Listeners with higher listening achievement use metacognition techniques effectively, relying on contextual clues (Vandergrift & Tafaghodtari, 2010). Anderson (2002) identifies several metacognitive processes for L2 learning, and enhancing metacognition awareness can foster proactive involvement and appropriate attitudes towards listening problems.

2.1.6. Cognitive and metacognitive strategy training in language learning

Cao and Lin (2020) studied the metacognitive awareness of 139 vocational college students at Jiangxi Blue Sky College, focusing on listening comprehension tasks. They found that students rarely used metacognitive strategies, but they were more often adopted by female students, particularly in monitoring techniques. The study showed that strategy use was positively and significantly related to listening comprehension scores, suggesting that learners who regularly employed metacognitive strategies gained better listening proficiency.

Hsieh (2023) investigated the impact of metacognitive strategies on English listening comprehension skills among 150 EFL students, classifying them into experimental and control groups. The experimental group was trained on metacognitive strategies, while the control group continued with standard methods. The posttest results indicated significant enhancement in the metacognitive training group, with higher-achieving students showing more frequent application of these strategies.

Khiewsood (2016) examined the application of metacognitive strategies by 50 high-school students in Bangkok, finding moderate use of metacognition in their learning. Ratnaningsih (2015) examined the effect of English listening strategies on comprehension of 60 students, finding that metacognitive approach was not superior to cognitive approach in improving lecture comprehension. Tabibian and Heidari-Shahreza (2016) investigated the impact of cognitive and metacognitive approaches for enhancing receptive language skills of 60 Iranian students learning EFL at the intermediate level.

These studies provide a basis for developing the effect of cognitive and metacognitive strategy training on listening comprehension. This study aims to examine the direct impacts of such training on the identified population, particularly non-major English sophomores at higher learning institutions in Vietnam.

3. METHODOLOGY

3.1. Research design

Quasi-experimental research design is ideal for educational research where true experimental design is not feasible, such as when random assignment to groups is logistically or ethically questionable (Creswell & Creswell, 2022). This design uses existing groups for treatment and control groups, allowing researchers to establish the effectiveness of interventions in realistic conditions. In teaching, a quasi-experimental design typically involves identifying intact classes

or groups for both experimental and control treatments. For example, one class may be in the intervention group, undergoing metacognitive strategy training, while the other is exposed to normal learning. Pretests are administered to ensure the control group has the same initial cognitive ability as the experimental group, and posttests are administered after the intervention period.

3.2. Participants

The current research was conducted at University of Economics – Technology for Industries, which is a multidisciplinary public university located in Hanoi and Nam Dinh Province. There are different major programs such as Information Technology, English Language, Engineering, Food Technology, Accounting, Banking and Insurance, etc. The study was carried out in semester 2, academic year 2023-2024, with eight weeks of intervention. The procedure of the intervention was discussed in 3.4

This study focuses on 61 English non-major sophomores aged 19-20 who face challenges in listening to English due to linguistic, cognitive, and motivation factors. Linguistic issues include limited word comprehension, intonations, and accent, while cognitive issues like restricted working memory capacity and slow processing speed hinder their ability to follow spoken language. Cognitive factors include anxiety and poor confidence, which can diminish attentiveness and listening skills. Motivationally, low interest and self-efficacy can lead to less engagement and effective listening strategies. The study divided participants into two classes: an Experimental class with 32 students and a Controlled class with 29 individuals. The Experimental class was exposed to a new teaching method, while the Controlled class received conventional instruction without specific listening strategies.

3.3. Data collection instruments

3.3.1. Listening tests

The study used the TOEIC listening section as both a pre-test and post-test to assess participants' listening comprehension skills. The tests were sourced from ETS publications from 2022 and 2023, distributed by the Korean IBM Publisher. The TOEIC listening test, consisting of 100 questions divided into four parts, is standardized and widely recognized for measuring English proficiency in international contexts. The pre-test was administered in Week 1 of the intervention, and the post-test was conducted in Week 8 following the intervention period. This approach ensured the assessment tools were current and reliable, providing a robust measure for evaluating the intervention's effectiveness on listening comprehension skills.

3.3.2. The Listening Strategy Use Questionnaire

The study used the Listening Strategy Use Questionnaire adapted from Lee (1997) and Ho (2006), a tool designed to assess students' use of cognitive and metacognitive strategies in listening comprehension. The questionnaire, which uses a 5-point Likert scale, consists of 32 items and categorizes it into two sections: Metacognitive Strategies (items 1, 2, 6, 8, 9, 11, 18, 25, 27, 32) and Cognitive Strategies (items 3, 4, 5, 7, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 26, 28, 29, 30, 31). Metacognitive Strategies focus on planning, monitoring, and evaluation aspects of the

listening process, including pre-listening strategies like clarifying objectives and scanning questions, during-listening strategies like keeping up with speech rate and self-monitoring comprehension, and post-listening strategies like reflecting on difficulties and using dictionaries. Cognitive Strategies, on the other hand, focus on the direct mental processing of language input, covering pre-listening strategies like previewing lessons, during-listening strategies like note-taking, identifying key points, and using linguistic clues, and post-listening strategies like summarizing, predicting, guessing meanings, using background sounds, speaker relationships, and applying world and academic knowledge.

3.3.3. Procedure of the study

The study's procedure, as illustrated in Figure 1, spanned an 8-week period, commencing with an intervention at Week 1 and concluding at Week 8. The process began with a pre-test in the first week, and then focused on Listening Part 1: Photos. This initial assessment involved analyzing photos with people in focus as well as images featuring objects and backgrounds as the central elements.

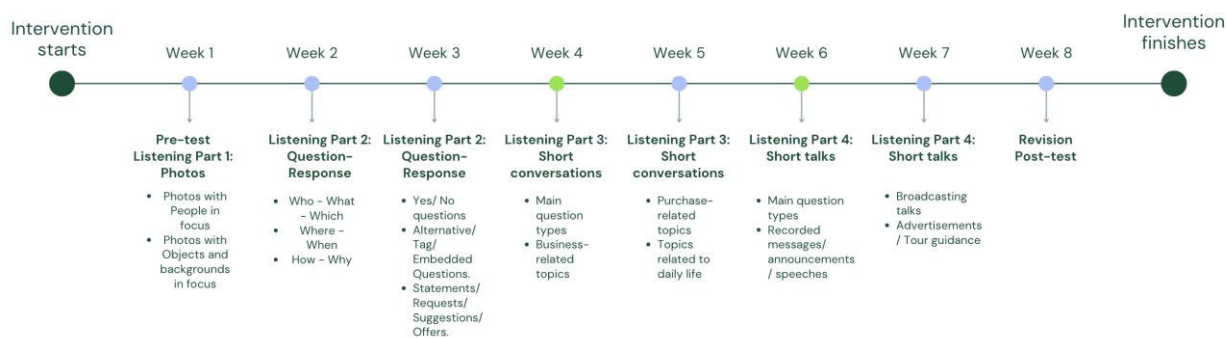


Figure 1. The procedure of the study

The study involved a series of listening exercises over a period of weeks. The first two weeks focused on Question-Response activities, while period from the third week shifted to Short Conversations. The final two weeks focused on Short Talks, covering main question types, business-related topics, purchase-related subjects, and daily life themes. The study concluded with a revision session and post-test to assess the intervention's impact on participants' listening comprehension skills. The EC group received structured instruction on listening strategies, including techniques for visual analysis and understanding short talks. They engaged in metacognitive discussions and received additional materials and practice exercises. The CC group followed the regular curriculum without specific strategy instruction and training, likely practicing listening skills through traditional methods without the focus on metacognitive and cognitive strategies.

3.3.4. Data analysis

The study employed SPSS 25.0 for data analysis, a powerful statistical software widely used in social sciences and educational research. SPSS 25.0 likely facilitated both descriptive and inferential statistical analyses. Descriptive statistics would have included means and standard

deviations of pre-test and post-test scores for both groups. For inferential statistics, paired t-tests might have been used to compare pre-test and post-test scores within each group, while independent samples t-tests could have compared post-test scores between groups, controlling for pre-test performance.

Table 2. Reliability statistics of the Listening Strategy Use Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
,916	32

The results from the SPSS 25.0 revealed a Cronbach's alpha of 0,916, surpassing the widely accepted threshold of 0.7 in research, thus demonstrating high internal consistency and reliability of the measurement instrument.

4. FINDINGS AND DISCUSSION

4.1. The impacts of the metacognitive and cognitive strategy training on students' listening comprehension

4.1.1. The comparison of pre- and post-test among EC students before and after the intervention

The paired t-test analysis in Table 3 shows that there had been gained a significant level of effectiveness of metacognitive and cognitive strategy training intervention in improving the EC students' performance.

Table 3. Paired-sample t-test of pre- and post-test among EC before and after the intervention

		Paired Differences								
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
					Lower	Upper				
Pair 1	EC_Pre - EC_Post	-16,0938	10,8311	1,9147	-19,9988	-12,1887	-8,405	31	,000	

To be precise, the find out the required margin of error or α , the t-test for paired samples is a measure of significance that ranges between 0 and 1, the pre-test points to post-test is statistically significant ($p < ,001$) with 95% confidence interval; -19,9988 to -12,1887. The t-value is quite large (-8,405) and there is a small confidence interval, which means that the phenomenon has a large impact. Thus, the received results of 31 degrees of freedom, reflecting the presence of 32 EC students, can be considered as rather convincing in terms of proving the effectiveness of the intervention.

4.1.2. The comparison of pre- and post-test results among CC students

The data presented in Table 4 shows the results of a paired t-test comparing pre-test and post-test scores for CC students.

Table 4. Paired-sample t-test of pre- and post-test among CC students

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 2	CC_Pre - CC_Post	-9,3103	12,1541	2,2570	-13,9335	-4,6872	-4,125	28	,000

Analyzing the results presented in the tables and figures, the researcher noted that there was a statistically significant increase in the CC student's scores after the intervention period. The p.value is 0.000, the improvement is not attributed to chance. The 95% confidence interval is derived to be (-13,9335 to -4,6872) which indicates that there is indeed a true positive effect. Nevertheless, the given standard deviation is 12,1541 appears to show a lot of difference and fluctuations in the responses of the people. As for the CC students' progress, this could be due to aspects such as the natural development of learning abilities, incidental teaching of some metacognition learning techniques within the usual curriculum, or due to prior experience with the test.

4.1.3. The comparison of EC and CC students' listening comprehension before and after the intervention

Table 5 indicates the independent sample test which determines the comparison be of the EC and CC students' listening comprehension pre- and post-tests.

Table 5. Independent sample test of pre- and post-listening tests among EC and CC before and after the intervention.

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre	Equal variances assumed	,141	,709	1,675	59	,099	38,4159	22,9358	-7,4784	84,3103
	Equal variances not assumed			1,678	58,757	,099	38,4159	22,8948	-7,4003	84,2322
Post	Equal variances assumed	,185	,668	1,847	59	,070	45,1994	24,4699	-3,7648	94,1635
	Equal variances not assumed			1,852	58,863	,069	45,1994	24,4064	-3,6402	94,0389

The study found a mean difference of 38.4159 between the EC and CC groups before an intervention, but this difference was not statistically significant, suggesting they were relatively comparable in their listening performance. The 95% confidence interval included zero, indicating that any observed differences could be attributed to random variation. After the intervention, the

mean difference was 45,1994, but this was not statistically significant at the conventional level. The 95% confidence interval contained zero, suggesting that although the intervention might have influenced the performance difference, the results are not sufficient to support the claim that the EC students performed better than the CC students. Further investigations are needed to determine the effectiveness of the intervention.

4.1.4. Students' attitudes towards the metacognitive and cognitive strategy training

Table 6 shows mean scores and standard deviations for various strategies.

Table 6. Descriptive statistics of EC students' attitudes towards the metacognitive and cognitive strategy training

	N	Mean	Std. Deviation
i1	32	3,906	,5880
i2	32	3,656	,7453
i6	32	3,969	,5379
i8	32	3,469	,7177
i9	32	2,844	,4479
i11	32	2,938	,6690
i18	32	3,875	,6599
i25	32	3,313	,5351
i27	32	2,969	,7822
i32	32	3,156	,6773
i3	32	3,813	,5923
i4	32	2,844	,5741
i5	32	4,094	,6891
i7	32	3,688	,8206
i10	32	3,625	,6599
i12	32	2,656	,4826
i13	32	2,313	,4709
i14	32	3,500	,5080
i15	32	4,156	,6773
i16	32	2,875	,4919
i17	32	3,344	,6016
i19	32	3,531	,9153
i20	32	4,125	,5536
i21	32	4,188	,3966
i22	32	4,188	,3966
i23	32	4,250	,4399
i24	32	3,594	,7976
i26	32	3,500	,5080
i28	32	3,531	,6214
i29	32	3,813	,7803
i30	32	3,719	,7289
i31	32	3,563	,5040

Pre-listening strategies are defined as activities that are performed before listening and it revealed that students had a positive perception towards pre-listening strategies. Mean scores for items such as “Before listening, I clarify the purpose of an upcoming listening activity and/or suggest how to approach it” (M=3,906) and “Before listening, I look at the questions and then, depending on the type of script, I focus on certain aspects of the text” (M=3,969) are rather high, which means that students appreciated and employed strategies for the preparation to listening activities. This implies that the participants understood the need to have objectives in place and to direct the audience’s attention prior to the actual listening process.

The attitudes towards the strategies that are employed in listening are rather diverse. The results showed that students admittedly note ideas and keywords quite often (M=4,094), but they did not use mental review as often (M=2,313). The highest score was given to the item “I try to think in English” (M=4,156), which reflects the participants’ tendency towards the process of full immersion. Nevertheless, lower scores for strategies like posing questions about one’s understanding (M=2,844) indicated that some of the metacognitive monitoring in listening was not as frequent.

The level of students’ involvement in post-listening strategies is average. They were likely to think about problems (M=3,875) and link new information to prior information (M=3,813). However, the lowest mark was achieved for the self-checking comprehension and correcting errors (M=2,969), which suggests that there might be a possibility of increasing the students’ motivation to engage in more active self-evaluation after listening activities.

Students preferred to use cognitive strategies mostly of the type that involves inference making and meaning construction. Thus, all high mean scores for the tasks of guessing the meaning of unfamiliar words using context, background sounds and speaker relationships, and information beyond the sentence level suggested that students were actively involved in the post-reading processes of text comprehension beyond the literal level.

In addition, the data shows that students had an adequate levels of metacognitive knowledge. All the strategies like previewing of lessons (M=3,813), listening for the main idea before details (M=4,125), and predicting content based on titles (M=4,188) received rather high means which shows that students were aware of the involvement of critical thinking skills in their listening.

A few strategies were found to be lower, implying the possible needs for training. For instance, the use of language-specific word-forming elements such as prefixes and suffixes (M=2,656), reliance on the spoken and written word’s tone and rhythm (M=2,875), and using reference materials during the listening activity (M=2,844) are less often applied. This could mean the participants need more targeted instruction in these specific strategies.

The current study is in agreement with other studies which also revealed that metacognitive and cognitive strategy training enhanced the achievement in listening comprehension. Like Hsieh’s (2023) study, it was observed that there was a positive change in the EC after receiving strategy training. However, unlike Hsieh’s research, the enhancement of the experimental group was not as evident in this study; the difference between the EC and CC groups was almost significant ($p=.070$). This implies that although there is a positive trend, the effect might be less

noticeable or the study needs a larger population. The current study contradicts Cao and Lin's (2020) findings that students rarely use metacognitive strategies. The study shows moderate to high usage of pre-listening and cognitive inference strategies, consistent with Khiewsood's (2016) findings. The most preferred strategies are cognitive inference and some metacognitive ones, including predicting content and listening for main ideas. Mental translation is less frequent in the current study. The study also reveals that the combination of metacognitive and cognitive strategy training is effective, in line with Tabibian and Heidari-Shahreza's (2016) findings that a significant link exists between the two types of strategies and listening comprehension achievement.

5. CONCLUSION

The study explores the impact of metacognitive and cognitive strategy training on non-major English sophomores' listening comprehensions in Vietnam. The results show a positive trend in the students' pre- and post-strategy training, particularly on pre-listening strategies and cognitive inference skills. The students showed receptiveness to the training and were open to using the techniques in their listening approaches. However, the efficiency of various approaches varied, indicating the need to respond to students' methodological profiles during strategy training.

Limitations of the study include the small sample size of 61 students, the short sampling duration of 8 weeks, and the generality of the findings beyond this specific context or type of students. Quantitative data alone may limit the authors' perception of students' experience and impression about strategy training. Factors such as individual student attributes, prior exposure to English language, and other learning experiences may also interfere with the process and outcome. To improve the effectiveness of strategy training, the study recommends administering the same assessment to a larger number of participants, conducting the study on a larger sample size, and focusing on approaches students reported experiencing difficulties with or applying only to a limited extent. Offering strategy training according to learning proficiency could help address potential disparities in strategy use among learners of different abilities.

In conclusion, improving the implementation of metacognitive and cognitive strategy training in the regular English curriculum for non-major students is valuable, and acquiring training for teachers on these strategies can enhance their general instruction on listening.

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APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) IN TEACHING HO CHI MINH THOUGHTS TO EDUCATE THE CONSCIOUSNESS OF COUNTRY PROTECTION FOR CURRENT UNIVERSITY STUDENTS

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ABSTRACT

Artificial intelligence (AI) is considered one of the core technologies of the 4.0 Industrial Revolution; Many countries have recognized the great influence of AI in all aspects of social life. Using AI to develop education has been is one of the issues of concern and implementation in the current context. The article has summarized the research on artificial intelligence (AI) in general, the application of AI in teaching Ho Chi Minh Thought at universities in particular, and clarified some issues of educating the awareness of national defense of university students today.. From there, the author propose a number of AI tools, processes for using AI and measures to use AI in teaching Ho Chi Minh's ideology to educate the awareness of national defense for current university students such as using Using AI in lesson design, searching and exploiting information, supporting students in self-study, in order to improve the effectiveness of teaching Ho Chi Minh Thought.

Keywords: Artificial intelligence, Ho Chi Minh Thought, awareness of protecting the Fatherland, students, digital transformation

1. INTRODUCTION

In the Industrial Revolution 4.0, knowledge and technology are increasingly becoming important pillars in social development. Artificial Intelligence (AI), with its ability to learn, analyze data and interact like humans, has opened up a series of new opportunities in the field of education. In this context, using AI to educate the awareness of national defense, especially the awareness of national defense in Ho Chi Minh's thought in university studies, is not only a new concept but also a breakthrough in caring for and developing the spirit, personality and social responsibility of students. With the combination of the power of AI and the educational mission, we can exploit the unique potential of this technology to create a vibrant, creative learning environment that truly reflects Ho Chi Minh's thought. One of the typical applications of AI could be the creation of personalized learning systems, based on the ability to analyze data to better understand each student and adjust learning content to suit each person's needs and learning goals. Some training institutions have gradually introduced AI into teaching and management, contributing to creating a clear change in management and teaching (Dinh Thi My Hanh and Tran Van Hung, 2020). At the same time, AI can be used to create interactive lectures, stimulate curiosity and promote positive learning experiences. In the context of a learning environment that increasingly requires innovation and creativity, the use of AI to raise awareness of national defense, especially Ho Chi Minh's ideology, is not only an opportunity but also a challenge that we need to face and exploit positively. It is important to see AI not just as a technological tool, but

also as part of an educational mission, to create a generation of students with a deep awareness of their role in society and a spirit of leadership in the spirit of Ho Chi Minh.

The article presents some theoretical bases of AI, educating students about national defense awareness in teaching Ho Chi Minh Thought and ways to apply AI in teaching Ho Chi Minh Thought to achieve higher efficiency in educating students about national defense awareness in universities today.

2. RESEARCH RESULTS

2.1. Theoretical basis of AI and AI application in teaching Ho Chi Minh Thought

AI was founded by a group of researchers, namely Allen Newell (CMU), Herbert Simon (CMU), John McCarthy (MIT), Marvin Minsky (MIT) and Arthur Samuel (IBM). AI has been defined by scientists in many different ways. AI is a branch of computer science that helps computers imitate human behavior to support humans in achieving better performance in the fields of science and technology. Reproducing human intelligence, solving knowledge-intensive tasks, creating machines that can perform tasks that require human intelligence, and creating some systems that can learn by themselves are some of the specific goals of AI (Srinivasa et al., 2021). Computer systems are designed to interact with the world through the capabilities (e.g., visual perception and speech recognition) and intelligent behaviors (e.g., evaluating available information and then taking the most appropriate action to achieve a stated goal) that we think of as human nature (Luckin & Holmes, 2016). AI is a field in computer science that studies how to create machines that are capable of performing tasks that require human intelligence, scientists focus on developing algorithms and machine learning models to help computers automate intelligent tasks (Nguyen Thi Thanh Binh, 2023). There are many forms of AI support in education: AI helps personalize learning paths; AI diversifies content delivery methods such as multi-dimensional interaction, visualization, and continuous knowledge updates; AI also acts as a virtual assistants for teachers and students such as chatbots, supporting assessment and evaluation and integrates into the management of educational infrastructure systems.

AI is increasingly being integrated into education, playing an important role in improving the quality of training, especially at the university level. Many AI software are being developed and widely applied to support teaching and management activities. AI tools such as chatbots help students receive instant Q&A support, virtual assistants support training and score management, personalized learning software, and facial recognition software for attendance. Benefits and challenges of AI in education: Integrating AI into education brings many benefits, including more personalized, effective learning experiences and increased access to information. However, there are also challenges related to privacy, ethical issues, over-reliance on technology and the ability of AI systems to protect users. Given these complex issues, universities and educational institutions need to consider carefully when developing and applying AI applications in their educational activities. However, to maximize these benefits and address the challenges that come with them, close cooperation between educators, technology developers, and education authorities is needed. It is important to ensure that AI is used responsibly and with the ultimate goal of

improving the quality of education and the comprehensive development of students. However, AI presents many limitations when applied in education such as: copyright issues of authors, ethics in accessing, collecting and exploiting data, and the reliability of information (Trinh Duong Thuy et al., 2023).

In teaching Ho Chi Minh Thought, AI can support the creation of lecture content by analyzing documents on Ho Chi Minh Thought to create rich and appropriate teaching materials for students' ages and levels; AI help's support personalized learning based on analysis of students' learning styles and interests; providing personalized learning content on Ho Chi Minh Thought, to help students access information effectively and vividly. AI provides instant feedback by monitoring students' progress in understanding Ho Chi Minh Thought and supporting students to improve their learning performance; help enhance teaching interaction as evidenced by the fact that AI can be integrated into teaching tools to interact with students, answer questions and provide useful information on Ho Chi Minh Thought; AI develops learning applications using educational apps and games that can use AI technology to create interesting and effective learning experiences on Ho Chi Minh's thought; Finally, AI analyzes and evaluates by analyzing data from tests and assignments to evaluate the effectiveness of the teaching and learning process about Ho Chi Minh Thought and proposes necessary adjustments. Thus, the combination of AI and education about Ho Chi Minh's thought can create profound and vivid learning experiences, helping students gain a deeper understanding of the principles and philosophy of the great leader of Vietnam.

2.2. The issue of educating university students on the awareness of protecting the homeland today

Protecting the homeland is an important part of the Party's revolutionary leadership system and viewpoints, and is the "compass" for the entire Party, the entire people, and the entire army in carrying out the task of protecting the homeland (Political Bureau, 2007). Protecting the socialist Vietnamese homeland not only protects national independence, national unity, national sovereignty, and territorial integrity, but also protects the regime, protects the Party, protects the people, preserves and promotes national culture, protects the achievements of the revolution; fights against foreign invaders and internal reactionaries colluding with each other; "peaceful evolution" of imperialism, against "self-evolution" within our country According to Vu Thi Trang (2018, pp. 94-95)

According to Vu Thi Trang (2018), students' awareness of national defense is the awareness of students' obligations and responsibilities for the cause of national defense, demonstrated by practical actions of being ready to fight against obstacles to national independence and the current socialist-oriented development of the country.

Thus, educating students on national defense awareness is an organizational activity of lecturers to raise students' awareness of their roles and responsibilities in protecting national sovereignty, interests and security. At the same time, raising awareness of patriotism, national consciousness, civic responsibility and national consciousness in different areas of life, including education, communication, culture, and other social activities. On that basis, form correct awareness and behavior for students in activities to protect the Fatherland.

The Communist Party of Vietnam has affirmed: "Strengthening propaganda and education on patriotism, national consciousness, responsibility and obligation to protect sovereignty and national interests" (Communist Party of Vietnam, 2011, p. 235). Educating students on the awareness of protecting the Fatherland in teaching Ho Chi Minh Thought helps students have correct awareness and the ability to adjust their behavior in accordance with the viewpoints and guidelines for building and protecting the Fatherland for the Party and State. This has important meanings: First, helping students have awareness and faith in the leadership of the Party and State of Vietnam; Second, building students to become a leading force in all activities of social life; Third, educating and developing patriotic qualities for students; Fourth, helping students realize their responsibility towards the socialist Fatherland of Vietnam.

2.3. Some suggestions for using AI in teaching Ho Chi Minh Thought to educate students about national defense awareness in universities today

Some tools that can be used in teaching Ho Chi Minh Thought

Depending on the content of each lesson as well as the goal of teaching and educating about national defense awareness in teaching Ho Chi Minh Thought, lecturers can use some suitable AI tools to improve the effectiveness of the process of educating students about national defense awareness, specifically including the following AI tools:

- Chat GPT: This is an intelligent chatbot that helps search for information and answer questions in text. Teachers and students can use Chat GPT to look up documents, learn about concepts and viewpoints in Ho Chi Minh Thought. To use Chat GPT, you need to: (1) Activate Google Chrome or your favorite web browser; (2) Enter <https://chat.openai.com> in the search box; (3) Type Enter and log in or create an account if needed; (4) Select the field to ask or select the purpose of use; (5) Enter the request for the content you want to learn about Ho Chi Minh Thought and wait for a response from Chat GPT.

- Dreamstudio.ai: This tool supports drawing with AI, helping to create vivid illustrations for lectures, making learning more attractive and intuitive. To use Dreamstudio.ai, you need to: (1) Activate the Google Chrome web browser; (2) Enter <https://dreamstudio.ai> in the search box and type Enter; (3) Log in or create an account if needed; (4) Select "Create New Project" to start a new project; (5) Use Dreamstudio.ai's creative tools to create content or teaching materials related to Ho Chi Minh Thought.

- FPT.ai: FPT.ai has the ability to convert voice from text, helping to create audio lectures or convert written documents into voice, supporting students to study anytime, anywhere. To use FPT.ai, you need to do the following: (1) Activate the Google Chrome web browser; (2) Enter <https://fpt.ai> in the search box and press Enter; (3) Log in or create an account if needed; (4) Select "AI Solutions" and then select the tool you want to use; (5) Enter your request or content related to Ho Chi Minh Thought to receive support solutions from FPT.ai.

- Fliki.ai: Fliki.ai allows creating videos from text, supporting teachers to create easy-to-understand and vivid video lectures, increasing interaction and interest of learners. To use Fliki.ai, you need to do the following: (1) Activate the Google Chrome web browser; (2) Enter

<https://fliki.ai> in the search box and press Enter; (3) Log in or create an account if needed; (4) Select "Create New Project" or "New Video"; (5) Enter content or upload documents related to Ho Chi Minh Thought, then use Fliki.ai's tools to create videos or teaching materials.

- Slide.ai: This tool helps create lecture slides quickly and effectively, supporting teachers in preparing lectures in a professional and impressive manner. To use Slide.ai, you need to: (1) Activate the Google Chrome web browser; (2) Enter <https://slide.ai> in the search box; press Enter; (3) Log in or create an account if needed; (4) Select "Create New Presentation"; (5) Enter information and content related to Ho Chi Minh Thought, use Slide.ai's tools to create attractive and professional presentations.

Steps to use AI in teaching Ho Chi Minh Thought to educate students about national defense awareness

The application of AI in education has opened up many new opportunities for teaching and learning, especially in the field of Ho Chi Minh Thought. However, for AI to truly enhance national defense awareness in the teaching and learning process, it is necessary to follow an AI application process consisting of 5 important steps: (1) Determine the goal: Clearly define the specific goal that the application of AI in teaching Ho Chi Minh Thought wants to achieve; (2) Research and select AI tools: Next, research and select appropriate AI tools to support the teaching and learning process, such as Chat GPT, Dreamstudio.ai, FPT.ai, Fliki.ai, Slide.ai, Beat.oven.ai, ZeroGPT.com and Dall-E2; (3) Design teaching activities: Then, design specific teaching activities to raise students' political awareness. This includes using AI tools to make lectures more vivid and attractive; (4) Organize teaching activities: Organize teaching activities according to the designed plan, making the most of the features of AI tools to support the teaching process; (5) Evaluate the application of AI: Finally, evaluate the effectiveness of applying AI in teaching to make necessary adjustments and improvements.

Example illustrating the use of AI in teaching Ho Chi Minh's Thought to educate students about national defense awareness

- Using AI to design lecture videos: Using AI to design lecture videos is taking advantage of AI tools to create intuitive, vivid and attractive video learning materials. This helps students understand more deeply the values and thoughts of Ho Chi Minh, thereby raising awareness of protecting the country. Lecturers can use some suitable AI tools such as: Fliki.ai can create videos from text; Dall-E2 and Dreamstudio.ai to create illustrations for videos; FPT.ai to convert text to speech; Beat.oven.ai to create background music for videos, increasing attractiveness and professionalism.

The steps to design video lecture content are as follows: (1) Script: Determine the topic and content of the video; (2) Collect documents: Search and collect necessary documents such as text, images, sounds related to the topic; (3) Create illustrations: Use Dall-E2 or Dreamstudio.ai to create illustrations for concepts, historical events or portraits of Ho Chi Minh; (4) Text to Speech: Use FPT.ai to convert text segments in the script into voiceover; (5) Video Creation: Use Fliki.ai to combine elements (images, voices, sounds) into a complete video. You can add background music created by Beat.oven.ai to increase the appeal.

For example: In teaching the subject: Ho Chi Minh's thoughts on the national liberation revolution (Ho Chi Minh's thoughts, for non-political theory undergraduates), the lecturer guides students to use two tools Chat GPT and Fliki.ai to design a video recreating the historical context of our country before the 1920s from the perspective of a patriotic intellectual, giving comments and assessments about the country at that time. Students perform the task: Students use the Chat GPT tool to write the plot for the video through the command: "Play the role of a patriotic intellectual, write me a clear plot about the historical context of Vietnam before the 1920s when Ho Chi Minh had not yet found the path to national liberation".

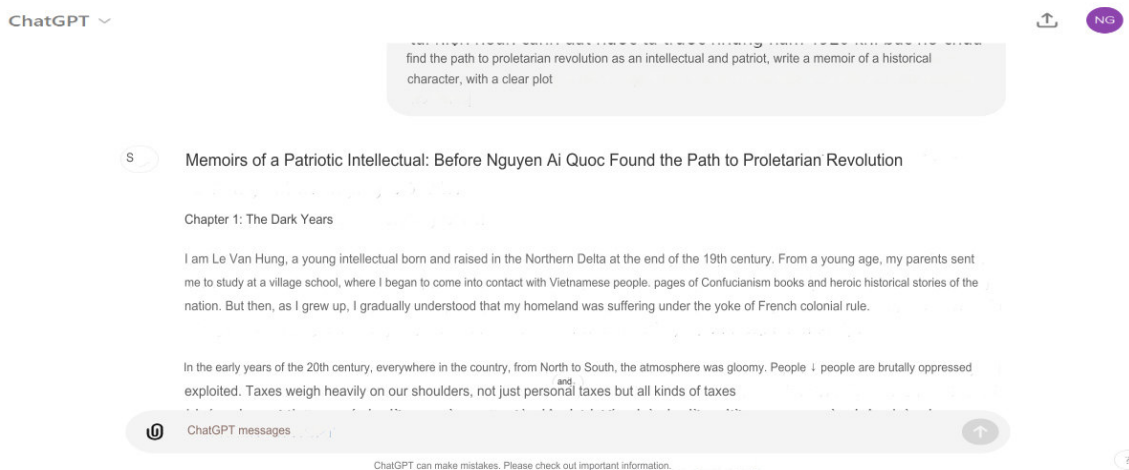


Figure 1. Using Chat GPT to make requests and the responses that Chat GPT can provide as suggestions.

The answer content provided by the Chat GPT tool may not be guaranteed to be accurate because it is for reference only. Therefore, learners and teachers need to review and edit the content of their articles. In this topic, it is necessary to edit the content according to historical facts about the country's situation before the 1920s. From the suggested plot content, students can use the Fliki.ai tool to design videos according to Chat GPT's suggestions.

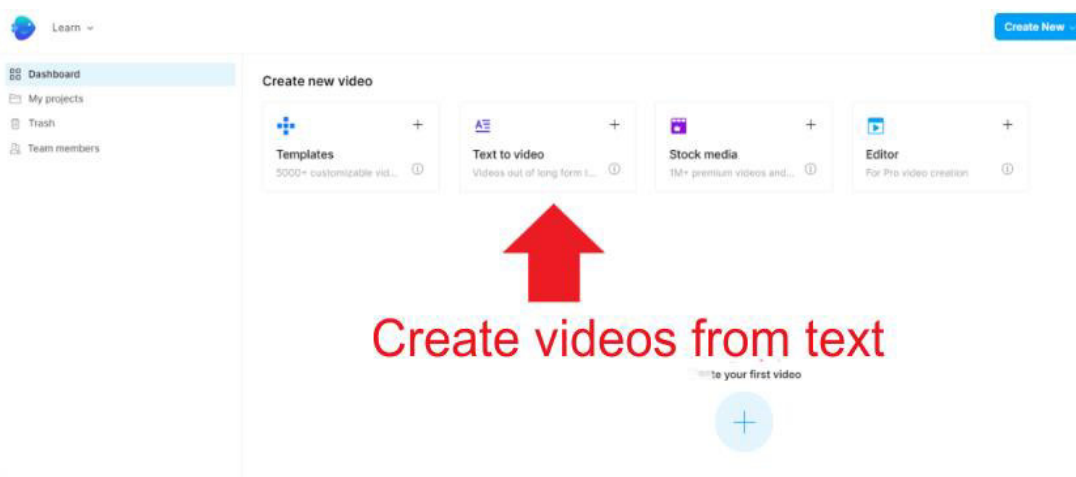


Figure 2. Creating a video and selecting the voiceover from the text referenced from Chat GPT.

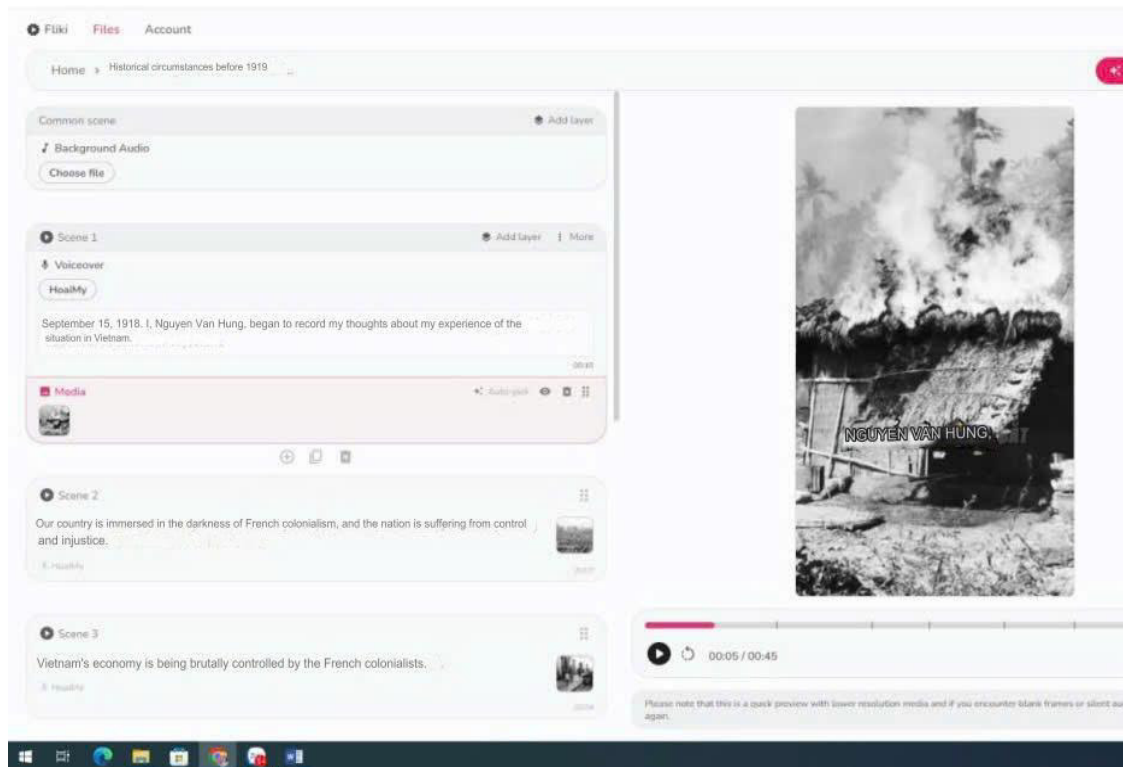


Figure 3. The results when inputting text into the Fliki.ai tool.



Figure 4. Video product obtained from Fliki

Thus, through the implementation, students use AI tools Chat GPT and Fliki to design a short film that recreates the historical context of Vietnam before 1920 from the perspective of a patriotic intellectual, before Ho Chi Minh had not yet found the "path" to save the nation, from which students have comments and assessments of Ho Chi Minh's role in the cause of national liberation.

In the first stage, students review the plot of Chat GPT, which helps collect information from many different sources. In the second stage, giving assessments of the event helps students understand the issue more deeply. The third stage is to design the video, propose ideas for making the video. All of the above stages form students' knowledge of the topic. In the final test and assessment of the topic, the lecturer can guide students to design another video from the application of AI tools to enhance their memory and stimulate their creativity.

- Using AI to exploit and search for information in teaching: Using AI is taking advantage of AI technology to guide students on how to exploit and search for information effectively, such as using AI tools to retrieve data, analyze documents and create learning materials, helping students understand more deeply about Ho Chi Minh's ideology and develop a sense of national defense.

Lecturers can use appropriate AI tools such as Chat GPT to answer questions and provide detailed information about Ho Chi Minh's ideology, helping students learn related concepts and events; ZeroGPT.com to check the plagiarism level of articles, ensuring the originality and accuracy of the documents that students search for.

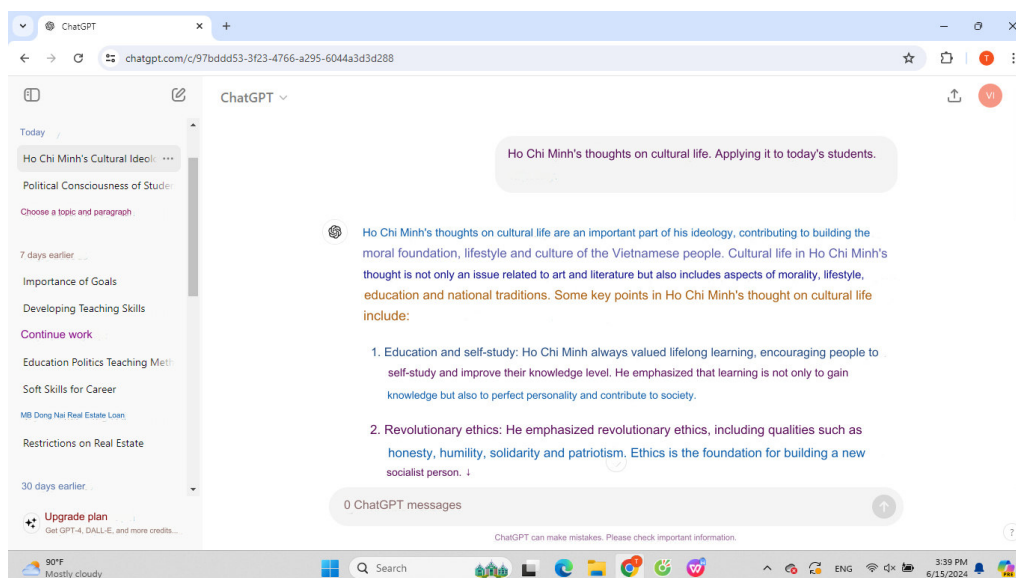


Figure 5. Using ChatGPT for searching and knowledge extraction

However, the use of AI in searching and exploiting knowledge also needs to ensure the selection factor, choosing information that is scientific and reasonable.

The use of AI in teaching Ho Chi Minh Thought not only helps students exploit and search for information effectively but also educates students about protecting the Fatherland and developing self-study skills. This is an advanced teaching method, bringing many practical benefits to students.

- Using AI to guide students to improve their awareness of protecting the Fatherland: Using AI technology to guide students to self-study is the application of AI applications and platforms to support the learning and research process effectively and interactively. AI technology can help

students optimize the learning process, provide rich documents, and support students in understanding more deeply the aspects of Ho Chi Minh Thought, thereby improving their awareness of protecting the Fatherland.

Lecturers can guide students to use AI tools to self-study as follows: (1) Build applications or learning platforms using AI technology, providing lectures, documents, videos, and multiple choice questions about Ho Chi Minh Thought. AI can analyze each student's level of understanding to recommend appropriate documents and provide personalized feedback; (2) Use chatbots to answer questions and resolve students' concerns about Ho Chi Minh Thought. Chatbots can operate 24/7, providing accurate information and helping students study at any time; (3) Use AI to monitor students' learning progress, analyze data to identify their strengths and weaknesses. From there, teachers and students can adjust their study plans effectively.

AI can create interactive lessons, quizzes, and exercises to help students better understand the concepts in Ho Chi Minh Thought. These contents can include interactive videos, simulation exercises, and hands-on activities. In addition, AI creates and runs virtual discussion forums where students can exchange ideas and discuss issues related to Ho Chi Minh Thought. AI can moderate discussions, ensuring that discussions are coherent and effective. For example, using AI learning applications such as "HoChiMinh Thought Learning": This application provides video lectures by experts on Ho Chi Minh Thought, accompanied by multiple-choice tests to test students' knowledge. HTL uses AI to analyze each student's learning results, thereby suggesting additional lessons or adjusting the difficulty of questions to suit their level. In addition, HTL has integrated the chatbot "HoChiMinhBot" that acts as a virtual teacher, ready to answer questions about the history, life, and Ho Chi Minh Thought. HoChiMinhBot also provides practice exercises and suggests additional reading materials based on students' questions and answers.

Using AI to guide students to self-study Ho Chi Minh Thought is important in educating the student generation's awareness of protecting the Fatherland. First of all, it helps students access Ho Chi Minh Thought in a convenient and effective way. AI also has the ability to provide feedback immediate and accurate feedback, helping students understand deeply and correctly the concepts and values in Ho Chi Minh Thought.

3. CONCLUSION

The application of AI in teaching Ho Chi Minh Thought brings many great benefits to educating students about the awareness of protecting the Fatherland. It can be concluded that the teaching of Ho Chi Minh Thought is completely suitable when combining AI support tools to enhance students' creativity. AI tools suitable for organizing the teaching of Ho Chi Minh Thought: Chat GPT, Fliki, Dreamstudio.ai; Zero GPT.com can provide ideas, suggestions and graphic designs. However, when using AI tools, teachers need to make appropriate adjustments to reduce the limitations that AI tools bring in today's digital age. In short, the application of AI in teaching Ho Chi Minh Thought not only brings benefits in terms of personalization and attractiveness but also creates a flexible and convenient learning environment, thereby enhancing students' awareness of protecting the Fatherland and understanding of Ho Chi Minh Thought.

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ENGLISH TEACHERS' CONCEPTIONS OF ASSESSMENT: A CASE STUDY AT A PUBLIC UNIVERSITY IN VIETNAM

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ABSTRACT

Conceptions of assessment are critical to teachers since they impact their teaching, students' learning, and the curriculum. This qualitative study implemented the theoretical framework of Brown (2004), comprising four purposes of assessment: improvement, school accountability, student accountability, and irrelevance. The results showed that the teachers conceive of assessment in different ways. Some showed limited understanding of assessment, while others demonstrated comprehensive theoretical and practical knowledge. Also, the research findings are expected to be helpful in the construction of a professional development program aiming at improving language teachers' assessment literacy at a public university in Vietnam.

Keywords: conceptions of assessment, improvement, accountability, irrelevance

1. INTRODUCTION

Language testing and assessment have played a vital role in the development of curriculum as well as the quality of teaching and learning. Also, the teachers and other stakeholders use the assessment results to adapt their teaching and policies. As a result, all stages in the assessment process, from designing a test to interpreting the scores, need to be done carefully. Language teachers' assessment competence helps them practice assessment procedures effectively so that students can exploit their strengths and weaknesses, and the teachers themselves can adjust their teaching to help students get better results.

Over the past decades, teachers' conceptions of assessment have received much attention since teachers' understanding of assessment will lead to how they practice assessing in class (Brown et al., 2019). In addition, conceptions can also influence their classroom practices, such as instructional techniques and motivational strategies (Barnes et al., 2017). With significant changes and insights into learning and teaching methods, EFL teachers also have to confront developments of testing and assessment in their classroom practice (Dayal & Lingam, 2015). Despite its vital role in language teaching and assessment, teachers' assessment levels remain functional, and they are not confident in designing and selecting appropriate assessment tasks (Mertler, 2009; Xu & Brown, 2016). Several common reasons clarified in previous studies were that insufficient language assessment content integrated into training programs for pre-service teachers (Jeong, 2013), limited training courses for in-service teachers (Crusan et al., 2016), and failure of policymakers and administrators in ensuring teachers are well trained before starting their teaching careers (Coombe & cs., 2020).

Language teachers and school administrators must also deal with similar problems in Vietnam. Some researchers argued that teachers' assessment performance is highly traditional and not innovative; test-based approaches are still common in institutions, and scoring systems are not meaningful to students because they rarely receive feedback (Hoang, 2010; Nguyen, 2013; as cited in Bui, 2021). In recent years, following the switch to communicative language teaching and assessment worldwide, Vietnamese authorities also require a communicative factor in assessing language (MOET, 2014, cited in Ngo, 2022). Nonetheless, competence-based assessment is prevalent in tertiary English major programs, of which four skills are directly assessed. Moreover, the quality of the exam questions still leaves much to dispute (Ngo, 2022).

This study was conducted at a public university in Vietnam, where the English training program was launched in 2017, and teaching and learning quality development has always been paid much attention. The undergraduate English aims to train bachelors with good knowledge and proficient use of English (equivalent to C1 level according to the Common European Framework for Reference), professional skills, manners, political quality, ethics, good health and high adaptability to be able to work effectively in specialized areas of English, meeting the requirements of the socio-economic development process and international integration of the country. Twenty English teachers at this university have ten to thirty years of teaching experience. Among them, only one holds a Ph.D. position, and others have an MA. All the teachers have joined at least one language assessment training course since working at the university. However, they unofficially admit they need to be more confident in designing tests and showing their understanding of assessment principles or purposes.

For these reasons, this small study explored the teachers' conceptions of assessment according to the model Brown (2003) proposed for four assessment purposes: improvement, school accountability, student accountability and irrelevance. Twenty teachers were divided into two groups according to their knowledge of assessment. The teachers' assessment knowledge data were collected from a questionnaire, which will be presented elsewhere. The teachers chosen from two groups were invited to participate in semi-structured interviews. The qualitative data from in-depth interviews were analyzed to answer the question: *What conceptions of assessment are held by teachers?*

2. LITERATURE REVIEW

2.1. Teachers' conceptions of assessment

According to Black and Wiliam (1998), the first concept of assessment was mentioned in the premise that it should be used to enhance teaching in class. Barnes et al. (2014) indicated that this conception of assessment is closely connected with formative and diagnostic assessments. In a broader meaning, Thompson (1992, p. 30, as cited in Dayal and Lingam, 2015) defined conceptions as “a more general mental structure, encompassing beliefs, meanings, concepts, propositions, rules, mental images, preferences, and the like”. Meanwhile, Xu and Brown (2016) proposed that teacher conceptions of assessment included cognitive and affective dimensions. The former indicates teachers' beliefs when they assess students' performance, while the latter refers

to their emotions towards assessment. Sometimes, the term *conceptions* has been used interchangeably with beliefs and perceptions (Muianga, 2023).

According to Opre (2015), in the context of teaching and learning research, the researchers consider the term *beliefs* the most suitable. However, in the relationship with assessment, the term *conceptions* tends to describe the variable interests. In this study, the researcher followed Brown's model (2003), in which conceptions of assessment are clarified based on the four purposes of assessment: improvement, school accountability, learner accountability, and irrelevance. He argued that the structure of teachers' conceptions is not uniform and straightforward but "multifaceted and interconnected" (p.3). Among other factors, the context and the culture where teachers work can influence teachers' conceptions. It leads to the fact that teachers can hold not only a single one but multiple conceptions of assessment (Brown, 2003; Scott, 2015).

2.2. Brown's four-factor model of assessment conceptions

Brown (2003) proposed a conceptual framework for the assessment. Muianga (2023) indicated that this framework consists of three major purposes of assessment: improvement, school accountability and student accountability. The last component, *irrelevance*, is considered a counter-purpose.

The first conception also mentioned that the most critical purpose of assessment is the improvement of teaching and learning. It comes from formative assessment or 'assessment for learning' (Brown, 2003). In this process, student learning should be improved through assessment thanks to helpful feedback from teachers and students' engagement in the assessment process, such as self-assessment, peer assessment or participation in designing and developing rubrics for assessment. Regarding teaching improvement, assessment should be used to enhance instruction in class. The teachers are encouraged to use various techniques and actively participate in formative and diagnostic assessments.

Harris and Brown (2009) state that the other three conceptions refer to formative assessment. The second component defines teachers and school accountability, which gives detailed information about the quality of education. This means that test scores can show evidence of the quality of schools and teachers and how well they meet the requirements of parents and society. However, Brown (2003) stated that this conception may produce positive and negative results. On the one hand, teachers' quality and assessment literacy can be enhanced, enhancing students' learning competence. On the other hand, it may create a poisonous environment where scores are considered the most critical and teachers have absolute power in grading students and teaching the test.

The third conception views assessment as making students accountable and asking them to be responsible for their learning. They must obtain the necessary qualifications to achieve the expected level through scoring, grading or certification. At that time, parents and employers will receive such assessment information (Harris & Brown, 2009). In brief, students should participate in self-managed learning to prepare for higher learning, training or employment opportunities (Brown & Hirschfeld, 2008).

The last conception shows assessment's irrelevance to teaching and learning when it adversely affects teachers and students. Specifically, teachers are forced to conduct unreliable

assessments because they must confront the pressure of high student scores. Teaching in class may focus on achieving desired results in the test rather than improving students' learning. Consequently, students' abilities could be neglected and provoke their anxiety instead (Opre, 2015).

In summary, teachers could hold multiple conceptions of assessment simultaneously. For example, they could understand assessment as a method to improve teaching and learning and define school accountability with parents, employers and society (Brown, 2003; Opre, 2015;).

2.3. Previous studies

Over the past decades, conceptions of assessment have always been considered critical among researchers. Various studies have been conducted in different contexts with different research designs and approaches to explore what conceptions teachers hold. The instruments utilized in those studies also varied, including questionnaires, interviews, periodical reports, journals, reflections, and observations.

First and foremost, conceptions of assessment were explicated in Brown and his colleagues' studies. Specifically, they examined 26 New Zealand teachers' various purposes in a phenomenographic study in 2009. This study discussed seven purposes and found that teachers held complex conceptions of assessment. Meanwhile, another study on Queensland teachers published in 2010 reported that primary teachers considered teaching and learning improvement the main purpose; meanwhile, secondary teachers regarded student accountability as more prevalent. The same result was shown in another study published in 2011, in which Hong Kong and southern China teachers strongly associated accountability with improvement.

In a study conducted in 2011, Remesal interviewed fifty primary and secondary school teachers and found out that the teachers also showed their conceptions of accountability and learning improvement. However, they had to face difficulties in implementing assessments for learning practices. Similarly, Dayal & Lingam (2015) explored seventy Fijian teachers' conceptions of assessment by asking them to write a reflection on an assessment course. They concluded that most in-service teachers see assessment as formative; meanwhile, pre-service teachers held an assessment of learning view.

Studies on teachers' conceptions of assessment have also shared the same results in recent years. Teachers primarily conceive assessment as improvement and accountability & cs., 2021; Muianga, 2023; Takele & Melese, 2022; Rural, 2021). The emerging instruments used in these studies are questionnaires, classroom observations, documents, and in-depth interviews. Significantly, mathematics teachers from different schools in the National Capital Region do not believe that assessment is irrelevant (Rural, 2021). In contrast, the teachers from Ethiopia slightly agreed with the irrelevance conception of assessment (Takele & Melese, 2022).

In summary, the conceptions of accountability and improvement have dominated previous studies. Meanwhile, the concept of irrelevance has been reported in a few studies. It has also been noticed that teachers do not individually hold the four conceptions assessment but do it in accordance with other conceptions.

3. METHODOLOGY

3.1. Research design

This paper presents the results of phase two of a study using explanatory sequential mixed-methods design. The study was carried out in two phases. In phase one, the questionnaire was delivered to teachers so that they could self-evaluate their knowledge of assessment. In phase two, the teachers participated in in-depth interviews to clarify conceptions of assessment. As mentioned, the data from phase one will be presented in another study. This study only reported the interview results, whose data were analyzed to answer the research question: *What conceptions of assessment are held by teachers?*

3.2. Research setting

This study was conducted at a public university in the North of Vietnam. The English training program was launched in 2017, so teaching and learning quality development has always been paid much attention. Twenty English teachers have ten to thirty years of teaching experience. Among them, only one holds a Ph.D. position, and others have an MA. As mentioned, they all have more than ten years of teaching experience, yet they are not confident in designing language tests and making assessment decisions. Apart from teaching, they are involved in administrative work and course design.

In the first phase of the study, explicated in another paper, twenty English teachers answered a questionnaire of fifty-six questions to self-evaluate their language assessment literacy on three categories of knowledge, practices and principles. After collecting and analyzing quantitative data from the questionnaire, the respondents were categorized into two groups according to their high or low level of language assessment knowledge. Ten interviewees' ages, qualifications and teaching experiences were also considered when they were chosen to participate in the study's second phase.

3.3. Instrument

The interview used in this study aimed to clarify the questionnaire responses in phase one. Semi-structured interviews help the researcher and the respondents be more flexible by including open-ended and closed questions. The researcher chose five representatives from each group to interview. The two groups' conceptions of assessment were assumed to be different. After getting permission from the teachers, the interview was conducted. An interview protocol was delivered to the participant one day before the interview. The interview had three fixed questions about teachers' conceptions of assessment purposes. The researcher or participants asked further questions or gave comments for clarification during the interview. The interviews were conducted face-to-face and lasted about 20 – 30 minutes. They were recorded and transcribed later.

3.4. Data analysis

The qualitative data from the interviews were analyzed using the deductive thematic analysis approach. The data was coded and then grouped into emerging themes. The study used categories

of conceptions of assessment presented in Brown (2003). Thematic analysis is the most commonly used in analyzing qualitative data. In this study, the researcher followed the instructions of Braun et al. (2017), guiding the process of analyzing data. The following example illustrates the coding process. While reading transcripts of participants' answers about the importance of assessment, I found some repeated keywords: *high grades/scores, review, consolidate, upgrade level, and enhance competence*, so the code "improving" was assigned and put in the central theme of "Learning improvement".

4. RESULTS

4.1. The information of participants chosen for interview

After collecting and analyzing data from the questionnaire, twenty teachers were divided into two groups according to their high or low level of assessment literacy. Group 1 consists of teachers with high levels of assessment literacy, and the rest belongs to Group 2. Then, ten teachers were chosen to participate in the interviews. Table 1 below demonstrates the demographic information about ten participants.

Table 1. Overall information of the interviewees

Participants	Years of teaching experiences	Qualifications	Self-evaluation level of assessment literacy
T1	30	PhD (MA abroad, PhD in Vietnam)	High
T2	20	MA (abroad)	High
T3	10	MA (abroad)	High
T4	15	MA (Vietnam)	High
T5	15	MA (Vietnam)	High
T6	12	MA (Vietnam)	Low
T7	13	MA (Vietnam)	Low
T8	10	MA (Vietnam)	Low
T9	15	MA (Vietnam)	Low
T10	15	MA (Vietnam)	Low

4.2. Teachers' understanding of assessment

Most teachers shared the idea of assessment as a tool to evaluate students using different techniques and methods. The most common techniques mentioned were *attendance, presentations* and *assignments*. However, only a few teachers mentioned *formative* and *summative assessment*, which they often applied in class. These teachers also understood these two types of differences and how to use them. The answers to the assessment definition of two representatives were cited below:

T4: *Assessment includes both formative and summative assessment. Teachers can improve their teaching through formative assessment, and students know what to review and consolidate for the final test.*

T6: *Assessment uses different techniques and methods like tests, presentations, and assignments...to get midterm or final scores and decide whether students pass the subject.*

The two teachers from group 2 held a "negative" conception of assessment when they considered assessment as a way to “threaten students” and “urge students to study”. Specifically, when being asked about assessment, they responded immediately as follows:

T7: *Assessment is a way to urge students to study because many are lazy and will not study if they are not assessed by score.*

T9: *I think assessment is a way to assess and threaten students because many won't attend class and study if the subject does not relate to scores.*

Among ten teachers, only one teacher with PhD qualifications talked about the role of assessment in designing and developing curriculum, teaching and learning quality. She emphasized using assessment results to evaluate the effectiveness of teaching and learning activities and the curriculum.

T1: *Assessment, with different techniques and methods, is a good way to assess curriculum, teachers and students. It plays an important role in this triangle, helping leaders, stakeholders, teachers, and students make instant and suitable adaptations.*

4.3. Improvement conception

Among the four assessment purposes, improvement emerged with both teacher and student improvement categories. All participants considered learning improvement to be the first and foremost purpose of the assessment. They agree that assessment results would help students know where they are, what they have learnt, have not, and need to learn. In addition, the participants also reported that when teachers look at assessment results, they will know what kind of knowledge or skills their students have at an inadequate level so that they have suitable changes in teaching methods and in-class activities. The teachers from Group 1 shared the same conception of teaching and learning improvement as follows:

T2: *I think the main purpose of assessment is to help students improve their learning. If students continue learning without tests and assessment, they won't know how good or bad they are.*

T3: *The purposes of assessment include improving teaching and learning. For example, teachers can change their teaching methods or in-class activities so that students can understand the subject completely. Students can base on their results to know where they are and what they must revise to get a higher score.*

The teachers in Group 2 also confirm this power of assessment in improving teaching and learning.

T7: *I think the main purpose of assessment is to help students recognize their level to know what they have achieved and what they haven't known. They must plan to review and improve their results when they know where they are.*

T10: *Assessment helps students know their level, what they acquired, what they haven't known, and what they have to relearn. Teachers adapt their teaching methods and content so students can achieve better results when assessed.*

More importantly, when teachers were asked to specify what they had done, only a few teachers in group 1 mentioned the requirements to improve students learning from assessment. The most important thing is to have immediate feedback from teachers. However, it is challenging for them to realize it. A teacher in group 1 stated that working overload had prevented her from giving instant comments to students.

T1: I clearly understand that to help students improve their learning, teachers must give feedback as soon as possible. However, it is nearly impossible. With GE, we have about 50-60 students in class, so I cannot ask and give feedback to each student. With English-majored students, although the number of students in each class is 30 at most, I have to teach about 5-6 subjects each semester, so I have to do a lot of paperwork and do not have enough time to give detailed feedback on each student's product.

Sharing the same viewpoint on giving feedback, T5 stated that *About giving feedback, I don't always do it in class. If the presentation is used to assess, I will give some comments, but students in this group cannot improve anything about their presentation because they don't have any chances to present again.*

4.4. Accountability

Regarding school and student accountability, the teachers in group 2 find it difficult to express these terms, though they have ideas about them. Teachers 8 and 10 shared the same opinions when they talked about the effects of assessment results on schools and students, especially on the quality of training.

T8: Well, er....uhm...I think assessment might affect teachers and schools because if the students' scores are too low, people will raise the question of the quality of training program or teaching and learning quality

T10: I think assessment also affects schools and students. Some students feel excited and more confident when they get higher scores than their friends. In contrast, students with low scores will feel worried and unconfident. Students will be divided into different groups according to their level by that time.

Another teacher from group 2 was reluctant when discussing school and student accountability. She admitted that sometimes she had to increase some students' scores so they could pass the subject or even adapt the rubrics to improve students' scores. She shared *that I wonder whether assessment affects school because we sometimes have to give bonus points so they can reach 4 and pass the subject.*

On the contrary to teachers in group 2, teachers in group 1 clearly stated accountability conception. They agreed that assessment is an excellent way to evaluate school and students.

T1: Assessment is also a good channel for society, particularly parents and employers, to understand their applicants. Although scores cannot decide everything, they are good indicators for assessing teaching and school quality.

T4: Assessment is a good way to categorize students into different groups according to their levels. When teachers assign grades to their students, assessment will determine how much students can meet the course requirements.

4.5. Accountability and irrelevance

The teachers coming from two groups held mixed conceptions of accountability and irrelevance. They admitted that although they understood the principles of language testing and assessment, designing the test and interpreting the test results, they were forced to act against their beliefs. The answers below explain their statements:

T3: *When I design the test of some subjects like reading four or listening 4, I have to combine them with materials at a lower level so that students can do the tasks. If I choose authentic materials at the required level, many students will get low scores and need help to pass the subject. Although there is no official regulation, we teachers understand that we must let as many students pass as possible.*

T5: *Students' scores are used as a reference to know about teaching and school quality. However, there is a fact that students are very lazy; although they are taught and practised in class, they don't autonomously self-study at home, so they can't get high scores in exams. At that time, I myself have to calculate again so that they can pass.*

Another teacher shared his experience of considering a lot when giving student scores. He clearly understood that he had to follow the rubrics when assigning grades, but he sometimes gave higher scores to the students who actively participated in class. This happens when he assesses speaking or writing skills or asks students to do assignments. *I know that giving correct scores is teachers' responsibility, but in some exceptional cases, I want to break the rules and give some students higher scores to achieve higher levels.*

One teacher from group 1 also shared the same situation with T8. She indicated how students behaved in class would affect their scores on midterm and final tests. They will receive the same score as lazy students, but she will reconsider assigning higher grades to hard-working students. *I understand I have to follow the rubric when giving scores to students. However, I want to give a tiny reward to students who have made great efforts during the semester by assigning them a higher score than the actual. They deserve it because midterm and final tests account for more than attendance scores.*

Also, teachers mentioned the interference of assessment with teaching. From their perspectives, although all subjects have detailed specifications of teaching content, they have to spend a considerable amount of the course to guide students and practice for the test. The teachers shared the same thoughts about teaching to the test, which might be a part of the cultural feature in Asian countries where the societies pay attention to the test results rather than what students achieved from their learning.

T2: *I have to spend more time teaching to the test with all subjects. My responsibility is to teach students the necessary knowledge and skills they need to achieve and to get familiar with the test format.*

T4: *In each lesson, I must focus and emphasize the tasks assigned in the midterm and final tests. Moreover, students will repeatedly practice these tasks to remember how to deal with them in the tests.*

T6: *I still follow the syllabus that was delivered to students at the beginning of the semester; however, I try to give them more homework, which is similar to the tasks in the tests, so that they can get high scores.*

4.6. The importance of assessment

After discussing the different purposes of assessment, the participants were asked to share their viewpoints on the importance of assessment. All ten teachers agreed that assessment is critical for the following reasons:

Assessment helps to improve teaching and learning. At the same time, it is a good source of reference so that teachers can adapt the program's content or change assessment techniques to help students get better results and meet the course objectives. (T8)

Thanks to assessment, teachers can improve their teaching, and students know what they have to review and consolidate for the final test. (T9)

A teacher from group 1 also gave more comments and considerations on this point. She emphasized that not only teachers but also students and other stakeholders must be aware of the importance of assessment.

Teachers, students, and other stakeholders have to recognize its importance. Sometimes, teachers want to save time, so they choose and design tests that are unsuitable for the course objective, making the test unreliable. Moreover, many students study to pass the subject, so they cannot improve their learning. They learn by heart and then forget all very quickly. (T1)

5. DISCUSSION

This small-scale study investigated language teachers' conceptions of assessment. Findings from the interviews with ten teachers who self-evaluated as having high or low levels of assessment literacy helped to answer the research question: *What conceptions of assessment are held by teachers?*

First and foremost, the teachers hold complex conceptions of assessment. The teachers' answers mentioned Four categories of assessment purposes: teaching and learning improvement, school accountability, student accountability, and irrelevance. The results are compatible with previous ones from Brown (2009), Remesal (2011), and Rural (2021), in which teachers do not hold any individual conception but are by other conceptions. Once again, these results are confirmed in a public university of an EFL context.

Among the four purposes of assessment, the participants considered teaching and learning improvement the most critical when they mentioned it at the beginning of their answers. This finding was similar to previous research, which indicated that teachers' conceptions of assessment influence their assessment practices (Remesal, 2011; Xu & Brown, 2016). The teachers showed their complete understanding when talking about the role of assessment in the teaching and learning process. Thanks to assessment results, students know where they are and what they should do to achieve the required level of the course. Teachers should be aware of students' weaknesses to make immediate adaptations and help their students improve their results.

In previous studies, teachers conceive assessment as improvement and accountability (Monteiro & cs., 2021; Rural, 2021; Takele & Melese, 2022; Muianga, 2023). In contrast, this study reveals teachers' mixed conceptions of accountability and irrelevance. The participants clearly understood the principles of language testing and assessment. However, they admitted that sometimes they had to ignore these principles to make some adaptations in designing the tests and assigning scores to students. The teachers believe their actions are taken to keep schools and students accountable. Although assessment results are not the most important thing, they help students build a better image and document it to the employer, and the school will have a better image in society. This result might be affected by Confucianism and other cultural factors, of which education is believed to pursue economic, political and social achievements in society (Ngo, 2022).

The last significant finding in this study is that teachers have a clear conception of irrelevance, which has yet to be reported in previous studies (Takele & Melese, 2022). Regardless of how self-evaluation on assessment literacy is, the participants from the two groups showed their growing awareness of irrelevance when assessment forces them to teach in a way against their beliefs. They also clearly recognize that assessment has been interfering with their teaching because they have to teach to the test to assure their students the best results in the exams instead of making all efforts to help students achieve the course objectives. This finding could be partially explained by the fact that the responsibility of institutions remains to measure students' proficiency after each term and the English requirement for graduation (Ngo, 2022). This result also calls for professional development programs in assessment, which should be applied to the teachers and other stakeholders so that positive conceptions of assessment might be developed and substantial changes might be implemented in the future.

6. CONCLUSION

To sum up, the paper has answered the research question. Although ten teachers who participated in the qualitative phase of this study self-evaluated their assessment literacy at different levels, they held mixed conceptions of assessment. Few teachers showed reluctance in expressing or defining their assessment knowledge, yet all teachers shared their views on different assessment purposes: improvement, accountability and irrelevance. This study reveals some contrasting results with previous studies and explores teachers' conceptions of assessment in an EFL context. Also, the research findings are expected to be helpful in the construction of a professional development program aiming at improving language teachers' assessment literacy at this university.

Nevertheless, this small-scale qualitative study is not devoid of limitations. Firstly, the sample size was small, which reduced the generalization of the study's results. Second, this study was conducted in a public university in Vietnam. Therefore, drawing an overall picture of assessment in the EFL context is impossible. In addition, adopting the interview as a single research instrument in phase two of the research might lead to subjective answers. It is encouraged to conduct other studies in different contexts with more significant samples to clarify teachers' conceptions of assessment more comprehensively and bring positive results to Vietnam's English assessment system.

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CHARACTERISTICS OF GLASS PAINTING ART IN VIETNAM IN THE FLOW OF CULTURE AND HISTORY

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ABSTRACT

Glass painting in Vietnam is in the constant movement and development of society. The development of glass painting art in Vietnam goes hand in hand with the flow of Vietnamese art history. With its existing values, through generations, glass painting contributes to affirming the social life and cultural elements of the nation through the stages of development. The themes expressed on glass painting, along with the elements of visual art forms on glass painting, have proven that this is a decorative art genre, with aesthetic value, serving the religious, belief, spiritual, and art enjoyment needs of many classes of people in society. Glass painting represents the ideological, historical, and aesthetic values in the development process of this art genre. Within the scope of the study, the article uses the inheritance method, the synthesis method, collecting, analyzing documents, building a foundation, and classifying data on the elements that make up the art form of stained glass in Vietnam to clarify the research content on the visual language of stained glass in Vietnam in the flow of Vietnamese culture and history.

Keywords: Visual language, value, stained glass art

1. INTRODUCTION

Form is a material expression, the result of using elements such as composition, color, lines, shapes, techniques, means used, etc. Artistic form refers to the way of arranging or organizing the whole of a work or artistic product.

A work or product often has artistic forms such as: composition, lines, shapes, colors, space, materials, techniques of expression, etc. The artist applies these elements, combined with artistic principles, to create a work or artistic product. Not every work of art contains all of the above formal elements, but there are usually at least 2 to 4 elements present in a work of art. For example, in the field of sculpture, a work of art or product consists of formal elements and spatial elements in it, because sculpture is three-dimensional. But these two elements can also be created when they appear in two-dimensional works of art or products through the use of perspective and shading.

Artistic form plays an important role, because an artist cannot create art without using at least some of those elements, without form - no work, product - no art. Besides, the artistic form of a work or product allows the observer to understand what an artist has done, analyze what is happening in it, and convey the artist's thoughts in a common language - the elements of art.

Any form of art contains certain elements of visual language, and the art of stained glass in Vietnam, in the flow of history and culture, also has its own visual language. So what elements is the visual language of stained glass art in Vietnam expressed through? Based on the data obtained from existing research projects, with the inherited research method, the method of synthesizing

and analyzing documents, the research results of the article will answer the research question that has been raised. At the same time, the research results of the article are expected to be a useful source of information on the art of stained glass in Vietnam in the field of art theory and history.

2. LITERATURE REVIEW

In Vietnam, the number of published scientific works on glass painting, glass painting art, and visual arts on glass painting is not much. Scientific works with the main research subject of glass painting art, specifically visual arts on glass painting, are very few, most of the works often refer mainly to the history of glass painting, introducing glass painting. Some scientific works can be mentioned such as: The book *Monumental art* by the group of authors Trieu Thuc Dan, Nguyen Quan, Pham Cong Thanh, Nguyen Tran [6], mentioning the genres of monumental art in the history of human culture, including the genre of glass painting used in Western Gothic churches. The article “Glass painting in the royal tombs” in the book *Culture, Hue Fine Arts*, author Chu Quang Tru [12] introduces some glass paintings in the Hue royal court (Some documents call hand-painted glass paintings in Hue as mirror paintings). The article “Stained Glass Art” by author Nguyen Ha [7], introduces in general about stained glass, the genre of stained glass in churches, names some previous and famous stained glass works of the Soviet Union, some works, stained glass products in some projects in Vietnam. *Southern stained glass, art painting*, author Huynh Thanh Binh [3], is a specialized document about the genres of stained glass in the Southern region, Vietnam. The author introduces the origin, the painting method of stained glass in the South. The article “Vietnamese features in stained glass painting”, by author Huynh Quang Cuong [5] briefly introduces the history of the development of stained glass painting in the world, a brief history of stained glass painting in Vietnam, the article outlines the process of Vietnamization in stained glass painting. The author also said: “Along with oil painting, mosaic stained glass painting is a genre of painting with materials completely imported from Europe. Like the painters of the Indochina College of Fine Arts, the later stained glass artists used Western materials to convey the Vietnamese soul through the theme of daily life and culture of Vietnamese ethnic groups” [5, p. 360]. The article “Special features of stained glass paintings”, author Chu Manh Cuong [4] introduces the development process of stained glass paintings in the world, according to which, from early on, churches used colored glass and stained glass paintings to decorate and bring light to the church space.

It can be said that the above research works have the research object of stained glass paintings from the perspective of history, religion, and the formation of the stained glass genre. There has not been any scientific work that has in-depth research on the artistic elements of stained glass paintings in Vietnam.

3. METHODOLOGY

To clarify the research problem, the article uses a number of research methods, such as:

Method of synthesis, collection, collection, and analysis of documents: to systematize documents, images... directly and indirectly related to the art of glass painting in Vietnam. From there,

the article classifies and evaluates documents, opinions, and comments on glass painting in Vietnam.

Fieldwork method: the article conducts fieldwork such as surveying, taking photos, and collecting information and data in order to summarize and systematically collect documents on glass painting. From there, it allows the author to have a more accurate view of the formation and development process, as well as the basic artistic characteristics of glass painting in Vietnam.

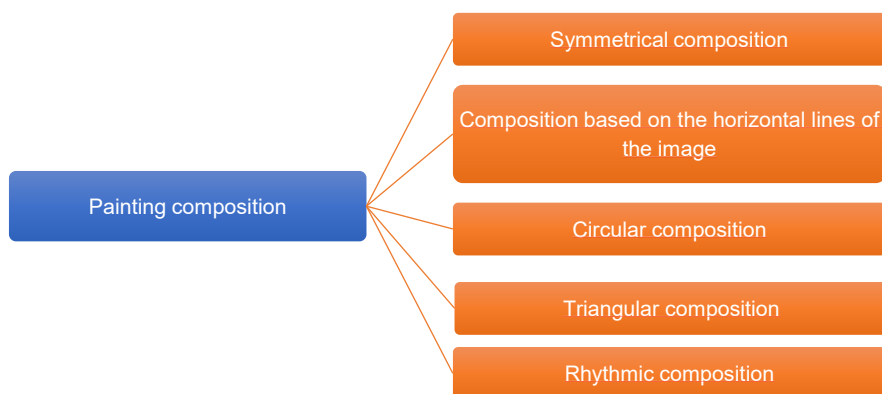
Inheritance method: the article uses previous research of a number of other fields related to fine arts, such as cultural studies, historical science, etc., to clarify the role and characteristics of glass painting.

4. RESULTS AND DISCUSSION

Through the research results, the article identifies the visual language of glass paintings in Vietnam expressed through elements such as: composition, color, lines and space on glass paintings. In each element, there are characteristics that are unique to the glass painting genre. These basic elements have contributed to creating the appearance of the artistic form of glass paintings and products in Vietnam.

Composition on glass paintings

In the glass painting art genre, glass paintings and products are constructed according to the composition, according to the intention of the painter, the artisan who creates and expresses the glass painting. Through the analysis of glass paintings and products, the author identifies the composition of glass paintings and products as similar to many other genres of paintings, often constructed according to the following compositional forms (Figure 1).



Source: author of the article

Figure 1. Common compositional forms on stained glass

Symmetrical composition

Symmetrical composition is often shown in church glass paintings. Church glass paintings often have a symmetrical composition because most church buildings are built according to, or based on, Gothic architecture, using many windows to get light, windows, and doors that develop in height. Therefore, most church glass paintings use a symmetrical composition. Church glass

paintings use a symmetrical composition in the vertical direction in a circular or rectangular frame with a pointed tip, a round tip according to the frame of the window, door in the architecture of churches.

Composition based on the horizontal line of the image

Composition based on the horizontal line of the image is a composition in which the main image of the painting is arranged horizontally on the painting. Composition of the painting according to this method makes the viewer's eyes seem to run along the image in the painting. This composition is often used in the line of glass engravings on the theme of the Mother Goddess in Vietnam.

Circular composition

Circular composition is a basic composition in painting. The details and images in the painting are arranged in a circular manner, creating a sense of focus on the image, on the typical image and character. All the details and images in the painting are concentrated, gathered, bringing unity, tightness and completeness to the painting. The circle is a shape of directionless movement, the circle evokes movement, therefore, the circular composition brings a sense of rhythm, flexibility, and cyclical rhythm between the details, the image blocks and the entire painting, making the entire painting come alive. Circular composition is used in glass engravings on the theme of human life, glass paintings of Buddha, mandala glass paintings, etc.

Triangular composition

Triangular composition is a basic composition, used a lot and from the early days of the art of painting. Triangles with edges evoke the certainty and solidity of the image in the painting. This type of composition not only brings a feeling of strength but also brings the effect of a tight, harmonious composition [2]. In the art of stained glass in Vietnam, the triangular composition is widely used in stained glass paintings that describe many components in the painting, or at least three or more components in the painting. Paintings with this composition form, the proportions of the three main components in the triangular composition are similar to each other, without too much difference in each component. The line of stained glass paintings, hand-painted stained glass paintings with themes of folklore, realism, describing human life, describing nature, trees, flowers and leaves often uses this triangular composition form.

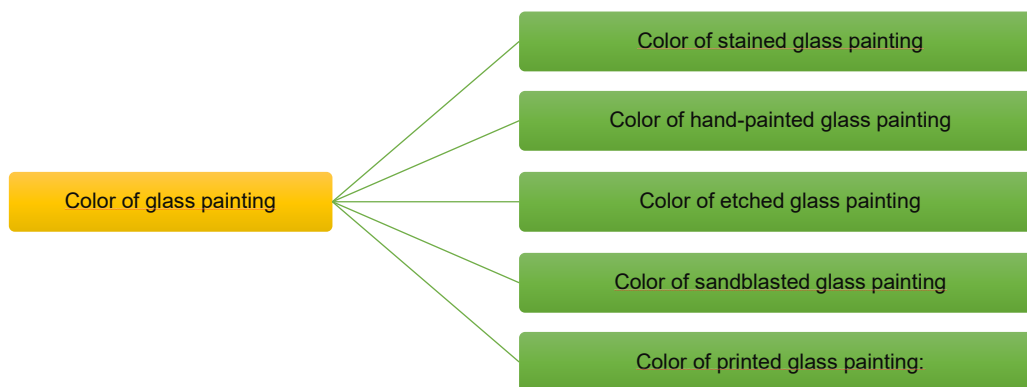
Rhythmic composition

Rhythmic composition is a familiar composition form used by painters and artisans. Rhythm brings the cycle, the law of life, manifest in life, present in nature, in the universe. In some art genres such as painting, architecture, sculpture, rhythm has been used by the creator to express the rhythm in ideas, in the subconscious, and in the natural movement habits of people [8]. Rhythmic composition is often used in stained glass paintings with themes of decoration, landscape, reality and people.

Color in stained glass

Color in stained glass is an important factor, contributing to the success of the work, stained glass products, because it creates the viewer's perception of the stained glass work. "Color is one of the most expressive factors in terms of its nature, directly affecting our emotions" [11, p. 177].

The color factor in stained glass is created in its own way, in each line of stained glass, there is a difference in the way of making and expressing colors on stained glass. The difference in color can be: Due to the concept, symbolic meaning of color of each line of painting, or due to the expression technique, the color material used, the intention of the creator, expression... (Figure 2).



Source: author of the article

Figure 2. Colors in stained glass

Color of stained glass paintings

Stained glass paintings were first used in Catholic church architecture. Color is an important element used in stained glass decoration and the purpose of spreading the Bible to parishioners. The colors used on stained glass paintings are usually blue, red, yellow, green, black, brown... These colors are commonly used because when diffused under light, they create a sparkling and relaxing feeling inside the church space.

Color of hand-painted stained glass paintings

Hand-painted folk glass paintings of Hue citadel, often about worship paintings, four seasons paintings, landscape paintings... the colors are expressed according to each line of paintings. In the paintings of Quan Ba and Quan Ong, which are heavily influenced by Sinh village paintings, the colors in the paintings use contrasting colors such as red, orange, yellow, green, etc. As for the Four Noble Ones and landscape paintings, the colors used are darker, usually dark green, dark blue, black, brown, etc.

In the colors of hand-painted stained glass paintings in the South, artisans and painters often use red, stick gold and silver litmus paper and apply the water-based coating technique to create lines or a background that shines with silver and adds sparkle to the painting. Especially in the stained glass paintings of New Year greetings and opening paintings, red is often used, combined with gold and silver litmus paper to add sparkle. Because according to the people's concept, red and yellow symbolize abundance and fullness. There are many types of paintings, typically pink, blue, white, yellow, blue... but there are also types with black or red backgrounds, patterns and motifs can be pasted with mother-of-pearl to create a reflective silver-white color...

Colors of glass engravings

The line of glass engravings shows many Buddhist and religious themes. This is a line of glass paintings that serves the religious and spiritual needs of the people. Therefore, the colors shown in the paintings are almost no different from other types of paintings, only different in the technique of expressing colors. Because the colors of the characters and elements in the paintings are symbolic in Buddhism as well as in beliefs and spirituality, they have a unified and unchanging meaning. In addition, glass engravings also show the themes of nature and human activities. The colors shown reflect real life, such as what colors grass, trees, flowers and leaves in nature are, when shown on glass paintings, the colors are conveyed by artists and artisans true to vivid reality.

Sandblasted glass painting colors: in Vietnam today, sandblasted glass paintings do not show colors, only the opaque white color is created after the white sand is sprayed with strong pressure on the glass surface.

Color of printed paintings on glass: in Vietnam today, printed paintings on glass are made using UV printing technology, specifically using flat UV printing method - advanced printing technology in the field of digital printing. Printing on glass using this technology is shown by spraying directly onto the surface of the glass, using ceramic ink, ceramic color adheres to the glass material. Immediately after printing on the glass, the glass is immediately dried with UV light (LED UV or UV mercury) with a blue-purple glow. UV printing technology uses ceramic ink, allowing the use of many different colors in the painting, unlimited color combinations, and the color of the painting printed on glass is realistic compared to the content of the painting on the computer. In addition, the color of the painting printed on glass is sharp, has permanent color fastness, and is friendly to users and the environment.

Lines on stained glass

Lines are the basic element of art, in stained glass art, the line element is clearly shown in stained glass and hand-painted stained glass. Without the appearance of the line element, these two types of stained glass would not be able to create the works and products that have existed. "Lines: The basic means of communication, are the most familiar artistic elements, because we use them every day when writing. In painting, lines are used to sketch, often in preparation for large works" [11, p. 97]. "Lines appear in paintings clearly, broken or continuous, used to sketch, outline, define shapes... In painting, images are expressed through color blocks and lines" [10, p. 73].

Stained glass is a type of painting created by the artist, artisan, or craftsman joining colored glass panels together according to an existing drawing. The stained glass panels are fixed together by lead strips and metal strips. These strips play a role in holding the glass panels together, in many cases, the strips become the outline elements for the details in the stained glass painting. The size of the painting is different, the size, thickness of the lead strips and metal strips are also different. The color of these strips is usually black, sometimes dark gray. In stained glass paintings, lead strips and metal strips have two main functions: they are the elements to create the image array, the character array, the detail array, the pattern array in the stained glass painting, and they are the main elements to hold the glass panels tightly, ensuring the technique and content of the painting. The color of the metal strip is black, it is the line to clearly distinguish between the image arrays,

characters, details, and patterns in the painting. At the same time, metal strips do not absorb light, so the lines of the metal strips are also a factor that determines the color of the glass paintings, contributing to balancing the light effect through the glass paintings in a more harmonious way.

In addition, the lines of the metal strips on the stained glass paintings also have the effect of increasing the clarity of the images on the stained glass window paintings. In Catholic church architecture, the space of the church is built to develop the height of the architectural block, giving a sense of the size of the space. Stained glass windows used in church architecture are often large in size, or placed high on the walls of the church. With the large size, placed far and high compared to the viewer's vision, without the presence of black metal strips, the image showing the content on the stained glass window will not be clear and detailed.

In the form of hand-painted glass paintings, the glass paintings are painted manually from the front or back of the glass. All hand-painted glass paintings and products have outlines for the details. The outlines have different sizes, thicknesses and thinnesses. Without these outlines, it is very difficult for the artist or artisan to complete a glass painting. Because glass paintings are made of glass, they do not absorb moisture like other painting materials such as gouache paintings, oil paintings, silk paintings, etc. Without outlines, the colors when painted on the glass will easily spread, not following the creator's intention. In the form of hand-painted glass paintings, the lines on the painting play a role as a factor to separate the characters, images, details, and motifs of the painting. That is one of the main elements to form a hand-painted glass painting today.

Space in stained glass

When talking about the spatial element in art, American architect Frank Lloyd Wright once said, "Space is the breath of art." Space is found in most works of art; painters create space; photographers capture spatial moments; sculptors rely on space and form to create works; architects build space... Space is a basic element in decorative arts and plastic arts. Space gives viewers—people who enjoy the work—a reference to interpret the work. Space in a work refers to the distance or area around, above, and inside the components of a work. Space often includes two-dimensional or three-dimensional space, open or closed, shallow or deep, negative or positive, decorative space, or plastic space.

The author believes that in stained glass art, there are often 2 types of space: decorative space and plastic space (Figure 3). Formative space: is the use of elements to create three dimensions of a two-dimensional surface [11, p. 218].



Source: author of the article

Figure 3. Space is often found in stained glass

Decorative space is used in works and glass painting products, the scene in the painting does not show depth, this is a simple and effective way to convey the visual idea, clearly expressing the main image of the painting to the viewer. Decorative space is used in many types of glass paintings, such as: glass paintings used in churches, works and glass painting products depicting God, the Virgin Mary, or describing the Saints; in the line of hand-painted glass paintings of Hue Citadel, with worship glass paintings using decorative space; or the line of hand-painted glass paintings in the South, glass paintings with Buddhist themes, beliefs... most of the glass paintings use decorative space... These lines of glass paintings with themes describe the main image as the character, or the main element in the painting with a fairly large proportion, the remaining surrounding space is described in the form of decorative space, not showing the distance, nearness, shallowness or depth of the surrounding details.

Numerous works and glass painting products also utilize the creative space. The visual space can be created using linear perspective. Linear perspective refers to the use of geometric tools, such as a vanishing point, to create depth in a painting on a decreasing scale, indicating that the farther the viewer's eyes are from the object, the smaller the object appears. In the art of stained glass, some types of stained glass use visual space to express the content of the work more clearly and realistically, such as stained glass with folk or realistic themes, depicting scenes of people's daily life, or natural scenery. This type of stained glass often describes a certain context, has many components in the painting, so it often uses visual space to express the work, the product.

5. CONCLUSION

Stained glass paintings in Vietnam in the flow of history and culture have been nurtured and enriched with many elements of Vietnamese culture and art. In practical application, stained glass paintings in Vietnam are not purely a highlight for spaces and architectural works, but they also represent the creativity and talent of Vietnamese artists and artisans. From decorative stained glass paintings to spiritual paintings bearing regional imprints, ideas symbolizing the beauty of Vietnamese folk culture. All are vividly and soulfully expressed from a new perspective on glass material.

Compared to many countries in the region as well as in the world, stained glass art in Vietnam was born later. But thanks to the talented hands and enthusiasm of Vietnamese artists and artisans, Vietnamese stained glass paintings have gradually developed and established their position in society. Each stained glass painting is not only a work of art, but also contains profound messages about life and philosophies of life. Stained glass art is a precious gift, contributing new colors to the art treasure of Vietnam.

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AN INVESTIGATION INTO ENGLISH-MAJORED STUDENTS' EVALUATION OF PROJECT-BASED LEARNING AT A UNIVERSITY

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ABSTRACT

Project-based learning (PBL) "is thought to be an activity which promotes co-operative learning, reflects the principles of student-centered teaching, and promotes language learning through using the language for authentic communicative purpose" (Richards, et al., 1992, p. 296). This instructional approach has been implemented to teach English-majored students at Vietnam National University of Agriculture (VNUA) for the past few years. Therefore, this study aims to investigate how 144 third-year English majors evaluated the implementation of PBL in learning English-American Literature in semester 2, academic year 2023-2024 via two research instruments such as a survey questionnaire (with 38 closed-ended questions and 2 open-ended questions) and an interview form (with 9 closed-ended questions and 1 open-ended question). The results of the study show that all third-year English-majored students have a positive attitude and a high evaluation of PBL activities as they enjoyed learning through discovery and sharing ideas with their peers in pair work and/or group work arrangement. The findings of this study may facilitate improvements of the students' participation in learning English, presentation skills, critical thinking, problem solving and language acquisition and performance.

Keywords: Attitudes, English majors, Evaluation, Posters, Project-based learning

1. INTRODUCTION

In the past years, project-based learning (PBL) has been one of the major interesting research subjects due to its various benefits such as student-centeredness, discovery learning, problem solving, investigation, decision making, participation increase, presentation skills, collaboration learning and self-confidence. PBL is defined as "a student-centered approach to learning in which students collaborate on sequential authentic tasks and develop a final project" (Mill, 2009, p. 607). In this method, students are asked to perform an assigned learning task in order to have a final product submitted to teachers and university. For this method, theory is blended with practice, the theories are clearly expressed on the learning product. Moreover, PBL helps learners learn through solving problems, investigating, making decisions, and working collaboratively in EFL classes. This method also requires learners to have a high spirit of self-study, the ability to combine, and work well in a team.

PBL helps attain the main purpose of knowledge education, with a duration mainly from a few weeks to a whole semester, that is, the learning time needs to be enough for learners to be able to get acquainted with and practice the theories taught in class. Students are encouraged to use all the knowledge and skills they have to combine what is taught in the classroom into a learning product. The project needs to be done after a whole process. PBL is one of the teaching methods that contributes to meeting the goal of innovating current teaching methods, overcoming certain

limitations of traditional teaching methods. PBL helps learners to be dynamic, self-reliant, proactive, and active in occupying knowledge, having a cohesion between theory and practice; creating an environment for support, promoting each other in learning for learners and towards comprehensive development.

However, PBL also has its own challenges. Lecturers must be able to control which students are doing what, to what extent they contribute to the group's overall activities; and monitor the accuracy of their activities and answers. There are many opinions that learning together is actually more practical, but the effectiveness is not really high, especially in an online learning environment that is even more limited. It is difficult to monitor and adjust content from teachers in a timely and complete manner in the online environment, in addition, this is also a time-consuming activity for composing, demonstrating, and answering related issues.

Therefore, the objectives of this study are: first, to define and analyze the benefits, characteristics and stages of implementing PBL in the researchers' teaching context; second, to examine how the third-year English-majored students evaluate PBL when they learn English-American literature (EAL) at Vietnam National University of Agriculture (VNUA).

2. LITERATURE REVIEW

Project-based learning originated in 20th century progressive education (Maida, 2011). John Dewey was the first to conduct research on PBL with his experimental schools where Dewey and his advocacy of 'learning by doing' have reflected the theory of constructivism and placed the importance on experimental learning and interaction (Park & Hiver, 2017). PBL "is thought to be an activity which promotes co-operative learning, reflects the principles of student-centered teaching, and promotes language learning through using the language for authentic communicative purpose" (Richards, et al., 1992, p. 296). Therefore, in project-based learning activities, students are asked to explore, negotiate, interpret, and create in an attempt to find solutions to the problem (Lee, 2015). Students are encouraged to develop their critical thinking, or higher order thinking skills such as analysis, evaluation, and synthesis (ibid.)

In foreign language teaching, PBL is an activity to promote learning cooperation and collaboration, taking students as the center of the teaching process, using practical language to enhance learning and communication purposes. PBL offers a variety of benefits to students such as provides students with opportunities to develop their confidence, increases students' self-esteem, enhances students' autonomy, increases students' cooperative skills, enhances students' motivation, develops problem-solving, and improves language skills (Fragoulis & Tsiplakides, 2009). The results of McCarthy's study (2010) conclude that using PBL in teaching enables students become aware of their learning ability. More importantly, PBL activities improve students' language skills, promote their attitudes towards learning in EFL classes (Artini et al., 2018) and develop their motivation to use language in classes as well as in their job practice and daily life. Katz & Chard (1992) also confirm that the importance of PBL does not lie in the title of the project, but it focuses on its role in leading students to think, dream, question and investigate. Moreover,

some researchers such as Gardner (1985) and Duman & Yavuz (2018) state that students with a positive attitude towards PBL are academically far more successful than those with a negative attitude. Bas's study (2011) also shows that PBL creates a positive and significant difference in both academic success and attitude.

PBL encourages learners to learn languages by immersing themselves in the language environment as much as possible, creating more opportunities for learners to learn more, learning through context, thereby improving language skills to be able to meet the requirements of future work.

Implementing pbl in teaching english-american literature

PBL is synchronously implemented in teaching and learning English-American literature at VNUA. The EAL course consists of two credits, 30 lessons in class and 90 hours of self-study. The attendance score of students is calculated at 5%, the score before and after the lesson is 5%, the mid-term score is 30% and the final score is 60%. The content of the PBL lessons in the program is as follows: (i) Brief about the author of the work, (ii) Identify and analyze the major and minor characters in the literary work (appearance, occupation, personality, temperament, etc.), (iii) Uncover and discuss the setting (where and when the literary work happened), the plot, the theme, the moral lessons, literary devices, and (iv) Present the project and write an assignment.

All students must prepare and do the assigned assignments before the start of class. Students must also complete their homework including reading, re-reading the literary work, answering comprehensive questions, preparing project assigned by the teacher, and writing an interpretive essay (containing elements of explaining, evaluating, problem solving and arguing).

In the process of learning, students seek to complete projects on their own and find ways to achieve personal achievement at a high level, that is, learning by doing, not just by listening as in traditional pedagogy, students must take action, build projects, etc., implement the project on time, learn from experience and learn how to give a presentation of the project. The students are encouraged to use PPTs and/ or make posters for their presentation. The lesson is designed around thought-provoking questions, focusing on thought-provoking questions. Therefore, the lecturer must have "Key" questions, critical thinking questions so that students can learn more deeply about the content and nature of the issues discussed. The students are persuaded to present their ideas in the most comfortable way, as long as they can help people understand their opinions and convince them to agree with them.

Project-based learning has many important components, in which the input factors are to help students get excited to participate in the project, providing them with basic information to attend the lesson. Students also need to know the requirements of the course, what they have learned so that lecturers can adjust teaching objectives to help students achieve their learning goals. The rubrics help students shape the course objectives, help them achieve their course objectives and follow the steps sequentially. Finally, they will have to present in front of a "Council" consisting of the lecturer and other students to complete their programs and learning tasks.

We carried out PBL with three main phases to collect the data as follows:

Step 1: Design a PBL plan for the whole class. Students and teachers discuss the content and scope of the project, the requirements and needs of learners.

Step 2: Implement the project. Students are required to perform pre-planned tasks, such as conducting interviews and gathering information.

Step 3: Present, discuss and give feedback to the lecturer and learners, including problems that arise during and after the learning process.

We have developed a group presentation marking scheme for students attending the PBL course, specifically in the following table:

Table 1. Criteria for Group Oral Presentation

Criteria	Weighting	Excellent	Good	Fair	Poor
Contents	10	Content is rich beyond requirement.	Content is sufficient as required.	Content is adequate but still lack of one important point.	Content is poor and lack of many important points.
	20	Content is accurate and logical.	Content is quite accurate and logical although there are minor mistakes.	Content is quite accurate but there is a major mistake.	Content is not accurate with many major mistakes.
Structure and layout	5	Structure and layout are very well-organized and logical.	Structure and layout are well-organized and logical.	Structure and layout are acceptable.	Structure and layout are poor and disorganized.
	5	Use well-produced visual aid.	Use good-produced visual aid.	Use acceptable visual aid.	Use poor visual aid.
Delivery ideas and information	20	Delivery of ideas and information is clear, attractive and convincing with enthusiasm.	Delivery of ideas and information is clear but not very attractive.	Delivery of ideas and information is not easy to follow although important points can be understandable.	Delivery of ideas and information is not clear and understandable at all.
Eye contact & body	10	Keep eye contact with audience most of the time; have a confident posture.	Make frequent eye contact; have good posture.	Make some eye contact; Slouch a little.	Make no eye contact; Slouch a lot.
Time management	10	Manage time very well and flexibly upon situation.	Complete within allotted time, sometimes flexibly adjust upon situation.	Complete within allotted time but not flexibly.	Too long or too short.
Response to questions	10	Answer all questions clearly and completely.	Answer most questions clearly and provide suitable suggestion for unanswered questions.	Answer most questions but not clearly and can't provide suitable suggestion for unanswered questions.	Do not answer questions.
Participation in team presentation	10	All group members participate, collaborate and help each other in presentation and responses to questions.	Some group members participate and help each other in presentation and responses to questions.	Only a few members participate and involve in presentation and responses to question.	There is no collaboration in the group.

3. METHODOLOGY

This study was conducted with the participation of 144 third-year English majors who were learning English-American Literature by implementing project-based learning activities in semester 2, academic year 2023-2024 at Vietnam National University of Agriculture. The research used a combination of descriptive method, statistical method, analytical and synthesis method with two research instruments such as a survey questionnaire and an interview to investigate how English majors evaluated PBL activities in learning English-American literature course at VNUA.

The survey questionnaire consists of two parts: part 1 includes 18 closed questions about students' attitudes (Affective aspect of attitudes, Cognitive aspect of attitudes and Behavioral aspect of attitudes) towards PBL and part 2 has 20 closed questions and 2 open-ended questions to uncover students' evaluation of PBL. The interview consists of 9 closed-ended questions and 1 open-ended question. The 5-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree) was used to measure the frequency of the agreement with closed-ended questions. The criteria for evaluation of closed-ended questions were adopted from Oxford (1995) as follows: High frequency: 3.5 – 5.0; Medium frequency: 2.5 – 3.49; and Low frequency: 1.0 - 2.49.

Calculating formula is as follows:

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

Where

\bar{x} : Mean

x_i : Each value in the set

n : Total number of values in the set

3.1. Findings and discussion

After the PBL was implemented in teaching EAL course to the third-year English majors at VNUA, we noticed a big change in the students' learning outcomes. They absorbed new knowledge with interest, enjoyed group learning, group presentation and improved their skills in using information technology. The important point is that the students are trained in their ability to speak in front of the crowd, and their confidence level increases significantly.

The authors conducted a survey and an interview based on the prepared plan, scheduled with team members to probe students' understanding of the EAL lessons, asked the students to explain and give a reason for how to understand the problem. The implementation of project plans helps students be autonomous in determining goals, designing strategies to achieve goals, setting timetables, and determining criteria for evaluation.

Through the data collected from the survey questionnaire and the interview with 144 students, it was found that almost all VNUA English majors had a very positive attitude and a very

high evaluation of PBL activities while learning their English-American literature course. The summary of the findings can be seen as follows:

3.2. From the survey questionnaire

It can be indicated from Tables 2, 3, 4 below that most of third-year English majored students had a very positive attitude (Mean = 4.21) towards PBL activities when learning EAL course at VNUA. More specifically, the analysis of the quantitative data revealed that the cognitive aspect was the most frequent source of attitudes reported by students while learning EAL course by PBL activities (Mean = 4.23).

Table 2 below describes the third -year English majors' affective attitudes towards using PBL when they learn EAL course at VNUA.

Table 2. Affective aspect of attitudes

a. Affective aspect of attitudes	Mean
1. I appreciate the use of PBL in ELT class.	4.30
2. I feel motivated in EAL since the PBL was used in EAL class.	4.19
3. I feel excited when I can present my project in EAL class.	4.17
4. I enjoy PBL activities designed by the teacher.	4.25
5. I like PBL activities mentioned in EAL course.	4.32
6. To be honest, I am glad of tackling projects that are designed for learning purposes.	4.06
Everage	4.21

The data collected in Table 2 suggest that almost all English majors 'like PBL activities mentioned in EAL course (Mean = 4.32) as they highly 'appreciated the use of PBL in ELT class' (Mean = 4.30), and they feel motivated and excited when they presented their projects in EAL class.

Table 3 below provides 144 English majors' cognitive attitudes towards the use of PBL activities in learning EAL course at VNUA (Mean = 4.23).

Table 3. Cognitive aspect of attitudes

b. Cognitive aspect of attitudes	Mean
7. PBL enables me to comprehend other materials outside the class.	4.14
8. PBL introduces me to how language is used in the real world.	4.30
9. PBL does enrich my vocabulary.	4.31
10. PBL improves my learning competence.	4.19
11. PBL increases the use of grammar in EAL course.	4.19
12. PBL increases my cultural understanding.	4.26
Everage	4.23

It appears from Table 3 that PBL helps improve almost all students' learning competence (Mean = 4.19) as it does enrich their vocabulary, grammar, cultural understanding (Mean = 4.2). Moreover, due to the use of PBL activities in EAL class, most students can understand "how

language is used in the real world” (Mean = 4.30). PBL also enables most students “comprehend other materials outside the class” (Mean = 4.14), which means they will be able to improve their self-study to meet the social needs and the labor force.

Table 4 demonstrates that third-year English majors have a very positive behavior attitude towards PBL in EAL class at VNUA (Mean = 4.18).

Table 4. Behavioral aspect of attitudes

c. Behavioral aspect of attitudes	Mean
13. I become more active in ELT class thanks to PBL.	4.15
14. I am ready to discuss on topics mentioned in EAL course.	4.22
15. I have tried to design my own project based on teacher's suggestions on EAL materials.	4.15
16. I want to present my project in EAL class.	4.22
17. I pay attention when my English teacher is explaining PBL.	4.28
18. I prefer to use only projects in EAL class.	4.08
Everage	4.18

It can be seen from Table 4 that most students “have tried to design his/her own project based on teacher’s suggestions on EAL materials (Mean = 4.15), “want to present his/her project in EAL class” (Mean = 4.22) and “prefer to use only projects in EAL class” (Mean = 4.08). In EAL class, almost all students “pay attention when English teacher is explaining PBL” (Mean = 4.28). Therefore, thanks to PBL, they “become more active in ELT class” (Mean = 4.15) and they “are ready to discuss on topics mentioned in EAL course” (Mean = 4.22).

Table 5 below presents the third-year English majors’ high evaluation of PBL activities when learning EAL course at VNUA (Mean = 4.21).

It is shown in the table that overall, almost all third-year English majors reported were “satisfied with PBL activity used in this subject” (Mean = 4.30) and their English communication skills “have been enhanced through this semester” (Mean = 4.16) since they could “see clearly the aims, objectives of this subject” (Mean = 4.21); and “the feedback on assessment in this subject was useful in helping” them to learn the content of EAL (Mean = 4.31). The mean score of all 20 statements (4.21) concerning students’ assessments of the use of PBL indicates that the PBL helps students “feel more confident in learning English” (Mean = 4.17), “feel more competitive” (Mean = 4.14); “feel excited” (Mean = 4.24); and “feel comfortable expressing myself and my ideas with PBL activities” (Mean = 4.17). Moreover, most students agreed that they “learned a lot in this subject” (Mean = 4.09) as “PBL activities in EAL lessons were enjoyable” (Mean = 4.24); “PBL helped me to interact with my friends and teacher better” (Mean = 4.16); “PBL promoted me to participate actively in EFL lessons” (Mean = 4.34), and “PBL activity encouraged me to raise my ideas and opinions” (Mean = 4.24). When asked about the benefits of PBL, most students answered that PBL can “improve problem solving and critical thinking” (Mean = 4.14); “improve my learning strategies, communication skills, presentation skills and group work activities” (Mean = 4.28) since the teacher “had an effective teaching method” (Mean = 4.16); “covered topics at

appropriate depth” (Mean = 4.28); and “paid attention to students’ discussions, participation & cooperation” (Mean = 4.10).

Table 5. English majors’ Evaluation of PBL activities

Evaluation of project-based activity	Mean
1. The teacher had an effective teaching method.	4.16
2. PBL activities helped me to interact with my friends and teacher better.	4.16
3. PBL activities in EAL lessons were enjoyable.	4.24
4. The teacher usually raised problems so students could improve their problem solving and critical thinking.	4.14
5. I could improve my learning strategies, communication skills, presentation skills and group work activities.	4.28
6. I felt comfortable expressing myself and my ideas with PBL activities.	4.17
7. My English communication skills have been enhanced through this semester.	4.16
8. I felt excited when learning English with PBL activities.	4.24
9. PBL activity promoted me to participate actively in EFL lessons.	4.34
10. I usually get along with PBL activities in EAL lessons.	4.28
11. PBL activity helped me feel more confident in learning English.	4.17
12. PBL activity encouraged me to raise my ideas and opinions.	4.24
13. PBL activity made me feel more competitive in learning English.	4.14
14. The teacher covered topics at appropriate depth.	4.28
15. The teacher paid attention to educating students' behaviors and morality.	4.16
16. The feedback on assessment in this subject was useful in helping me to learn.	4.31
17. The teacher paid attention to students' discussions, participation & cooperation.	4.10
18. I learned a lot in this subject.	4.09
19. I could see clearly the aims, objectives of this subject.	4.21
20. Overall, I was satisfied with PBL activity used in this subject.	4.30
Average	4.21

3.3. Students’ responses to open-ended questions

When 144 third-year English majored students were asked the open-ended question “21. What was the best feature of this subject?”, most of them share similar responses which can be summarized as: (i) Almost all third-year English majors felt like learning EAL course through PBL. They became excited, motivated, encouraged and comfortable when they gave a group presentation of their project in front the class. They learnt a lot by designing their project, discussing with their peers, and writing their assignments as well. (ii) PBL activities help widen students’ knowledge, have more in-depth understanding of foreign literature and improve language competence. Through PBL in EAL course, students can increase their vocabulary and grammar, enhance their speaking skills, improve students’ presentation skills as well as interaction with others. PBL enables students to absorb knowledge in an active, easy-to-remember, and easy-to-absorb way. PBL makes learners better understand the literary culture of the UK and America and

learn valuable lessons from the stories of famous literary authors. Moreover, students are provided with a multi-dimensional view and broad knowledge of literature. And (iii) PBL activities can improve/ sharpen numerous skills such as critical thinking, problem solving skills, decision making skills, communicative skills when students discuss and analyze the personality of the main and minor characters of the story with their peers. PBL helps increase the ability to communicate and present in front of the crowd/ the whole class and know how to distribute work appropriately.

When asked “22. Comment on any areas which could be improved?”, most English majors stated that “Everything in the EAL lessons is excellent. However, we need more time to prepare for PBL presentation and make posters. I want more ideas from the peers to help our presentation better. We would like to see more discussions from other groups to make our project have better analysis of the literary devices such as metaphors, metonymy”.

3.4. From the interview

Table 6 illustrates the evaluation results from 144 English majored students’ interview with the average mean score at 4.16, which is similar to the results from the survey.

Table 6. Results from students’ interview

Interview questions	Mean
1. Was the content of the subject very relevant to you?	4.03
2. Were the handouts and reading supplied of great help?	4.13
3. Were the teaching activities in the class of great help?	4.22
4. Have you achieved an understanding of the subject very well?	4.14
5. Will you be able to continue learning the subject on your own?	4.14
6. Do you think the teacher covered the subject thoroughly?	4.18
7. Do you think the lecturer explained the concepts clearly?	4.23
8. Did the lecturer prepare well for classes?	4.18
9. Was the advice from the lecturer during your EAL lessons very useful?	4.22
Everage	4.16

Table 6 reveals that when interviewed about evaluation of the PBL activities, most of the English majors answered that the content of the subject was relevant to them (Mean = 4.03); the handouts and reading supplied were of great help (Mean = 4.13); the teaching activities in the class were of great help (Mean = 4.22); the teacher covered the subject thoroughly (Mean = 4.18); the lecturer explained the concepts clearly (Mean = 4.23) and the advice from the lecturer during your EAL lessons was very useful (Mean = 4.22). Therefore, they have achieved an understanding of the subject very well (Mean = 4.14).

When students were asked “10. Do you have any other comments on PBL elements and ideas?”, most students have no more ideas. However, some students further comment that “I enjoyed the PBL activities designed by the teacher very much because these activities increased my participation in EAL class, and my cooperation with my friends. I felt excited when I presented my project to the whole class and I got a lot of comments and ideas from my friends to make my

project better. And we learnt a lot through investigating characteristics of the major and minor characters, the themes, motifs, conflicts in EAL course when we designed our project. I liked working with my friends in my group and sharing ideas with them. I enjoyed working collaboratively and discussing with my friends. I enjoyed so much about this new learning method. I felt motivated in learning EAL with PBL activities since I could share my ideas, questions, feelings, reactions, and responses with other members in my group and with the whole class. PBL increases student talking time, student-centeredness and learning-by-doing. However, PBL requires a lot of preparation and it is time-consuming. I had to spend a lot of time preparing for my project and discussing with my group members before coming to the final project product. I think PBL could be used for other subjects, for example semantics, English speaking countries, etc. Everything in PBL in EAL course is good, but still there are some challenging problems or questions”.

4. CONCLUSION

All English majored students who took part in the survey questionnaire and interview when learning EAL course at VNUA have a very positive attitude towards PBL activities and they highly evaluated the benefits of PBL, which are collaboration, problem solving, learning-by-doing, investigation learning, in-depth understanding, critical thinking, presentation skills and student-centeredness. PBL enhanced the students’ participation, confidence, cooperation, communication skills and language acquisition and competence. The afore-mentioned findings of this study are in alignment with the results of a number of previous studies conducted by authors such as Anuyabong (2015), Khoiriyah & Setyaningrum (2017), Duman & Yavuz (2018), Aghayni & Hajmohammad (2019), and Parker (2020).

PBL assessment is not merely an evaluation of the project's product, but also an assessment of students' level of understanding, cognitive abilities and skills and monitoring their progress. Through a number of assessment tools such as written assignments and speaking tests to test students' ability to acquire and understand knowledge, notebooks that reflect on learning and responses to suggestions in written form, these tools help teachers clearly see how students demonstrate specific thinking skills in other areas, which is considered as an important part of the project.

PBL enhances interactivity, learner-centeredness so it brings positive attitudes to learners. There fore project-based learning improves the level of participation, cooperation, interaction, presentation and communication skills of learners. PBL improves students' understanding of the subject they are attending, improves critical thinking ability, problem-solving ability, and enhances confidence and independence. Lecturers need to consider both the benefits and challenges of PBL and students need to spend more time to be able to take advantage of project-based learning.

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MENTAL HEALTH CARE FOR STUDENTS IN VIETNAMESE SCHOOLS

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ABSTRACT

The article aims to address theoretical issues related to mental health, the current situation and suggested solutions to implement mental health care activities for students in Vietnamese schools. The library-based method is employed in this research. Previous research results on mental health issues throughout the world are discussed and analyzed, followed by the syntheses of key points including related conceptual system, the current status of mental health issues of students and proposed solutions to improve mental health for them. Findings show factors leading to mental health problems and possible solutions to this dilemma.

Keywords: students, mental health, schools

1. INTRODUCTION

In recent years, mental health issues have become one of the most prominent issues in many countries. As recognized by different scholars, mental health plays a key role in overall human health. Unstable mental health affects the ability to make decisions, the ability to seize opportunities and the ability to fulfill one's personal self-responsibilities, their responsibilities for families and society. According to the World Health Organization (WHO, 2019), mental disorders currently account for 14% of the global disease burden, more than cardiovascular disease and twice as much as cancer. Statistically, around 300 million people are suffering from depression; 45 million people are committed to bipolar disorder; 250 million people get substance abuse disorders, 20 million people are prey on schizophrenia. It is generally estimated that 1 in 8 people have mental health problems. In Vietnam, approximately 10.3 million Vietnamese people need mental health care. According to the Central Psychiatric Hospital 1, the incidence of 10 common mental disorders in 2014 was 14.2%, of which depressive disorders alone accounted for 2.45%. The suicide rate in 2014 was 5.87 per 100,000 people (WHO, 2019).

Students are sensitive subjects that are susceptible to mental health problems. With the development of society, especially the explosion of information technology, college and university students today have many opportunities to improve themselves as well as develop their careers. However, the diversity and abundance of information in the integration and opening period creates many challenges for them in life such as study pressure, pressure from multi-dimensional relationships, changes in the living environment, etc., causing students confusion a variety of difficulties in studying, their personal psychological life and orienting their career path. More and more statistics show that mental disorders in adolescents and young people are increasing in

number as well as severity (WHO, 2017). For young learners in colleges, although the years of university can be a beautiful time of youth, the social, emotional and intellectual challenges they face are greater than most other stages of education (Rogers and Tennison, 2009). As a result, they become more sensitive and vulnerable to mental disorders (Eisenberg et al., 2007). Studies on the prevalence of mental health problems have found that a significant number of students worldwide are experiencing mental disorders (Nordin et al., 2009; Pham et al., 2019).

Schools are one of the most important psychosocial environments for adolescents, providing mental health risk factors, protective factors, and opportunities to promote and support mental health. Evidence shows that school climate, academic pressure, bullying, and other social stressors all negatively impact mental health. Schools are important in supporting students' mental health and addressing risk factors associated with mental health in schools (UNICEF, 2018). According to WHO in 2018, approximately 15% of children and adolescents worldwide suffer from mental disorders. Suicide is the second leading cause of death among adolescents. The common age of onset is between 14 and 24 years. Meanwhile, mental health care and psychosocial services are just provided through social work and protection centers, psychiatric hospitals and school psychology consultation rooms. Additionally, the quality and coverage of these services are limited and often focus on severe mental disorders (UNICEF, 2021).

As discussed, mental health care for students in schools remains a big problem because of the prevalence of the disease and its impact on students' health. Therefore, this needs to be cared for and paid more attention to by families, society and especially by the educational staff in schools.

2. RESEARCH METHODOLOGY

2.1. Research aim

The article focuses on studying the theoretical and practical research results of domestic and foreign researchers on the current mental health status of Vietnamese students in order to propose solutions for health care for students in schools.

Research methodology

This article employs the theoretical method to discuss and analyze related concepts from previous studies, together with considering the current status of mental health issues of students. Thereby some solutions are proposed with the hope of improving mental health for these people in their learning environment.

2.2. Literature Review

2.2.1. Definitions of Mental health

Health is defined by the WHO (1984) as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. Thus, the concept of health has been understood more broadly, i.e. health is not only physical problems but also mental problems, and it is even the health of the whole society.

Mentioning mental health, a document by MOET & UNICEF (2017) wrote that “Mental health is not just the absence of mental disorder, but also includes the ability to think, learn, and understand one’s own feelings and the reactions of others. It is a state of balance, both within the body and with the environment. Physical, psychological, social, cultural, spiritual and other related factors are involved in creating this balance. There is an inseparable connection between mental health and physical health.”

A person with good mental health is someone who has the ability to think clearly and logically, the ability to solve problems in life and the ability to interact and communicate well with people around (friends, colleagues, family, etc.). Talking about mental health means referring to a positive state, an effective mental activity, not just about a state of mental disorder.

2.2.2. Mental health care

Mental health care includes interventions, therapies and activities that ensure mental well-being in the following five basic aspects:

- Ability to balance: the ability to reach balance in life among physical, psychological, spiritual, social and economic aspects in all contexts and circumstances;
- Ability to recover: the ability to overcome difficult situations and return to the normal one after events of loss, grief, damage, breakdown, etc. in terms of people, property and career;
- Ability to develop personally: the ability to recognize, nurture and develop personal abilities and strengths;
- Knowing how to enjoy life: the ability to live in the present, and appreciate what you have; knowing how to learn and summarize lessons from the past experiences, including painful ones, and continue to live according to a good plan for the present and the future;
- Flexibility: the ability to adapt to all circumstances, new situations, and ability to self-adjust;

2.2.3. Characteristics of student age

According to Pham Minh Hac et al. (1989), students are a part of the youth studying at universities and colleges. They are a special social group, in the stage of developing and perfecting their personality, being active in studying, training, and preparing to join the intellectual and high-tech labor force of the country. In any historical period, young students are always a dynamic, creative labor force and a high-quality human resource of society. Students are mostly between the ages of 18-25 with psychological and social characteristics such as physical development reaching a complete level and becoming stable; their emotional life has also become more stable than in previous stages. At this age, students begin to live independently, far from their families, so we can see that many students encounter psychological difficulties in integrating and adapting to living conditions, new learning methods, and new relationships.

3. RESULTS

3.1. Current situation of students’ mental health

In the general context of the world, the rate of Vietnamese adolescents with mental health

problems also tends to increase. According to research by the United Nations Children's Fund (UNICEF, 2018), it was estimated that there were at least 3 million adolescents with mental health problems in Vietnam. More and more statistics show that mental disorders in adolescents and young adults (students) are increasing in number and severity (WHO, 2017). And this might be an incomplete statistic because, in fact, many people affected by mental health problems did not realize, or admit their own dilemma, and consequently they did not share this with anyone for an effective assistance.

If in the past, people with mental health problems were mostly between the ages of 60 and 65, now there is a tendency for mental health problems to be younger subjects, with the ages of 15 and 27. In addition, the mental health problems that students currently suffer from are quite diverse and at different levels. Common mental health problems in Vietnamese adolescents are both introvert such as anxiety, depression, loneliness, and extrovert such as hyperactivity and attention deficit. According to a few studies on Vietnamese students, the rate of self-reported depression and anxiety ranges from 15% to 55% (Pham et al., 2019; Nguyen et al., 2017). Nguyen Thi Mui et al. (2005) also pointed out that the life of students today are too stressful. Many of them often feel anxious and insecure, and these negative psychological states have affected their activities in life. Another community-based study nationwide joined by 5,584 young people aged 14-25 (UNICEF, 2017) recorded 1/4 of those surveyed felt so sad or helpless that they could not participate in their normal activities, and they found it difficult to function. Nearly 8% of women aged 18-21 had suicidal thoughts. In a study conducted by Dinh Thi Hoa (2021) on stress, depression, anxiety and some related factors among 390 students at Trade Union University showed that the proportion of students with signs of depression was 31.8%, of which 11.3% are at mild level, 11.9% are at moderate level, 4.3% are at severe level and 4.3% are at very severe level. The study also suggested that factors related to depression include working part-time too much, overusing the internet, lacking exercise, overloading from field of study, lacking support from family and friends as well as important people. Another study by Pham Thi Thuy Dung (2023) on 422 students at Phenika University showed that the proportion of students with anxiety was 53.1%, of which mild, moderate and severe anxiety levels account 32.0%, 12.8% and 8.3% respectively. Some factors related to anxiety in students are academic pressure, sharing with family members, stressful events in the past six months, and sports activities. A national survey on adolescents and youth also reported 27.6% experienced such sad or useless feeling that they could not function normally. The rate of adolescents and young people who felt completely hopeless about the future was 21.3%. 7.5% of the adolescents and young adults have self-harmed, and 4.1% have considered suicide.

Risk factors for mental health problems in children include emotional isolation, which causes adolescents to choose not to share their feelings with anyone, excessive use of the internet, overly strict families, high parental expectations, fear of being "scolded", academic pressure, lack of support, being bullied, living far from family and others. Mental health problems can affect academic performance and quality of life (Pillay et al., 2016) and can lead to alcoholism, smoking, low empathy, cheating on exams, and suicide (Ip et al., 2016). A study has also shown that the causes of mental health problems in students are living independently away from home for the first

time, adapting to a new lifestyle and learning style, living at university, financial problems, lack of motivation, and limited self decision-making ability (Coley et al., 2014; McLafferty et al., 2017). In addition, the lack of understanding of mental health among students, parents, and teachers is also a risk factor for mental health problems in students. Partners in this interrelationship do not always have an accurate understanding of common mental health problems (UNICEF, 2022). Mental disorders and substance abuse are likely to become important health problems for adolescents. If these disorders are not intervened, they can cause prolonged suffering.

The percentage of adolescents with mental health problems is increasing while the number of students who have not received mental health care services has stayed really high. About 75% of people have got adult-onset mental disorders since the age of 24. However, only about 20% of them have received the necessary medical support and treatment. According to WHO (2008), more than a half of developed countries do not provide any community care for people with mental disorders. The number of people with untreated mental health problems consists of 30-50% in high-income countries and 76-85% in low- and middle-income countries. Pham et al. (2019) identified the figure of students with depression and/or anxiety symptoms who use mental health care services was 12.5%. In Cadigan et al. (2019), this rate is lower than in the US (28%). Coles (2016) found out the rate of Vietnamese students being detected to connect with mental health problems is lower than in developed countries. In addition, the majority of Vietnamese people have little knowledge about receiving mental health support services (Nguyen et al., 2018). In Vietnam, there have been a number of scientific studies on mental health among students and the provision of mental health care services to this community, the results of which show that there have been quite a few of students using mental health care services (Pham et al., 2020).

3.2. Suggested solutions to mental health care for students

From the analysis on theoretical knowledge about mental health, mental health care as well as the current situation of mental health problems among students, it can be seen that the proportion of students with mental health problems is increasing, while the proportion of students receiving mental health care services keeps quite low. As discussed, there have been many causes leading to mental health problems among students such as academic pressure, overuse of the internet, living away from home, lack of understanding about mental health. Some suggestion can be made in this article for the purpose of caring for and preventing students' mental health problems at school, as follows:

- *Organizing psychological counseling and mental health treatment activities for students:* This is a group of measures to support and take care of students' mental health when they need psychological help or suitable methods to prevent possible risks in life so that they can better cope with difficulties. This includes (1) establishing a school psychology department with a team of professional school psychology experts, (2) paying attention to investing in the in-depth training for these experts in terms of both human resources and financial aspects, (3) running the school psychology department actively with fully equipped facilities, for instance, available psychological assessment test kits and effective support for students who need to share and receive psychological help. When there is a team of well-trained school psychology experts, they not only

help students solve mental health problems but also help prevent possible psychological problems, especially early detection and intervention of emerging mental health problems.

- *Preventing mental health problems for students:* This is a group of solutions to equip students with knowledge and capacity to recognize and deal with their own mental health problems. Major activities can be listed as follows: (1) colleges and universities need to regularly organize seminars on the topic as well as knowledge about psychology to help students clearly recognize the psychological problems they are facing, thereby preparing mentally for all situations and being ready to accept all challenges and difficulties in life. Students should be encouraged to study and try to find ways to overcome their own problems, (2) Schools need to provide suitable classes of training soft skills and other life skills for students at all levels, (3) create chances for students to access a team of reputable experts in the field of psychology or other fields related to such skills as stress management, self-discovery, and other skills in study and life so that they can have the ability to equip themselves with knowledge and better train themselves with self-development skills.

- *Calling for support from stakeholders:* This is to find resources inside and outside the school to deal with mental health issues, with the aim of helping students overcome common difficulties in the school environment. This group of solutions includes:

(1) Regularly organizing mass movements and activities in schools, i.e. (i) making student exchange policies to reinforce student connection within the school and with students from other schools, (ii) organizing cultural activities or establishing clubs according to students' interest to make favourable conditions for students to express themselves and balance their lives.

(4) encouraging teachers to innovate teaching methods, get closer to students, not only interact with students in class but also proactively talk and care about students outside classrooms to narrow the gap between teachers and students, students and school staff so that they can understand students, know their needs and aspirations, and avoid putting unnecessary pressure on students. To try to catch student's thoughts and understand their aspirations is extremely important in early detecting difficulties and psychological support needs that helps provide timely support for preventing these problems among students.

4. CONCLUSION

In summary, the number of students with mental health problems has been increasing. People connecting with mental health problems are getting younger, and those problems that students are currently suffering from are quite diverse and at different levels. There are many risk factors leading to mental health problems in students. In the meanwhile, a large number of students have not received sufficient mental health care services. This article has suggested a few solutions to this dilemma, which can be classified into three groups: one group of measures related to organizing psychological counseling activities and mental health treatment for students, another group involving with preventing mental health problems for students, and a group helping to increase support from stakeholders. The overall aim is take better care of students' mental health, and help to improve the quality of students' mental life.

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RESEARCH ON SOME TEACHING METHODS TO ORGANIZE EDUCATIONAL ACTIVITIES ACCORDING TO THE STEAM MODEL FOR SECONDARY SCHOOL STUDENTS

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ABSTRACT

In the era of digital technology and globalization, researching, applying various methods to organize educational activities according to the STEAM model is a necessary, important activity for innovating teaching methods and optimizing the learning process for students in general education. The STEAM educational model not only provides knowledge but also helps students develop creative thinking skills, problem-solving and communication and collaboration skills. Using theoretical research methods, qualitative methods through interviews, and classroom observations combined with data collection tools such as questionnaires, multiple-choice tests, the paper clarifies the following topics: The current state of STEAM-based educational activities in general education schools; Evaluating the effectiveness of some teaching methods to organize educational activities according to the STEAM model; Proposing forms of organizing educational activities according to the STEAM model in general education schools. The research results show that organizing educational activities according to the STEAM model not only enhances lesson effectiveness and innovates teaching methods in general education schools today but also contributes to ensuring the goals and requirements of the General Education Program (2018).

Keywords: [Teaching methods; Educational activities; STEAM education; Innovating teaching methods; High school students]

1. INTRODUCTION

In the context of strong development of digital technology and globalization, innovation in teaching methods is a necessary factor to meet the requirements of modern education. The STEAM education model, integrating knowledge from natural sciences, social sciences, and mathematics, has become an important part in implementing the goals and requirements of the General Education Program. This model not only focuses on imparting knowledge but also aims to develop 5 qualities (patriotism, compassion, diligence, honesty, uresponsibility) and 3 pairs of general competencies (autonomy, self-study; communication and cooperation; problem solving and creativity) (Tao, n.d, 2018). However, the application of the STEAM education model in general schools still faces many difficulties and challenges, especially difficulties in selecting and applying effective teaching methods to optimize this model and improve students' learning efficiency. Therefore, this study focuses on the following questions: *How to assess the current status of STEAM education in high schools? What teaching methods are used to optimize this model and*

improve students' learning effectiveness? What forms of STEAM education organization are most suitable for high school students in Vietnam?

2. LITERATURE REVIEW

STEAM is considered an educational model that aims to enhance creativity, problem solving, and create excitement for students in learning. However, the letter "A" in STEAM is understood in many different ways, and the purpose of STEAM education is also a topic of debate among many educational researchers. The article by the Perignat and colleagues distinguishes STEAM teaching methods in 5 ways: transdisciplinary, interdisciplinary, multidisciplinary, interdisciplinary, and arts-integrated, and makes recommendations to promote research and practice in STEAM education (Perignat & Katz-Buonincontro, 2019). The Khamhaengpol group presents the development process of STEAM activities through the engineering design process in STEAM education, aiming to promote nanotechnology activities for high school students. The research results confirmed that this design activity will attract students' attention and encourage their creativity in the learning process (Khamhaengpol et al., 2021). The research paper "Art for All: A Vision for Integrating STEM and the Arts" by the authors Minces and colleagues emphasized that art is an important component of human culture. This article clarifies the definition of STEAM, and provides an overview of the history and purpose of using STEAM in student education activities (Minces & Akshay, 2023). Based on Enactivism and combined with technologies and 4E educational methods, the authors proposed a theoretical foundation for designing creative learning activities in the STEAM education model (Aguayo et al., 2023). The use of technology combined with methods such as the flipped classroom in the STEAM education model allows teachers and students to be creative both in and out of the classroom, thereby creating positive effects on student behavior (Haas et al., 2023). The goal is to develop creative thinking, critical thinking, collaboration skills and a sense of responsibility in students. The article by the Thoma group and the column on teaching STEAM, the article focuses on designing learning activities that are suitable for students' different learning abilities and needs. This is to reduce barriers and stimulate students' attention during the learning process (Thoma et al., 2023). The goal of developing learners' creativity is not only implemented at the elementary, middle and high school levels but also at the university level. The authors Gu and his colleagues designed a STEAM education training course for university students, which included STEAM activities in many fields to enhance students' creativity. The research results demonstrated that STEAM educational activities are an effective method to promote learners' creativity (Gu et al., 2023). Integrating local cultural content into STEAM educational projects encouraged students' participation in the learning process and developed creative thinking. The article "Dataset of Vietnamese Preschool Teachers' Readiness Towards Implementing STEAM Activities and Projects" provided data on teachers' awareness, capacity, and desire to organize STEAM activities. The article also provided information on the readiness of Vietnamese preschool teachers to integrate local cultural values into STEAM projects (Bui et al., 2023). The study by Khamhaengpol and his colleagues on STEAM education activities through the design of a science learning kit with the theme of "environmentally friendly straws" for middle and high school students presented the design

process and how to organize STEAM education activities. This study proposed the application of STEAM activities in skill tests to nurture students' creativity (Khamhaengpol et al., 2024). It must be acknowledged that the application of interdisciplinary knowledge to solve practical problems using support tools in STEAM education is a modern educational model that helps promote creativity, improve learning performance and enhance student interaction. The paper explores the impact of using VR-enhanced teaching aids in STEAM education, elucidating the rationale for using VR in this model and summarizing the mechanism by which VR supports students' cognitive processes in STEAM education (Zhan et al., 2024). Creativity has always been one of the important goals of STEAM education. The study by the Lage – Gómez & Ros group analyzed the relationship between diverse creative activities in STEAM interdisciplinary projects. These activities incorporate the use of various tools and techniques to promote students' creativity through subjects such as science, art, and crafts. The research results have clarified students' creativity in STEAM projects, and pointed out the relationship between tools, techniques, and teaching organization forms in enhancing students' creativity, as well as the connection between subjects in organizing creative activities for students (Lage-Gómez & Ros, 2024). Applying David Kolb's experiential learning theory to design experiential activities in the classroom to promote student engagement in learning activities that are linked to real-world experiences (Quibrantar et al., 2023). Using visual images in teaching according to the 5E model helps to attract students to actively participate in learning activities (Gillies et al., 2020). Research on project-based learning has shown positive results, especially in improving students' skills and attitudes (Saad et al., 2022). Research by Rotem Maor and colleagues shows that students' metacognitive thinking, creativity, and critical thinking are strongly developed in project-based learning environments (Maor et al., 2023). Project-based learning has also been shown to be an effective approach to enhance learning motivation and promote creativity in history teaching, according to research by Ai-Jou Pan et al. (Pan et al., 2023). In addition, Tu et al. found that designed learning environments can help students move from concrete experiences to abstract thinking (Tu et al., 2023). The constructivist teaching cycle suggests that students are not just passive recipients of information but also active explorers, expressing personal opinions, asking questions, building arguments, and collaborating with others to solve problems. This method encourages students to develop independent thinking and creativity in the learning process (Singer et al., 2008).

The above studies have provided a solid theoretical foundation on STEAM education to study the issue of "Research on some teaching methods to organize educational activities according to the STEAM model for secondary school students", suggesting to teachers ways to create a positive, creative and interactive learning environment for students, active teaching methods to help students develop critical thinking, creativity and problem-solving skills in practice. At the same time, providing STEAM education models to suit secondary school students.

3. METHODOLOGY

To clarify the research problem "Research on some teaching methods to organize educational activities according to the STEAM model for high school students", the group of

authors used both theoretical methods and practical investigation methods combined with qualitative methods. Theoretical research methods help synthesize and analyze scientific documents, textbooks, and related studies, thereby building a theoretical basis for the research, clarifying the concepts, goals, and benefits of the STEAM model in education. Practical investigation methods combined with qualitative methods were used to collect data through interviews with 11 teachers and 51 students in Son La province, to clarify the challenges, difficulties and opportunities in organizing educational activities according to the STEAM model. At the same time, the investigation method through the use of questionnaires, reports helps evaluate the effectiveness of the teaching methods selected and used according to the STEAM education model. Analyze the current status of STEAM education activities in general schools to assess the advantages and difficulties that need to be solved, thereby proposing teaching methods according to the STEAM model such as: Project-Based Learning, Hands-On Learning, Inquiry-Based Learning, Integrated Learning, Experiential Learning and Collaborative Learning, methods implemented through STEAM education models such as: interdisciplinary integration, STEAM education programs, real projects, STEAM festivals, STEAM clubs... The research results show that applying modern teaching methods to organize educational activities according to the STEAM model not only improves the effectiveness of lessons but also promotes innovation in teaching methods, in line with the goals of the General Education Program (2018). At the same time, this measure also contributes to building a modern general education, meeting the requirements of the new era.

4. RESULTS

4.1. Current status of applying STEAM education model in general schools

To collect information on the application of the STEAM education model, the difficulties encountered, and the methods being used in high schools. The survey was conducted with teachers and students at the high school level to collect opinions on the effectiveness of the STEAM education model in improving students' thinking ability, creativity, and problem-solving skills, teamwork skills. The survey results will provide a practical basis for proposing effective teaching methods, helping to optimize the organization of educational activities according to the STEAM model in high schools.

Data collected through the questionnaire includes 3 groups of questions: Group 1 - Assessing awareness of the STEAM education model; Assessing the level of application, frequency and implementation of some teaching methods according to the STEAM education model. Group 2 - Assessing the effectiveness of the STEAM education model through the use of some active teaching methods in improving learning outcomes and skills training for students. Group 3 - Collecting suggestions to improve and enhance the teaching and learning process according to the STEAM education model and commenting on the impact of the model on the learning and training process of students (<https://docs.google.com/forms>, 2024).

Through a survey of 11 teachers (teaching Literature, History, Geography, Mathematics, Biology, Chemistry) at two high schools in Son La province (Chieng Sinh High School and Chu

Van An Primary, Secondary and High School), the results showed that 81.8% of teachers have some understanding of the STEAM education model. However, the frequency of applying the STEAM education model in the teaching process is only occasional (72.7%) and not applied regularly. Because many teachers are not really confident (27.3%) or are only quite confident (63.6%). In particular, in the process of organizing STEAM education activities, teachers still encounter many difficulties. Specific results are shown in the following chart:

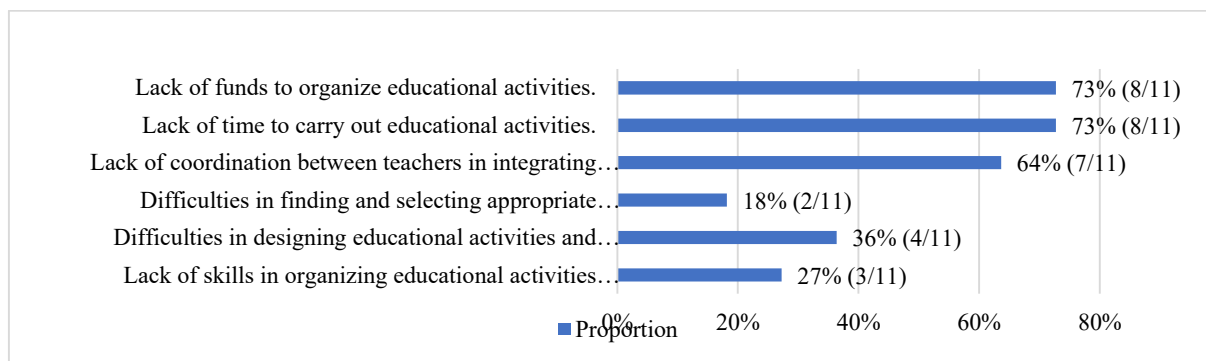


Figure 1. Difficulties of teachers when organizing STEAM educational activities

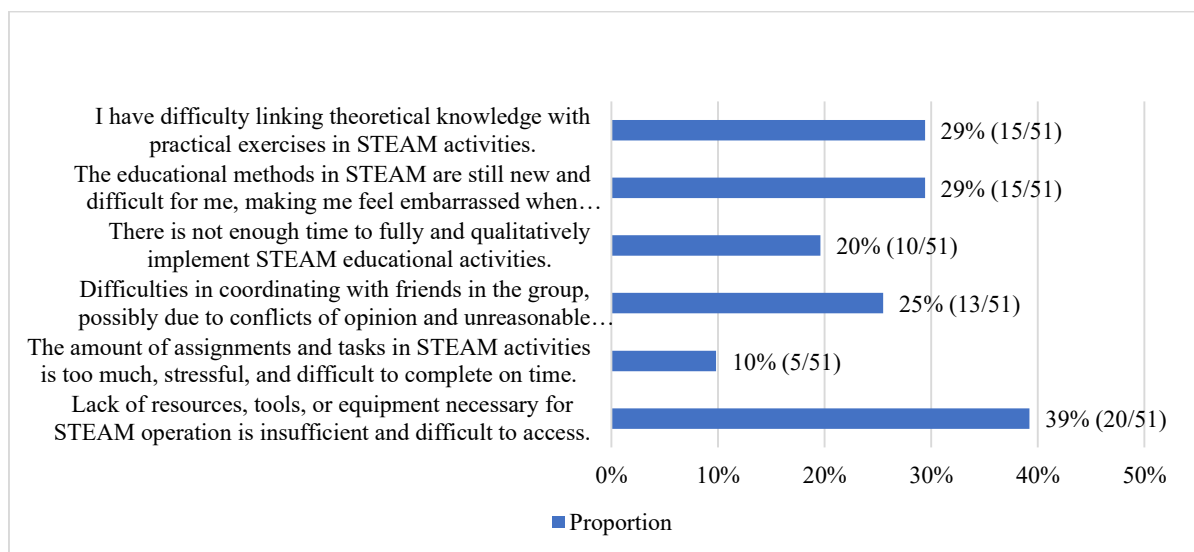


Figure 2. Students' difficulties when participating in STEAM educational activities

Through a survey of 51 students at two high schools in Son La province (Chieng Sinh High School and Chu Van An Primary, Secondary and High School), the results showed that 52.9% of students had participated in STEAM educational activities during school hours. However, only 39.2% of students felt confident, while 43.1% were still not confident. STEAM educational activities that students often participate in include: interdisciplinary teaching, STEM and STEAM educational programs organized by the school, and STEAM clubs at school... However, most students have difficulty participating in STEAM educational activities, the causes of these difficulties are specified in the following chart:

4.2. The effectiveness of teaching methods when organizing educational activities according to the STEAM model

Based on theoretical research, the authors apply the following teaching methods to organize educational activities according to the STEAM model: Project-Based Learning, Hands-On Learning, Inquiry-Based Learning, Integrated Learning, Experiential Learning and Collaborative Learning (Chu Thi Mai Huong, 2024). Through pedagogical experiments in high schools, it shows that each method has its own advantages in developing skills and providing knowledge to students. Optimal effectiveness is achieved when these methods are flexibly combined in the teaching process of teachers. The project-based learning method allows students to apply interdisciplinary knowledge to solve practical problems, develop critical thinking, creativity, teamwork skills, time management and communication. However, the method will have difficulty in assessing students through group activities. Method of learning through practice is an effective approach in STEAM education, which allows students to experience directly through experiments and practice, helping to consolidate knowledge, develop problem-solving ability and thinking ability. However, teachers need to carefully prepare facilities and educational resources to achieve optimal results when using this method. Learning method through discovery encourages students to ask questions and find answers through investigation and experimentation, helping to develop self-study and analytical thinking. To effectively use this method, teachers need to provide specific instructions for discovery activities to avoid students getting lost or having difficulties in the learning process. The integrated learning method helps students see the connection between subjects, expand knowledge and interdisciplinary thinking. This activity allows students to solve complex problems comprehensively. Therefore, teachers need extensive knowledge and the ability to organize effective lectures to apply this method. Learning method through experience helps students connect theoretical knowledge with practice and develop autonomy, responsibility and problem-solving skills. However, organizing experiential activities requires careful preparation in terms of time, activity content and financial resources. Collaborative learning method is very necessary and important to organize STEAM educational activities, helping students work in groups to solve problems, develop communication skills, information sharing skills. To optimize this teaching method, teachers need to closely manage students' learning activities to ensure fair contributions from all students (Chu Thi Mai Huong, 2024).

Through data analysis from the questionnaire, the results showed that STEAM teaching methods had a positive impact on improving students' creative thinking skills, problem-solving ability and collaboration skills. Specifically, 72.7% of teachers affirmed that students had been trained in many skills during the learning process, and 90.9% of teachers assessed that the STEAM education model was effective in helping students develop thinking abilities and creative abilities, 40% of teachers said that students would be more interested in participating in STEAM activities than in traditional teaching, 90.9% of teachers said that applying the STEAM education model helps students apply knowledge into practice more effectively. Through the synthesis of 51 student responses, it shows that 41.2% of students rated the effectiveness of STEAM educational activities in developing thinking and creativity, and 37.3% of students felt very interested in participating in STEAM educational activities. In particular, the majority of students affirmed that studying according to the STEAM educational model helps them practice many skills. The specific results are shown in the following chart:

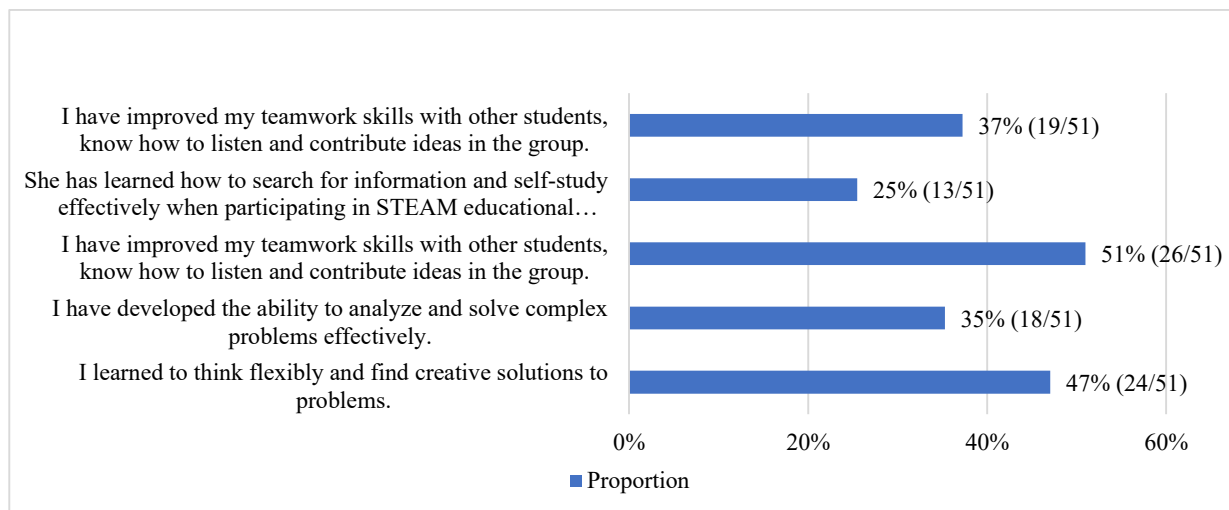


Figure 3. Skills students practice when participating in STEAM educational activities

To optimize the STEAM education model in high schools, teachers have made proposals. The proposed content is detailed in the following chart:

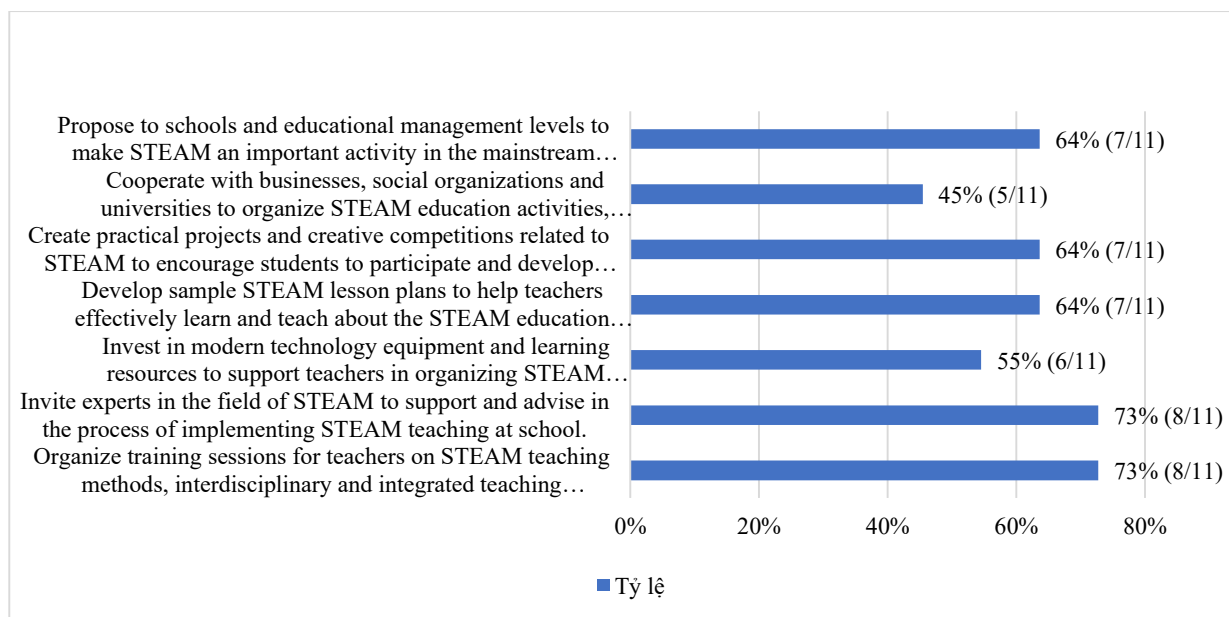


Figure 4. Teachers' opinions on improving the effectiveness of STEAM education in educational institutions

Proposing a form of organizing STEAM educational activities through the model of "STEAM Festival" with the theme "Activities to learn about and preserve natural landscapes in Moc Chau"

The topic "Activities towards nature" is a teaching content in the General Education Program Experiential Activities and Experiential Activities, Career Guidance issued on December 26, 2018 by the Minister of Education and Training. This topic is organized for teaching from grade 1 to grade 12 (General Education Program Experiential Activities and Experiential Activities, Career Guidance, n.d.). The general goal of the topic is to help students develop and implement a

propaganda plan, calling for the protection of natural landscapes; Evaluate the behavior of organizations and individuals in conservation and recognize the meaning of landscapes for personal emotions; Proactively participate in conserving, promoting landscapes and calling on the community to do the same; Evaluate the current status of conservation of local scenic spots and propose creative, positive solutions; Propagate in the community about the importance of protecting natural landscapes. Based on the general objective, we designed and organized STEAM educational activities through the model of "STEAM Festival" with the theme "Activities to explore and preserve natural landscapes in Moc Chau" for high school students in Son La province with the specific goal of helping students explore the geographical, ecological, and traditional cultural characteristics of Moc Chau district, Son La province, and at the same time know the difficulties and challenges in preserving natural landscapes in this area. This activity aims to develop students' research capacity, creative thinking capacity, teamwork skills, and problem-solving skills through natural landscape conservation projects. At the same time, it helps students raise their awareness and responsibility in protecting the environment and natural landscapes in the locality. Knowledge of subjects such as History, Geography, Biology, Chemistry, Technology, Literature and Mathematics will be integrated for students to solve learning tasks.

How to organize a STEAM festival is specifically through the following tasks:

Step 1: Teachers make a detailed plan for STEAM educational activities through the model of "STEAM Festival" with the theme "Activities to learn about and preserve natural landscapes in Moc Chau". The plan includes: objectives, educational activities content, implementation process of activities, preparation of research documents, teaching equipment, materials used in practical activities, arrangement, layout of space for exhibition areas and areas for experiential activities.

Step 2: Teachers organize and guide students to participate in learning activities according to the established plan.

- Teachers divide areas for students to perform different learning tasks:

Group 1 is in charge of the research and exhibition area. Here, students will research projects related to the typical ecosystem of Moc Chau such as: "Research on indigenous knowledge of the Dao ethnic group in the use of land resources", "Research on indigenous knowledge of the Thai people in protecting forest resources", "Research on traditional culture of the H'Mong ethnic group in developing experiential tourism". Students will describe the development and application of indigenous knowledge and the diversity of indigenous cultural traditions, and propose protection measures. The group's learning products will be photos of Moc Chau, displayed and exhibited at the "STEAM Festival".

Group 2 is in charge of the art creation area with the theme "Moc Chau Nature". Here, students will display art products created by students such as paintings, photos, models, and other works of art inspired by the natural landscape and traditional culture of ethnic groups in Moc Chau province.

Group 3 will be in charge of the technology and solutions area for nature conservation. Students will demonstrate advanced technology solutions for monitoring and conserving landscapes in Moc Chau, such as using Drones to monitor forest conditions, applying AI to analyze

environmental data, and IoT technology to measure air and water quality in popular tourist areas of Moc Chau.

Group 4 will be in charge of the hands-on experience area. Students will recreate traditional Mong house models, along with surrounding canola flower gardens, creating a space for visitors to explore and take souvenir photos.

Group 5 will be in charge of the workshop area. Here, students will organize debates and presentations around issues of nature conservation in Moc Chau, the impact of tourism on the environment, and sustainable solutions for regional development. The main topic is "How to develop sustainable tourism in Moc Chau without affecting the natural landscape?"

- Teachers guide student groups to present their projects and products in designated and assigned activity areas. Visitors can interact, participate in experiences, and discuss with students.

- Teachers form a judging panel to evaluate projects and products based on criteria of creativity, scientific application, and feasibility of conservation solutions. Awards are given to outstanding projects and products.

Step 3: Teachers organize students to summarize to evaluate the effectiveness of the STEAM festival, draw experience for future events. Collect feedback from students, teachers, and visitors.

The above STEAM education activities have applied many different teaching methods to develop students' comprehensive capacity. The experiential teaching method guides students to recreate traditional housing models and cultural spaces of the H'Mong people, helping students better understand the culture and landscape of Moc Chau province through direct experience. Teaching according to the 5E model (Prompt, Explore, Explain, Extend, Evaluate) helps students explore and research ecosystems and indigenous knowledge, thereby developing critical and creative thinking. Project-based teaching encourages students to work in groups to carry out projects such as researching ethnic cultures or developing solutions for nature conservation, thereby enhancing their initiative and problem-solving skills. Design-based teaching methods help students apply modern technology such as drones and AI to create solutions for landscape protection. Finally, the constructivist teaching method aims to facilitate students to develop knowledge through the process of discovery, debate and solution proposal, developing independent thinking and collaboration skills.

5. CONCLUSIONS

The use of modern teaching methods to organize educational activities following the STEAM model in secondary schools is essential and yields high effectiveness. Methods such as experiential learning, project-based learning (PBL), the 5E model, design-based learning, and constructivist teaching not only improve the quality of education but also provide opportunities for the holistic development of students. These approaches also play a vital role in the innovation of teaching methods in Vietnam's current secondary schools, fostering creativity, critical thinking, and problem-solving skills in students. The use of theoretical research methods, qualitative methods, and data collection tools such as research questionnaires has clarified the current status of educational activities according to the STEAM model for high school students in general

schools today. Evaluating the effectiveness of selected teaching methods to organize educational activities according to the STEAM model, and proposing a form of organizing teaching according to the STEAM model that is completely suitable for the target students. high school student. The results show that the STEAM education model not only meets the goals and requirements of the General Education Program of the Ministry of Education and Training (2018) but also contributes significantly to building a modern education system, in line with the trend of globalization and digital technology.

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DEVELOPING LOCAL CULTURAL EXPERIENCE MODEL FOR STUDENTS IN TAY BAC UNIVERSITY

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ABSTRACT

The Northwestern region of Vietnam is home to many ethnic minorities with diverse and unique traditional cultures. Cultural immersion not only promotes sustainable tourism development and preserve enhancement of ethnic cultural values, but also creates economic opportunities for local communities. In the context of globalization, students need to be equipped with knowledge of culture, history, economics and society to become comprehensive and responsible citizens. Organizing cultural immersion activities enables students to connect with the local community, understand and share their challenges, contribute to the economic, social, educational and cultural development of the region, fostering solidarity and national pride. This paper employs theoretical research methods, quantitative and qualitative approaches, as well as action research to focus on the following contents: Cultural characteristics of ethnic minorities in the Northwest region; Analysis, testing and evaluation of cultural experience models; Cultural experience model for students of Tay Bac University. The research results show that research and guidance on organizing local cultural experience models for students not only improve the quality of education at universities but also contribute to the dissemination, preservation and promotion of local cultural values.

Keywords: Experiential model; Cultural education; Tay Bac; Method innovation

1. INTRODUCTION

The Northwest region of Vietnam, located at 21°28'51"N 103°44'39"E, includes 6 provinces: Lao Cai, Lai Chau, Yen Bai, Dien Bien, Son La, and Hoa Binh. This is an area rich in cultural identity and natural heritage, inhabited by numerous ethnic minority communities such as Thai, Dao, Tay, Nung, and H'Mong. Each ethnic group holds distinctive cultural values, from customs, costumes, to festivals and rituals, contributing to a rich and diverse cultural tapestry. However, in the context of globalization and modernization, these cultural values are facing the risk of being lost. Preserving and promoting traditional cultural values is not only the responsibility of local communities but also of the whole society, especially the education sector.

According to the 2022-2023 school year report, Tay Bac University has 3,399 students, of which 1,552 are ethnic minorities such as Mong, Dao, Thai, Xinh Mun, Kho Mu, Khang, La Ha, Si La, Giay, La Hu, Tho, San Chay and Lao (Tay Bac University, 2023), all students have the opportunity to participate in cultural experience activities to better understand the culture, history, economy and society of the Northwest region. This research focuses on answering the following three questions: *What specific cultural elements ethnic groups in the Northwest region have been*

selected and integrated into cultural experience activities for students of Tay Bac University? How have cultural experience models contributed to raising awareness of Tay Bac University students about local culture, history, economy and society? How to develop a model of local cultural experience for students, that not only provides comprehensive knowledge of local culture, history, economy, and society but also fosters skills and raises awareness about preserving and promoting the traditional cultural values of Tay Bac University students?

2. LITERATURE REVIEW

Many studies around the world have confirmed the effectiveness of experiential education through different teaching methods and forms that provide students with high levels of real-world experience and interaction. The combination of virtual reality technology with immersive features and learning through experience is considered necessary (Fromm et al., 2021). To help students experience the reality of future careers, the author group Leung and colleagues developed a career adaptation model for high school students in Hong Kong (Leung, et al., 2022). In order to encourage students' participation in experiential learning activities, Quibrantar's research team applied David Kolb's experiential learning theory in organizing experiential activities in the classroom (Quibrantar et al., 2023). Real-life experiential activities are also an educational method that helps students make decisions and choose future career behaviors (Burga et al., 2023).

Cultural education through experiential activities combines theory and practice, aiming to help students gain a deeper understanding of traditional cultural values. Cultural and historical education theory has become the foundation of teacher training programs, helping them organize effective collaborative learning activities (Lupu et al., 2011). Cultural education in teacher training programs is necessary, creating learning activities that are culturally and socially connected (Using relational cultural theory in education research design n.d.). Learning activities based on cultural and social studies aim to equip teachers with teaching skills in multicultural environments (Peck et al., 2009). Understanding local culture not only supports the development of teaching content but also plays an important role in building the curriculum development for multicultural classrooms (Blanchet et al., 2013). In Malaysia, cultural experience activities take two forms: informal cross-national interactions and diverse teaching programs, which aim to develop students' psychological characteristics (Shah et al., 2014). At the university level, cultural studies are a necessary requirement for students, requiring the development of open educational resource models to train this skill (Kaosaiyaporn et al., 2015a), (Kaosaiyaporn et al., 2015b). Cultural education provides learning opportunities, while also providing knowledge and a sense of responsibility and pride in national culture (Morgan et al., 2023). In the context of internationalization, the teaching of local culture needs to be respected and protected (Singh et al., 2021). Understanding the cultural values, learning styles, historical legacies, and contributions of ethnic groups is the foundation for developing a common cultural space, enhancing community cohesion in schools (de Groot et al., 2023). Research shows that culture has a profound influence on regional innovation and economic development, with culturally diverse regions often having more innovative solutions (Hu et al., 2022). Cultural exchanges between China and Canada have shaped the curriculum, helping students develop skills to integrate content, ideas, and attitudes

(Holloway et al., 2023). Research also shows that historical, cultural, and linguistic factors have a great influence on educational activities (Houdek et al., 2023).

These studies serve as a foundation and provide suggestions for the forms and methods of organizing experiential learning models as well as the development of a local cultural experiential education model for students of Tay Bac University.

3. METHODOLOGY

This paper employs theoretical research methods to reinforce the theoretical framework of experiential learning, cultural experiential models, and local cultural education, thereby establishing a solid foundation for the development of experiential models. In addition, quantitative methods are applied through questionnaires on Google Forms to measure students' understanding and attitudes toward local culture, as well as the impact of these educational activities on academic performance and skill development. The quantitative data is processed and encoded using SPSS software. Qualitative methods are employed through observation and case studies to assess students' cultural experiential activities, allowing for adjustments to the models to better align with local culture. Action research methods will be utilized to test and refine the model, including building, piloting, and collecting feedback from students, thus providing conclusions for the development of a cultural experiential model for students at Tay Bac University.

4. RESULTS

4.1. Cultural characteristics of ethnic minorities in the Northwest region

The Northwest region of Vietnam is home to many ethnic minorities, with a diversity of languages, ethnicities, costumes, customs, festivals, and traditional arts... creating a rich and diverse cultural region.

About language: Thai belongs to the Tay-Thai language family and is the main language of the Thai people, one of the largest ethnic groups in the Northwest region of Vietnam. This language has its own writing system and is widely used in traditional texts. The H'Mong and Dao people speak languages belonging to the Mong-Dao language family. Of which, the H'Mong have language groups such as Mong Trang, Mong Den, and Mong Hoa, while the Dao have many different dialects. Small ethnic groups such as the Kho Mu and Xinh Mun use languages belonging to the Mon-Khmer language family. Although not as popular as other languages, they still play an important role in their cultural life.

Ethnicity: The Thai are the largest ethnic group in the Northwest. The Thai are known for their rich culture, including festivals such as Xen Muong, Tet Xip Xi, Tet Nguyen Dan, along with customs related to agriculture. The Thai have their own writing system and unique traditional costumes. The H'Mong live mainly in the highlands. The H'Mong have a unique culture with festivals such as Gau Tao, ancestor worship and traditional costumes decorated with many colorful motifs. The Dao are known for their festivals such as Tet Nhay, Ban Vuong worship and customs related to marriage and family. They have many dialects and diverse cultures. The Muong live

mainly in the lowlands of the Northwest. The Muong have a culture close to the Vietnamese (Kinh), with festivals such as the Dinh festival, the rain-praying festival and customs related to agriculture. The Kho Mu and Xinh Mun are two ethnic minorities, but they have a unique culture, with hunting, gathering and agricultural practices, and a language belonging to the Mon-Khmer language family.

Regarding clothing: The traditional Thai costume is characterized by a long black skirt and a short, tight-fitting blouse. Thai women often wear colorful belts and an outer jacket with delicate embroidered patterns. The Pieu scarf is an indispensable part, an important cultural symbol, with meticulous embroidery patterns. Thai men wear short blouses and long pants, usually black or indigo. Thai costumes are not only for wearing but also reflect social status in the community. The Hmong costume is characterized by its diversity of colors and patterns. Hmong women wear long flared skirts, brightly embroidered tunics, along with head scarves and silver jewelry such as necklaces and bracelets. Each Hmong group, such as Hmong Den, Hmong Hoa, and Hmong Trang, has its own characteristics, creating diversity in Hmong culture. Hmong men wear shirts with open chests and wide-legged pants, with indigo as the main color. Dao costumes are characterized by elaborate hand-embroidered long dresses, usually indigo or black, combined with skirts or trousers. Dao women wear scarves or hats embroidered with patterns, beaded, long belts and wear lots of silver jewelry. Dao men wear long dresses with belts, long pants and hats, accompanied by silver jewelry, representing wealth and prosperity.

Regarding customs and practices: The Thai people have many unique customs, of which the Xen Muong festival stands out as an important ritual to thank heaven and earth, pray for favorable weather and bountiful crops. They also have unique wedding customs, with traditional rituals such as proposal, engagement, bride procession and wedding ceremony. In addition, the Thai stilt house is not only a place to live but also the center of community activities. The H'Mong people have the Gau Tao festival, their biggest festival, to pray for blessings, children or to ward off bad luck. The H'Mong people's wedding is notable for the "wife-stealing" custom, a unique cultural feature in ethnic minority culture. The H'Mong's tradition of linen weaving and indigo dyeing creates costumes with unique patterns. The Dao people have the Tet Nhay festival, which takes place on the occasion of the Lunar New Year to thank ancestors and pray for blessings for the new year, along with the Ban Vuong worship ceremony, an important ancestor worship ritual. Rituals related to marriage and childbirth, funerals, and coming-of-age ceremonies also play an essential role in the lives of the Dao people.

Regarding festivals and traditional arts: The Thai people are famous for the Xen Muong festival, which takes place in the spring to pray for favorable weather, bountiful crops, and a peaceful life. The festival includes rituals to worship heaven and earth, gods, and ancestors, expressing gratitude and wishing for a prosperous new year. Folk art activities such as Xoe dance, Con throwing, and the Han Khuong festival have contributed to creating a vibrant and cohesive community atmosphere. In particular, Thai Xoe dance is a symbol of the spirit of solidarity and unique culture of the Thai people. The H'Mong people have the Gau Tao festival, held at the beginning of the year to pray for blessings, children, or to ward off bad luck for the family. This festival includes folk games such as stick pushing, pao throwing, and talent competitions such as blowing the khen, shooting crossbows, demonstrating the dexterity and strength of the H'Mong

people. The H'Mong panpipe is a unique traditional musical instrument, associated with panpipe dances and singing, often appearing in festivals, creating a joyful atmosphere and connecting the community. The H'Mong New Year takes place from the end of December to the beginning of January of the lunar calendar, with many traditional activities such as pig slaughter, making sticky rice cakes, blowing panpipes and panpipe dancing, which is an occasion to thank ancestors and pray for a prosperous new year. The Dao ethnic group has a Tet Nhay festival on the occasion of the Lunar New Year, to thank ancestors and pray for a peaceful and prosperous new year. The festival includes rituals of singing, dancing, drumming, and group dancing, expressing gratitude to ancestors. Another important ritual is the Ban Vuong worship ceremony, honoring the ancestors of the Dao ethnic group according to legend. The knife dances and fire dances demonstrate the bravery and ingenuity of the Dao people, while the hand embroidery on Dao women's costumes is a symbol of the ethnic cultural identity. The Khang ethnic group organizes a rain-praying festival in the dry season to pray for favorable weather and a bountiful harvest. The festival includes rituals of worshipping heaven, earth and ancestors, along with folk games such as tug of war and throwing Con. The new rice festival takes place after the harvest season to thank heaven, earth and ancestors, hoping for the next crop. The scarf dance, a typical dance of the Khang people, is often performed in festivals, expressing the spirit of solidarity and joy of the community. The Xinh Mun ethnic group also has a new rice festival, held after the harvest season to thank heaven, earth and ancestors, praying for a bountiful harvest. The festival includes rituals of worship and folk entertainment activities. The rice-growing festival takes place during the rice-flowering season, with religious and cultural activities praying for good rice growth. The xoe and sap dances, along with traditional musical instruments such as the khene and the mouth harp, demonstrate the richness of the Xinh Mun people's culture (Bui Tinh, 1975).

The culture of the Northwest region is characterized by a high sense of community, expressed through traditional festivals and arts. Activities such as Xoe dance, Khen dance, and folk games not only help connect people but also demonstrate the spirit of solidarity, sharing, and mutual support in the community. The festivals of the ethnic groups in the Northwest region are closely linked to nature and beliefs, through rituals of praying for rain, praying for a bountiful harvest, and thanking heaven, earth, and ancestors. This shows the harmony between people and the natural environment. Traditional arts such as dance, music, and embroidery play an important role in preserving and transmitting cultural identity, demonstrating ingenuity, creativity, and national pride. The diversity and uniqueness of each ethnic group has created a rich and diverse culture of the ethnic groups of Vietnam and the country of Vietnam.

4.2. Analyze, test and evaluate cultural experience models

David Kolb's experiential learning model consists of four main stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This model emphasizes learning through action and practical experience, where learners reflect on these experiences and abstractly conceptualize them to create new knowledge. It not only enhances self-directed learning, critical thinking, and creativity but also enables learners to effectively connect theory with practice. However, for successful implementation, teachers need to thoroughly prepare in terms of time and resources.

Project-Based Learning (PBL) is a learning method in which learners solve a real-world problem or create specific products. This process includes planning, researching, implementing, and evaluating the results. PBL is prominent in developing problem-solving, teamwork, and research skills. At the same time, it encourages learners' initiative and creativity, creating valuable practical products. However, this model requires close guidance and management from teachers, especially when learners are faced with complex projects and may encounter difficulties without support from teachers.

Service-learning combines learning with community service activities. Learners participate in volunteer activities or community service projects and then write reflections on the experience to learn lessons. This model fosters a deeper connection with the community, enhancing students' understanding of social and cultural issues. It also develops social skills, civic responsibility, and critical thinking. However, to be effective, there must be a close connection between the school and the community and must ensure that the service activities are truly relevant to the lesson content.

The Cultural Immersion model puts learners in a different cultural environment to experience the life, customs and language of that community. This method helps learners gain a deep understanding of culture through practical experiences, develop intercultural communication skills and respect cultural diversity. However, high costs and the need for adaptability are challenges of this model. Each experiential learning model has its own advantages and is suitable for different educational goals. Choosing the right model should be based on learning goals, available resources and learner characteristics to ensure the highest efficiency (Chu Thi Mai Huong, 2024).

4.3. Cultural experience model for students of Tay Bac University

Through the process of theoretical and practical research, we have found that Tay Bac University is applying the Integrated Cultural Education model in the Training Program. This is an educational method that combines theory and practice to help students gain a deeper understanding of local culture. In this program, two cultural teaching modules, “Vietnamese Cultural Establishments” and “The Tay Bac Cultural Region of Vietnam”, are common elective modules for the training programs of Tay Bac University. Each module is designed with a duration of 2 credits to provide theoretical knowledge about natural and social conditions, material and spiritual life of the cultural region of the Northwest. The practical part includes activities such as visiting historical sites, participating in festivals, and field research on cultural communities of ethnic groups in the Northwest, making models to recreate the cultural space of ethnic groups, experiencing STEAM educational activities with the theme of Northwest culture... (Tuan, 2023). This model helps students gain a deeper understanding and apply knowledge to practice. Students are encouraged to participate in research and fieldwork, develop analytical and problem-solving skills, and enhance cultural awareness. However, organizing practical activities requires teachers to prepare many materials and resources, and it can be difficult to coordinate theory and practice. The experiential activities carried out through the course “The Tay Bac Cultural Region of Vietnam” are as follows:

When teaching chapter 2 - Natural and social conditions of the Northwest region, the lecturer organizes experiential activities for students to gain a deeper understanding of the typical cultural space of this region. Students participate in group discussions on topics such as festivals, costumes, and cuisine of the H'Mong, Thai, Dao, Khang, Xinh Mun, and Lao ethnic groups. Moreover, the university collaborates with local cultural events to organize activities where students recreate the cultural spaces of these ethnic communities, such as constructing models of the stilt houses of the Thai people or the wooden houses of the H'Mong, and recreating communal living spaces. Some of these experiential activities are illustrated in the images below.



Figure 1. Students discuss cultural topics assigned by the lecturer



Figure 2. Students practice the Xoe dance of the Thai ethnic group in the Northwest



Figure 3. Students recreate the living space of the H'Mong ethnic group at the yard of Tay Bac University

Cultural experience activities such as group discussions, folk dance practice, and cultural space reenactment at Tay Bac University help students connect theory with practice, develop practical skills and creativity, and contribute to the preservation and promotion of local culture. These activities not only enhance understanding and respect for cultural diversity but also provide an important practical basis for developing cultural experience models, improving the quality of training for students.

When teaching Chapter 3 – Material life of ethnic groups in the Northwest, the lecturer aims to help students understand the culinary culture and traditional costumes of the ethnic groups here. Students are divided into groups, each group will research and present about a specific ethnic group such as H'Mong, Thai, Dao, Khang, Xinh Mun, or Lao. The discussion content includes typical dishes (processing methods, ingredients, and cultural significance) as well as traditional costumes (materials, designs, colors, and meanings of motifs). In addition, students also participate in practicing cooking traditional dishes of the Thai and H'Mong ethnic groups and enjoy their creations. A field trip to the residence of indigenous people is also organized, where students have the opportunity to learn and practice traditional crafts under the guidance of artisans. These experiential activities are illustrated through the following images.



Figure 4. Students practice cooking Pinh Top grilled fish and grilled chicken dishes of ethnic groups such as Thai (Source: author)



Figure 5. Tudents practice traditional hand embroidery under the guidance of artisans (Source: Author)

To assess the impact of local cultural education activities on students' skill development, we conducted a quantitative survey with 274 students of Tay Bac University through Google Forms (<https://docs.google.com/forms/>). The questionnaire was sent to students in June 2024. In addition,

we used SPSS 20.0 software to calculate students' scores to evaluate their learning outcomes on local culture. The specific data are as follows:

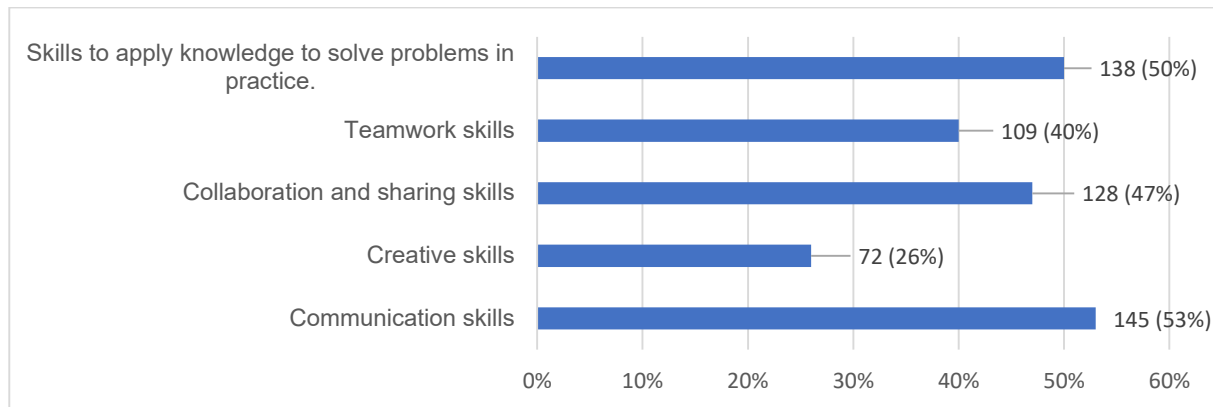


Figure 6. Chart showing the impact of local cultural education activities on students' skill development

Source: Author

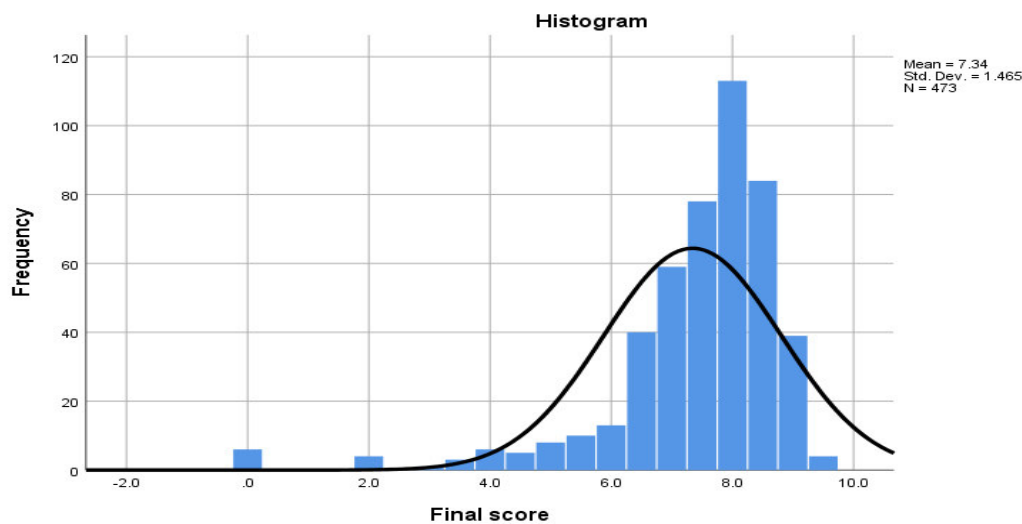


Figure 7. Chart describing the learning outcomes of local culture of students at Tay Bac University in the 2022 - 2023 academic year

Based on the data in the chart, it shows that communication skills have the highest rate, with 53% of students (145 people) saying that this skill has been improved through local cultural education activities. The skill of applying knowledge into practice reached 50% (138 people), showing that students have the ability to apply theory into practice quite well. Collaboration and sharing skills are also at a high level with 47% (128 people). However, teamwork skills (40%) and creativity skills (26%) need to be supported to help students develop more comprehensively.

The graph shows the distribution of the final scores of the subject “Northwest Culture” of 473 students, with an average score of 7.34 and a standard deviation of 1.465. The distribution is bell-shaped, showing that most students scored between 6 and 9, with the peak falling around 8.

This shows that most students have quite good learning results in local cultural education activities for students at Tay Bac University.

5. CONCLUSIONS

The research confirms the significance of developing a local cultural experiential model for students at Tay Bac University. Through analyzing the unique cultural characteristics of ethnic minorities in the Northwest, we clearly see that organizing cultural experience activities not only improves the quality of education but also plays an essential role in preserving and promoting traditional cultural values. The local cultural experience model not only helps students better understand the culture, history, economy and society of the locality but also promotes community cohesion and builds solidarity and national pride. These results are not only meaningful in the comprehensive education of students but also contribute significantly to the sustainable development of the Northwest region, while meeting the integration needs in the context of globalization.

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INTEGRATING PROJECT-BASED LEARNING IN DIGITAL LEARNING ECOSYSTEMS: A SYSTEMATIC REVIEW

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ABSTRACT

This paper provides a systematic review of the integration of Project-Based Learning (PBL) within Digital Learning Ecosystems (DLEs), conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The use of PRISMA ensures a transparent and rigorous process in identifying, screening, and selecting relevant studies. Additionally, the analysis was enhanced through the use of VOSviewer, a powerful tool for visualizing bibliometric data, which allowed for the mapping of key trends, co-authorship networks, and keyword co-occurrence within the literature. PBL, known for its ability to foster student engagement, critical thinking, and problem-solving, is increasingly being integrated into digital learning environments. This review spans research from 2016 to 2024, revealing significant growth in publications, particularly during the COVID-19 pandemic, which accelerated the adoption of digital learning systems. Despite the advancements, the review highlights several gaps, including the need for more comprehensive theoretical frameworks and long-term impact studies. The findings provide valuable insights for educators, researchers, and policymakers, guiding the effective implementation of PBL in digital learning systems to enhance educational outcomes in the digital age.

Keywords: Project-Based Learning, Digital Learning Ecosystems, PRISMA Guidelines, Educational Technology, VOSviewer Analysis

1. INTRODUCTION

In the context of rapid digital transformation, the integration of technology into educational practices has become increasingly pivotal, particularly in the realm of Project-Based Learning (PBL). PBL is a pedagogical approach that emphasizes student-centered learning through the completion of real-world projects, which enhances critical thinking, problem-solving, and collaborative skills (Hadgraft & Kolmos, 2020). As digital learning ecosystems continue to evolve, the fusion of PBL with these systems presents a unique opportunity to enrich educational experiences by making them more interactive, accessible, and adaptable to diverse learner needs (Lizunkov, Politsinskaya, & Gazin, 2020).

The implementation of PBL within digital learning environments offers numerous advantages, such as increased student engagement, enhanced knowledge retention, and the development of skills essential for the 21st century. Digital platforms facilitate communication, collaboration, and access to a broad range of resources, thereby making PBL more scalable and effective. For instance, technology integration in PBL allows for the creation of virtual and hybrid learning experiences where students collaborate on projects irrespective of geographical boundaries, fostering a more inclusive and flexible learning environment (Yooyativong & Kamyod, 2023). Additionally, digital tools support personalized learning pathways, enabling

students to progress at their own pace while receiving continuous feedback from educators and peers (Kesler, Gibson, & Turansky, 2016).

However, despite these benefits, the integration of PBL into digital learning systems is not without challenges. These challenges include the need for substantial technological infrastructure, the requirement for effective educator training, and the development of appropriate assessment methods that align with PBL's goals (Deepa, Susithra, Santhanamari, & Reba, 2024). Moreover, there is an increasing demand to align curricula with digital tools to ensure that PBL is seamlessly integrated into the educational process. While numerous educational institutions have adopted PBL in digital settings, the implementation strategies vary significantly, highlighting the need for more standardized approaches and guidelines (Li, Li, & Lin, 2023).

Previous research has explored various facets of PBL within digital learning systems, such as its impact on student outcomes, the role of technology in facilitating PBL, and the obstacles encountered during its implementation. However, much of this research has been fragmented, focusing on specific applications or case studies without providing a broader view of the trends and emerging themes within the field. This paper aims to bridge this gap by conducting a comprehensive bibliometric analysis of PBL in digital learning systems. Through this approach, the study seeks to offer a thorough overview of the existing literature, identify key research trends, highlight influential studies and authors, and uncover emerging themes that are shaping the future of PBL in digital education.

The research questions addressed in this study are as follows:

RQ1: What are the trends in peer-reviewed publications on the application of PBL in digital learning systems from 2016 to 2024, and how has the volume of research evolved over this period?

RQ2: Which countries are most active in conducting research on PBL within digital learning systems, and what evidence is there of international collaboration in this field?

RQ3: What emerging themes and trends can be synthesized from the recent literature on PBL within digital learning systems?

RQ4: Which journals have been the most influential in publishing research on PBL in digital learning systems?

By addressing these research questions, the study aims to provide a comprehensive understanding of the integration of PBL in digital learning environments. The findings will offer valuable insights for educators, researchers, and policymakers, guiding future research directions and supporting the effective implementation of PBL in the digital age.

2. LITERATURE REVIEW

2.1. Overview of Project-Based Learning

PBL is an instructional methodology that encourages students to learn by engaging in real-world and meaningful projects. This approach is rooted in constructivist theories of education, particularly those of John Dewey, who advocated for experiential learning as a way to promote deeper understanding and retention of knowledge (Dewey, 1938). PBL differs from traditional learning models by emphasizing active participation, critical thinking, collaboration, and the

application of knowledge to solve complex problems. Over the years, research has shown that PBL can enhance student engagement, improve critical thinking skills, and foster a deeper understanding of the subject matter (Thomas, 2000; Blumenfeld et al., 1991).

Various models of PBL have been developed, including the Buck Institute for Education's (BIE) model, which provides a structured approach to implementing PBL with clearly defined stages such as project planning, execution, and assessment. The BIE model emphasizes the importance of essential elements like a challenging problem or question, sustained inquiry, reflection, critique, and public presentation of the project (Larmer, Mergendoller, & Boss, 2015). In addition, other models, such as the Collaborative Inquiry-Based model and the Design-Based model, have also gained recognition in various educational contexts (Krajcik & Blumenfeld, 2006). These models underscore the flexibility of PBL to adapt to different learning environments and disciplines, making it a versatile approach to student-centered learning.

The integration of digital tools in PBL has further expanded its potential, allowing students to collaborate and access diverse resources across geographic boundaries (Bell, 2010). Digital platforms, such as Learning Management Systems (LMS) and digital storytelling tools, enhance the interactive nature of PBL and provide a means for continuous feedback and assessment (Kesler, Gibson, & Turansky, 2016). Moreover, the adaptability of PBL in virtual settings has become increasingly relevant in the context of remote and hybrid learning environments, particularly during the COVID-19 pandemic (Recke & Perna, 2021).

Despite its numerous benefits, PBL is not without challenges. Educators often face difficulties in aligning PBL with standardized curricula and assessment frameworks, which are typically designed around traditional instructional methods (Larmer & Mergendoller, 2015). Additionally, ensuring equitable access to resources, such as technology and materials, remains a critical concern, especially in under-resourced educational settings (Al-Abdullatif & Gameil, 2021). Effective implementation of PBL also requires significant professional development for educators to design and facilitate project-based learning experiences successfully (Vega & Brown, 2013). Therefore, while PBL continues to evolve as a powerful pedagogical approach, addressing these challenges is essential for its sustained impact on educational outcomes.

2.2. Digital Learning Ecosystems

Digital Learning Ecosystems (DLEs) refer to a comprehensive network of digital tools, platforms, and environments that support the learning process. These ecosystems are characterized by their ability to provide flexible, scalable, and personalized learning experiences. Key components of DLEs include Learning Management Systems (LMS), digital content repositories, communication tools, and data analytics platforms, all of which work together to facilitate both synchronous and asynchronous learning (Siemens, 2005). The concept of DLEs has evolved with advancements in educational technology, offering new opportunities for collaborative learning, real-time feedback, and data-driven decision-making in education (McLoughlin & Lee, 2010). DLEs are also designed to be adaptable to various learning contexts, supporting the integration of diverse pedagogical approaches, including PBL. The literature highlights the role of DLEs in enhancing access to education, particularly in remote and underserved regions, and in supporting lifelong learning through continuous access to learning resources (Redecker et al., 2011).

2.3. Integration of PBL and Digital Learning

The integration of PBL within DLEs represents a growing area of research that seeks to combine the strengths of both approaches to create dynamic and interactive learning environments. Studies have shown that digital tools can significantly enhance the implementation of PBL by facilitating collaboration, communication, and access to resources (Barak & Dori, 2005). For instance, digital platforms can support the planning and execution of projects, provide real-time feedback, and enable students to work collaboratively across geographic boundaries (Bell, 2010). However, the literature also reveals several gaps in the research. While many studies focus on the technical aspects of integrating PBL into DLEs, there is less emphasis on understanding the pedagogical shifts required to effectively implement PBL in digital environments (Garrison & Kanuka, 2004). Additionally, there is a need for more research on the long-term impact of PBL in DLEs on student outcomes, particularly in terms of critical thinking, problem-solving, and the ability to apply knowledge in real-world contexts (Lavy & Yadin, 2013). Furthermore, existing studies often highlight challenges such as ensuring equitable access to technology and aligning digital PBL with existing curricular frameworks (Voogt et al., 2013).

3. MATERIALS AND METHODS

This systematic review on the integration of PBL within Digital Learning Systems was conducted following the PRISMA guidelines. PRISMA is a widely recognized and accepted standard for conducting systematic reviews, supported by various academic publications, research groups, and institutions for ensuring transparency and rigor in the review process.

3.1. Data Selection

The data for this review was sourced from the Scopus database, a comprehensive and reliable resource for high-quality publications in fields such as education, engineering, and technology. The search strategy employed the following search string: TITLE-ABS-KEY ("project-based" AND "learning" AND "digital" AND "learning" AND "system"). This search was designed to identify studies that explore the integration of PBL within digital learning systems.

The inclusion criteria for this review were as follows: (i) the study must focus on the application or implementation of PBL within digital learning environments; (ii) the article must be published in English; and (iii) the article must have been published between 2014 and 2023. Any articles that did not meet these criteria were excluded from the review. The selection process was conducted in two stages: initial title and abstract screening, followed by full-text screening. During the title and abstract screening, articles were assessed based on the relevance of their titles and abstracts to the research focus, and irrelevant studies were excluded. The remaining articles then underwent a thorough full-text screening to determine their eligibility for inclusion. Once the final selection of studies was made, a standardized data extraction form was used to systematically gather key information, such as the study's authors, publication year, methodology, and findings. The entire process of data collection and screening, following the PRISMA methodology, is depicted in the PRISMA flow diagram (Figure 1). After completing this rigorous selection process, a total of 40 studies were included in the final review.

3.2. Data Analysis and Reporting

To analyze and visually represent the data, the software tool VOSviewer was utilized. VOSviewer is widely recognized for its ability to create detailed visualizations of bibliometric data, including authorship, keyword co-occurrence, and collaborations between institutions. By analyzing these visualizations, connections and trends within the literature were identified, providing insights into the current state of research on PBL within digital learning systems.

The PRISMA diagram provides a comprehensive overview of the systematic review process, illustrating the identification, screening, and inclusion of studies. Initially, 432 records were identified from databases, with no additional records found in registers. After removing 237 records deemed ineligible by automation tools, 195 records proceeded to the screening stage. During screening, 159 records were excluded based on their titles and abstracts, leaving 36 reports for full-text retrieval. Of these, 12 reports could not be retrieved, resulting in 24 reports being assessed for eligibility. Following a thorough review, 5 reports were excluded, leading to the final inclusion of 19 studies in the systematic review. This process, as depicted in the diagram, ensures that only the most relevant and high-quality studies are included, thereby enhancing the transparency, rigor, and credibility of the review.

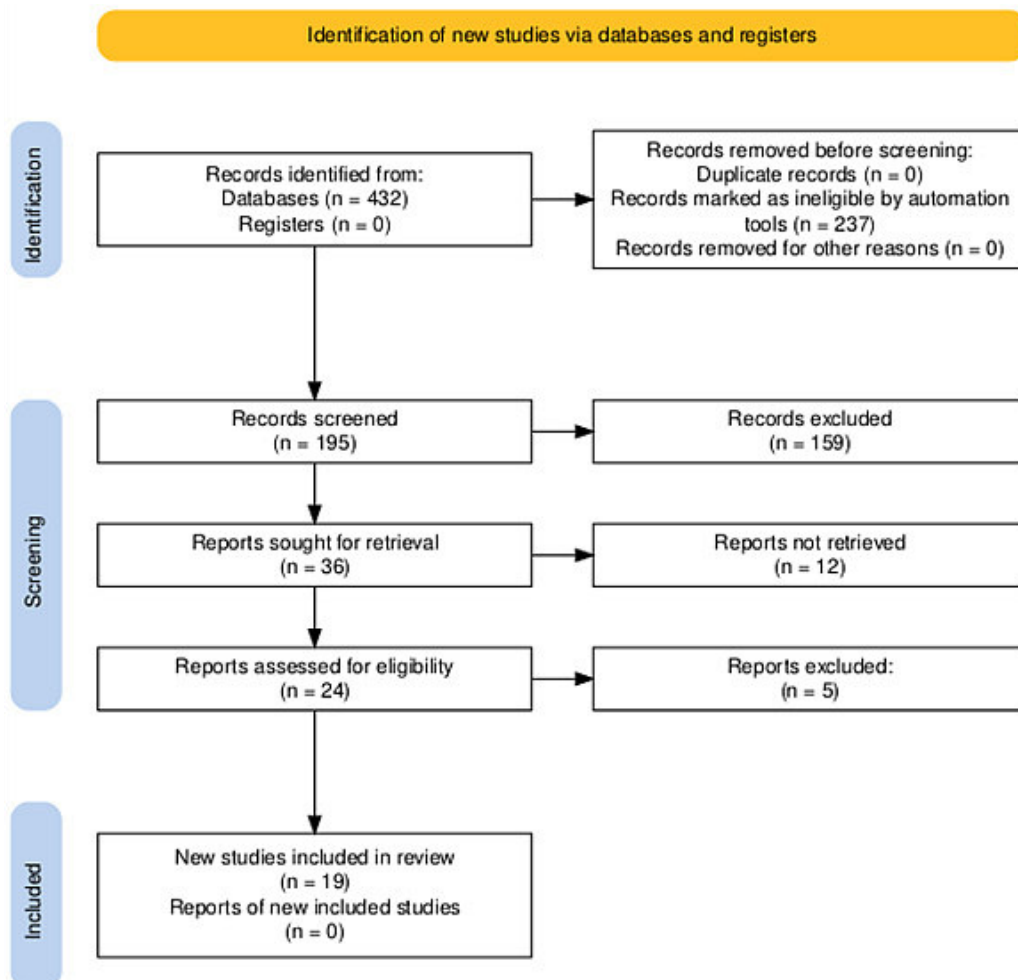


Fig 1. The PRISMA flow diagram illustrates the process of selecting research articles

4. RESULT

4.1. Research question RQ1: Trends in Peer-Reviewed Publications on the Application of PBL in Digital Learning Systems (2016-2024)

The analysis from 2016 to 2024 shows a significant and sustained increase in research on Project-Based Learning (PBL) within digital learning systems. The early years (2016-2017) saw modest growth, with foundational studies exploring the integration of PBL and digital tools. Research activity accelerated from 2018 to 2019, driven by the growing adoption of digital platforms to enhance student engagement and learning outcomes. The most significant surge occurred during the COVID-19 pandemic (2020-2021), as the shift to remote learning led to a rapid increase in studies on PBL's implementation in online and hybrid environments. This period focused on the challenges and opportunities of PBL in these new settings, significantly expanding the body of literature. By 2022-2023, PBL had become more established within curricula, with research focusing on refining practices, best methods, and exploring broader implications like equity and personalized learning. As of 2024, research on PBL in digital learning systems continues to grow, with a strong focus on innovative approaches involving artificial intelligence and data analytics to enhance its effectiveness.

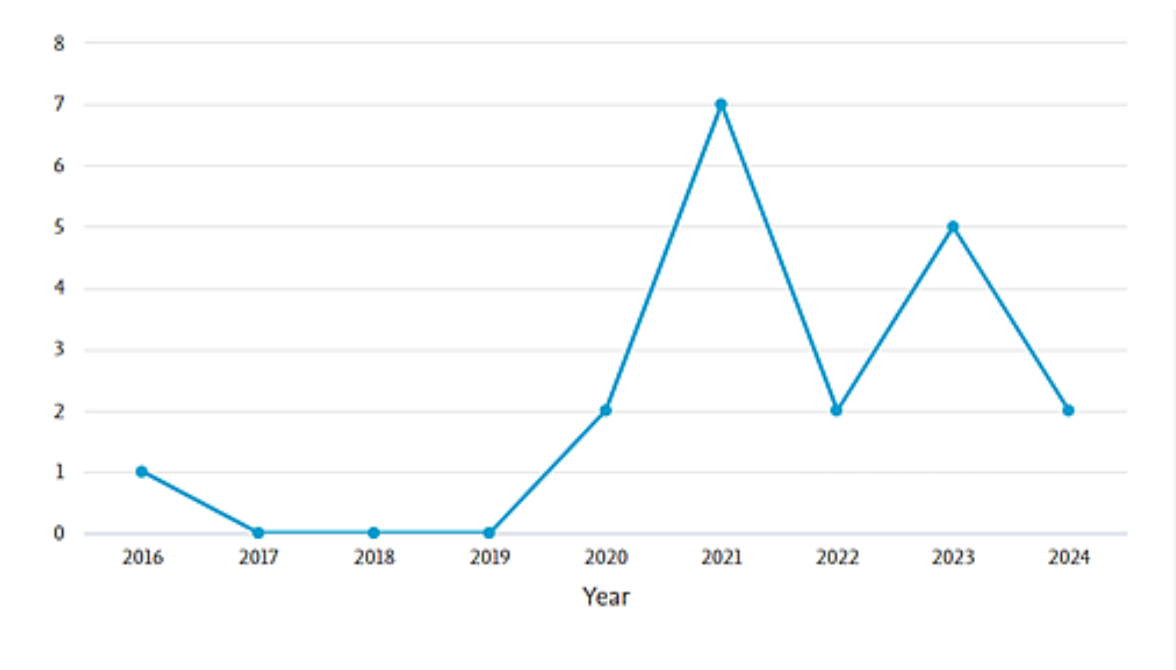


Fig 2. Trends in PBL Publications in Digital Learning Systems (2016-2024)

4.2. Research question RQ2: Which countries are most active in conducting research on PBL within digital learning systems, and what evidence is there of international collaboration in this field?

This analysis, based on Scopus data, identifies the most active countries in PBL research within Digital Learning Ecosystems (DLEs) and examines the factors driving their prominence.

The United States leads, contributing approximately 35% of related publications, driven by top educational institutions like Harvard, MIT, and Stanford, and supported by major technology companies such as Google and Microsoft. China follows with about 25%, bolstered by significant government investment in education and digital transformation, alongside active participation in international collaborations. Australia accounts for roughly 15%, with its advanced education system and strong emphasis on distance learning during the COVID-19 pandemic. India, contributing 10%, has seen rapid growth in PBL research, driven by its large population and initiatives like "Digital India." The Russian Federation and Thailand each contribute around 5%, with both countries focusing on modernizing their education systems and integrating technology, supported by national policies and international collaborations. Collectively, these countries lead PBL research in DLEs due to their robust educational infrastructures, supportive government policies, and active global engagement.

Research question RQ3: What emerging themes and trends can be synthesized from the recent literature on PBL within digital learning systems?

Integration of Technology in Education

The integration of technology into educational practices, particularly within PBL frameworks, is a significant theme in current research. Keywords such as "technology integration," "e-learning," and "computer-aided instruction" frequently appear in the literature, highlighting the central role of digital tools in enhancing the PBL experience. This theme reflects the broader trend of digital transformation in education, where technology is increasingly utilized to support and enrich the PBL process. For example, Yooyativong and Kamyod (2023) explore the application of IoT (Internet of Things) technology in improving digital upskilling within a PBL environment, demonstrating how technological integration can facilitate practical, real-world learning (Yooyativong & Kamyod, 2023). Additionally, Kesler et al. (2016) discuss how digital storytelling is used in PBL to engage students and foster creativity, further underscoring the intersection of technology and education (Kesler, Gibson, & Turansky, 2016).

Focus on Curricula and Learning Systems

Another critical theme in PBL research is the adaptation and development of curricula and learning systems to effectively incorporate project-based methodologies. Keywords such as "curricula," "learning systems," and "engineering education" point to ongoing efforts to align educational programs with the dynamic nature of PBL. This theme is driven by the need to create flexible curricula that can accommodate PBL's hands-on, student-centered approach. Hadgraft and Kolmos (2020) discuss the emergence of learning environments that integrate PBL into engineering education, highlighting the importance of curriculum design in facilitating effective learning outcomes (Hadgraft & Kolmos, 2020). Lizunkov et al. (2020) further examine the architecture of PBL in vocational education systems, emphasizing the necessity of well-structured curricula that support practical, experiential learning (Lizunkov, Politsinskaya, & Gazin, 2020).

Sustainability in Education

Sustainability is becoming an increasingly important theme in PBL research, particularly within higher education contexts. The frequent appearance of the keyword "sustainability" in the literature signals a growing emphasis on educational practices that promote sustainable

development. This theme reflects a broader societal shift towards environmental responsibility and social equity, with PBL providing a framework to instill these values in students. Li et al. (2023) explore how PBL can be integrated into business education to promote sustainability-oriented thinking, illustrating how project-based approaches can foster the skills and values necessary for addressing global sustainability challenges (Li, Li, & Lin, 2023).

Innovation in Teaching Practices

Innovation in teaching practices is another prominent theme in the PBL literature, with keywords like "teaching," "innovation," and "higher education" emphasizing the role of PBL in transforming traditional educational methods. This theme highlights the shift towards more dynamic and interactive teaching practices facilitated by PBL. Deepa et al. (2024) explore how Agile frameworks are applied within PBL environments to innovate teaching practices in embedded systems design courses, showcasing PBL's potential to enhance student engagement and learning outcomes (Deepa, Susithra, Santhanamari, & Reba, 2024). Harron et al. (2022) also discuss the scaling and support of 3D design and printing in higher education, demonstrating innovative teaching practices that integrate PBL (Harron, Emert, Thomas, & Campana, 2022).

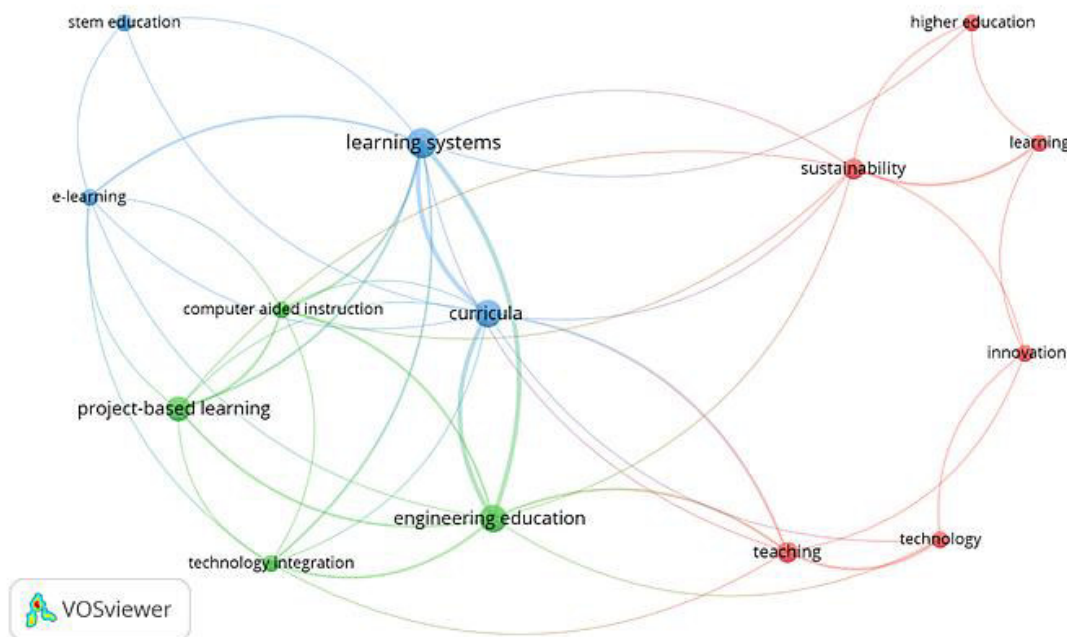


Fig. 3. Keyword co-occurrence network analysis

STEM Education and PBL

STEM (Science, Technology, Engineering, and Mathematics) education is closely associated with PBL, as indicated by the frequent occurrence of related keywords. This theme underscores the effectiveness of PBL in enhancing learning outcomes in STEM fields, where hands-on, project-based approaches are particularly beneficial. The integration of PBL in STEM

education is driven by the need to develop critical thinking and problem-solving skills among students. Balovsyak et al. (2024) illustrate this connection by discussing the use of fuzzy logic within STEM projects to improve understanding and application of complex technical concepts, highlighting how PBL can be effectively integrated into STEM education to foster practical, real-world skills (Balovsyak, Derevyanchuk, Kovalchuk, Kravchenko, Ushenko, & Hu, 2024).

Research question 4: Which Journals Have Been the Most Influential in Publishing Research on PBL in Digital Learning Systems?

In the field of Project-Based Learning (PBL) within Digital Learning Systems, several journals have emerged as particularly influential, contributing significantly to the discourse and research in this area.

International Journal of Emerging Technologies in Learning (iJET): iJET is a leading journal in educational technology, known for its broad focus on the intersection of technology and education. It has been influential in disseminating research on PBL within digital environments. For example, a study by Lizunkov, Politsinskaya, and Gazin (2020) on the architecture of PBL in vocational education highlights the journal's role in advancing PBL practices.

Journal of Engineering Education Transformations (JEET): JEET plays a significant role in engineering education, particularly in exploring the application of PBL in digital and hybrid learning systems. The journal is noted for publishing innovative research, such as the 2024 study by Deepa et al., which investigates the use of Agile frameworks in PBL for embedded systems design.

Sustainability: This journal has become an influential platform for research at the intersection of PBL and sustainable education practices. It provides valuable insights into how PBL can be used to promote sustainability in digital learning environments. A study by Li, Li, and Lin (2023) on sustainable teaching models in business education exemplifies the journal's focus on integrating PBL with sustainability initiatives.

Journal of Literacy Research: Known for its contributions to literacy education, this journal explores how PBL can be combined with digital storytelling and other literacy-focused activities. Kesler, Gibson, and Turansky (2016) demonstrated this by using digital storytelling in PBL to engage students with historical fiction, highlighting the journal's role in advancing innovative educational practices through PBL.

5. DISCUSSION

The integration of Project-Based Learning (PBL) within Digital Learning Ecosystems (DLEs) has become a crucial research area, evidenced by the growing number of studies from 2016 to 2024. This trend highlights PBL's importance in enhancing student engagement and developing essential 21st-century skills like critical thinking, collaboration, and problem-solving (Lizunkov, Politsinskaya, & Gazin, 2020).

Challenges in Implementation: Integrating PBL into digital systems presents challenges, such as ensuring equitable access to technology, particularly in under-resourced settings, and

providing adequate educator training to maximize PBL's effectiveness in digital environments (Deepa et al., 2024; Yooyativong & Kamyod, 2023; Li, Li, & Lin, 2023).

Impact of COVID-19: The COVID-19 pandemic accelerated the adoption of PBL in digital learning as educators sought flexible methods to maintain engagement in online settings. This period saw a surge in research exploring how innovative technologies like AI and data analytics could enhance PBL (Harron et al., 2022; Deepa et al., 2024).

Emerging Themes: Key themes include sustainability, innovation in teaching practices, and the role of technology. Researchers are increasingly focusing on how PBL can promote sustainability-oriented thinking and its application in STEM education to improve learning outcomes (Li, Li, & Lin, 2023; Balovsyak et al., 2024).

Future Directions: There is a need for comprehensive frameworks to guide PBL integration in digital ecosystems, ensuring accessibility, equity, and alignment with educational goals. Longitudinal studies are required to assess PBL's long-term impact, and further research should explore emerging technologies like AI to enhance PBL's effectiveness (Kesler, Gibson, & Turansky, 2016; Deepa et al., 2024).

6. CONCLUSION

The integration of PBL within Digital Learning Ecosystems represents a transformative approach to education, combining the strengths of experiential learning with the flexibility and accessibility of digital tools. The systematic review conducted in this paper highlights the increasing interest in this area, particularly in response to the challenges posed by the COVID-19 pandemic. The findings underscore the effectiveness of PBL in fostering critical thinking, collaboration, and problem-solving skills in students, while also identifying gaps in the current research, such as the need for more robust pedagogical frameworks and long-term impact studies. As digital learning continues to evolve, it is crucial for educators, researchers, and policymakers to collaborate in developing strategies that effectively integrate PBL into digital platforms. This will ensure that students are equipped with the skills and knowledge needed to thrive in an increasingly digital world. Continued research in this area is essential for refining PBL practices, addressing challenges, and exploring new possibilities for enhancing student learning outcomes in digital environments.

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ATTITUDES TOWARDS THE ELDERLY, RESULTS OF USING ASD SCALE AMONG YOUNG AND THE ELDERLY

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ABSTRACT

The majority of research on younger's attitudes towards the elderly have confirmed that older people are generally regarded negatively as a group. However, some researches have found evidence suggesting that young people hold positive or mixed attitudes towards the elders. Against the background of the rapidly ageing population in Vietnam (about 62% lack retirement benefits or old-age pensions) this study clarifies the attitudes of 569 Vietnamese youth (average age 19) towards older people using the Ageing Semantic Differential (ASD) scale. The results showed that the attitudes of young people towards older people are generally positive, but only slightly so. Nevertheless, one-quarter of participants have negative attitudes towards older people. The study also found a positive correlation between attitudes towards older adults, filial obligations, and expectations. The implications of these findings for social policy in Vietnam are then discussed.

Keywords: Attitude, attitudes towards the elderly, relation between young people and the elderly.

1. INTRODUCTION

Ageing is a common issue in many countries. Therefore, studies of ageing and attitude towards the elderly have been conducted for many years. Lutsky (1986) reviewed studies of attitudes towards the elderly and found that elderly people are not the object of attitudinal prejudice, neither do older people see themselves as victimized in this way. In terms of social relations, studies of attitudes towards the elderly demonstrated a trend in which young people's attitudes towards the elderly were not positive. The shared activities of the two groups are required to reduce negative attitude as well as enhance close relations between them. Pratt and Schmall (1989) studied students' attitudes towards elderly sexual behaviour. To measure this issue, the authors redesigned items changing the age from "a 25-year-old male and female decide to live together rather than marry", to "a 70-year-old male and female decide to live together rather than marry". Participants (N=290) evaluated those phenomena with 7-point rating scale. Regarding the elderly people living together without marriage, students participating in the research suggested that this was because the elderly need to help each other more than sex. The results also confirmed emotional closeness to elderly relatives increases (for example, the respondents' assessment of their own grandparents), acceptance of sexual behavior of elderly decreases. Reuveni and Werner (2015) conducted their research on 9th grade pupils (n=259) in Israel on the willingness to help, and volunteer to help, the elderly. The results from the questionnaire showed that the level of volunteering with the elderly of

9th grade pupils was low. However, the willingness to help increased when the elderly was described as healthy. Thus, it can be seen that the participants' attitude towards the elderly in the study is not positive, not willing to help the elderly who, according to them, appeared unhealthy. The study also found that 60.4% of the respondents said they had good relationship with their grandparents. Using the Ageism Attitude Scale, Bulut (2016) selected 337 surgical nurses to study their attitudes towards the elderly. Overall, the surgical nurses' attitudes towards the elderly were positive, but a quarter of the nurses said they had problems of communicating with the elderly.

With the aim of reducing the prejudices and negative attitudes between the young and the elderly, some studies on the relationships of the two groups, and how to deal with negative prejudices, were conducted. Cummings and colleagues (2003) examined the impact on 4th graders (n=81) of intergenerational programs conducted with the elderly. The intergenerational program is defined as activities organized between members of two generations to enhance cooperation and change attitudes between the two groups. The study results indicated that participants in the intergenerational program had more positive attitudes towards the elderly than the control group. Continuing the aforementioned content, Jones *et al.* (2004) studied the attitudes of elderly people who receive housing assistance, and young people who receive psychological support. Two groups were arranged to participate in the games together. Results showed that the cohesion and attitude towards each other in the two groups was improved as were their social skills.

In summary, from some of these studies, we can say that many different aspects of the attitude and relationship of the young to the elderly has been studied. From these studies we not only learned about the relationship and attitudes of youth towards the elderly, but were also shown ways to reduce prejudice and negative attitudes towards the elderly which improved their quality of life, enhanced their own happiness, and the happiness of their relationships with others. When the elderly has: an optimistic view, financial autonomy, a clear plan for life in old age (Mathews and Straughan, 2014), interactions regularly with other age groups will make their relationship with the younger group becomes closer and less prejudiced.

In Vietnam, the study of the grandparent-grandchild relationship from a psychology perspective is still quite limited. The Ministry of Culture, Sports and Tourism (2008) said that the percentage of the elderly in Vietnam who confided to their children was only about 25% of the respondents. Hoang Moc Lan *et al.* (2015) conducted a study on psychosocial issues of the elderly in Vietnam. In this study, many aspects of the relationship between children and grandparents are mentioned. Accordingly, the people who communicate the most with the elderly is spouse (average score is 2.86), followed by children (average score is 2.59 for boys and 2.48 for girls) and grandchildren (average score is 2.48). These results suggest that a study focuses on relationship between adolescents and their grandparents is necessary. Besides, the use of a scale that has been widely accepted in the world is the basis for us to have a more complete view of this relationship not only in Vietnam but also in the world. This is even more meaningful when population aging is a common problem of many countries.

2. METHOD

Aging Semantic Differential scale

ASD scale (Aging Semantic Differential scale) was designed by Rosencranz and McNevin (1969). And later edited by Holtzman *et al.* (1979) and Luszcz (1986). The scale is one of the most widely used in the study of older people. The ASD scale has been used generally to measure attitudes, not only towards the elderly, but also towards younger people (Gluth, Ebner, and Schmiedek, 2010). This has been undertaken in many cultures, including Asian countries to clarify stereotyping between the two groups (Andrade, 2012).

The original scale consists of 28 pairs of bipolar adjectives, such as Old-fashioned - Progressive, Intolerant - Tolerant, Dejected - Hopeful. The results are normally conceptualized on four dimensions. (1) *Instrumentality* refers to the extent of adaptability and vitality or activity level of an individual, these range from efficiency to inefficiency. (2) *Autonomy* indicates the extent of self-sufficiency and the degree to which the person is a contributor to, rather recipient of, a social system. This can range from autonomy to dependence. (3) *Acceptability* is the extent to which someone is seen as socially appealing to others. This is simply expressed as acceptable to unacceptable. (4) *Integrity* is the extent of an individual's sense of personal satisfaction. In this Likert-scale, the score ranges from 1 to 7. Higher scores indicate positive attitudes towards older people and vice versa. The mid-point is 4. The adjective pairs, the dimensions they comprise, and the reliability of each dimension, are shown in Table 1.

Table 1. Measures of young people's attitudes towards older people

Content	Number of item	Cronbach' Alpha
<i>Instrumentality</i>	8	0.72
<i>Acceptability</i>	7	0.77
<i>Autonomy</i>	8	0.77
<i>Integrity</i>	5	0.78

The main data analyses included: (i) descriptive statistics (mean, standard deviation, frequency, percentage for statistical responses) and (ii) deductive statistics (ANOVA, T-test, etc.).

Participants included two groups: 151 older people (average age: 68) and 569 young people (average age 19) living in Hanoi, Thai Binh, and Ho Chi Minh City. The two groups were unconnected with one another.

3. RESULTS

Young people's attitudes towards older people - general points

Mean and standard deviation of the attitude score of the whole samples, these are given in Table 2.

Table 2. Four dimensions of stereotypical attitudes of young people towards older people (N = 558)

Dimension	Means	SD	Range
<i>Instrumentality</i>	3.87	0.83	1.00 → 7.00
<i>Autonomy</i>	4.31	0.97	1.00 → 7.00
<i>Acceptability</i>	4.84	0.97	1.00 → 7.00
<i>Integrity</i>	4.64	1.10	1.40 → 7.00
<i>Overall score</i>	4.39/7	0.73	1.19 → 6.70

Given that a score of 4 represents mid-point of a scale of 7, an unfavourable attitude is expressed for *Instrumentality*. Favourable attitudes are indicated for the remaining dimensions of *Autonomy*, *Acceptability* and *Integrity*, making the overall attitudes slightly positive (Mean = 4.39).

Regarding the range of results, there are some extreme scores (in both positive and negative directions), the details of which are presented in Table 3.

Table 3. Average score of each item for young people (N=558) and for older people (N = 151)

Items	Young		The elderly	
	Means	SD	Means	SD
1 Old fashioned - Old-fashioned	3.56	1.19	5.04	1.23
2 Idle- Busy	3.58	1.51	4.58	1.61
3 Weak - Strong	3.63	1.46	4.28	1.58
4 Passive - Active	3.96	1.41	4.80	1.46
5 Ugly - Beautiful	4.36	1.25	4.46	1.46
6 Inflexible - Flexible	3.65	1.36	4.62	1.53
7 Conservative - Liberal	3.60	1.49	4.96	1.56
8 Dull - Exciting	4.26	1.39	4.52	1.53
9 Dependent - Independent	4.25	1.44	4.93	1.53
10 Ineffective - Effective	4.06	1.24	4.67	1.45
11 Weak - Strong	3.27	1.40	4.14	1.61
12 Disorganized - Organized	4.51	1.45	5.29	1.41
13 Untidy - Neat	4.81	1.53	5.26	1.42
14 Dependent - Self-reliant	4.17	1.41	5.08	1.57
15 Uncertain - Certain	4.59	1.53	5.01	1.46
16 Indecisive - Decisive	4.78	1.57	5.12	1.47
17 Selfish - Generous	4.60	1.42	5.02	1.38
18 Uncooperative - Cooperative	4.40	1.38	5.37	1.30
19 Unfriendly - Friendly	5.45	1.39	5.75	1.19
20 Suspicious - Trustful	5.59	1.45	5.61	1.22
21 Intolerant - Tolerant	4.56	1.71	5.35	1.49
22 Unpleasant - Pleasant	4.20	1.44	5.16	1.47
23 Eccentric - Ordinary	5.00	1.60	5.39	1.35
24 Unsafe - Safe	4.20	1.72	5.00	1.54
25 Pessimistic - Optimistic	4.58	1.58	5.19	1.50
26 Dissatisfied - Satisfied	4.51	1.45	5.09	1.40
27 Dejected - Hopeful	4.77	1.39	5.14	1.51
28 Unhappy - Happy	5.12	1.40	5.71	1.33

The highest score in the *Acceptability* dimension (indicated in items 1-8) is shown in some specific items in Table 3. As noted above, in general, attitudes of the younger group towards their elders is positive. Older people are considered friendly, trustworthy and as normal as those of other age groups. Interestingly, the attitudes of both groups are quite similar, in that the older people also consider themselves as being friendly, trustworthy, and tolerant. Both generations see the elderly as happy people (among 28 items, the item « happy » has the second highest score in the younger group, and third highest score in the older group). These results are confirmed in other parts of our study, in which, the percentage of older people who think that in Vietnam they are treated: “very bad”, “not good”, “normal”, “quite good” and “very good” are 0%, 1.4%, 26%, 49.3% and 23.2% respectively. Furthermore, items in sub-scale *Instrumentality* such as ‘conservative’ and ‘weak’, have the lowest average scores. The lowest two items are all related to weakness and health. These results are consistent across both generations in the study.

In general, we can see the positive attitude young people have towards the elderly (mean score > 4, N = 386, 73.9%). However, there are 26.1% (N = 136) who show some degree of a negative attitude (Chart 1).

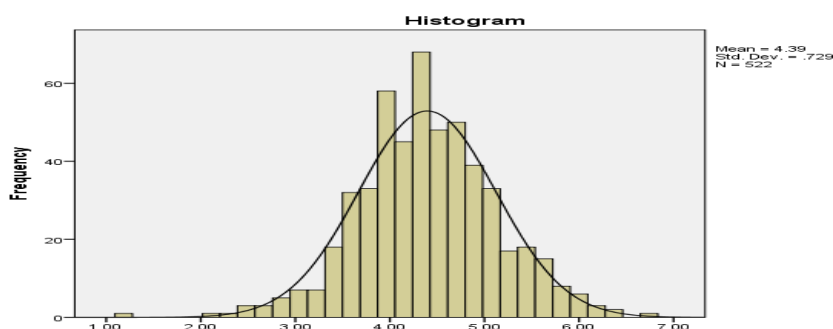


Chart 1. Distribution of score of young people’s attitudes towards older people (N = 558)

Differences in attitudes towards the older people by relationship between youth and their grandparents

The attitudes towards older people, and relationships that grandchildren have with their grandparents, are probably positively related. Table 4 examines correlations of these sets of attitudes.

Table 4. Relationship between grandchildren and their grandparents and connection to the attitudes of young people to older people

		N	Means	SD	T-test	p
Attitude towards the elderly	Distant	123	4.20	0.69	-3.58	0.01
	Close	371	4.47	0.74		
Attitude towards the elderly	Not loving	107	4.17	0.67	-3.73	0.01
	Loving	387	4.47	0.74		
Attitude towards the elderly	Dissatisfied	93	4.23	0.66	-2.41	0.01
	Satisfied	402	4.44	0.74		

To measure the relationships between grandchildren and their grandparents, in this study, we asked three Likert format type questions: ‘In general, how close is the relationship between

you and your grandparents?’, ‘How loving is the relationship between you and your grandparents?’ And, ‘How satisfying is the relationship between you and your grandparents?’

The ANOVA results, showed no statistically significant difference by demographic variables including gender, education, religion, and domicile arrangements. However, when considering these attitudes of young people together with their actual relationship to their grandparents, a T-test produces a statistically significant difference as shown in Table 4. In general, the attitude towards older people, by younger people who have a close relationship with their grandparents is more positive than those have distant relationship. In other words, the quality of real relationships between grandchildren and their grandparents is positively correlated with young people’s attitudes to older people.

Further investigation of the attitudes of young people towards older people and how this interacts with relationships between grandchildren, grandfathers and grandmothers

The previous section showed that there was a relationship between young peoples’ general attitudes to older people and their relationships as grandchildren to their grandparents, this led us to a further examination of material which is presented in Table 5.

Table 5. Correlations between young people’s attitudes towards the elderly and their relationships with grandparents

	Dimensions	Relationship with paternal grandfather	Relationship with paternal grandmother	Relationship with maternal grandfather
<i>Instrumentality</i>	Correlation coefficient r	0.13	0.15**	0.18**
	N =	18	31	24
<i>Autonomy</i>	Correlation coefficient r	0.14	0.12*	0.11
	N =	18	32	24
<i>Acceptability</i>	Correlation coefficient r	0.17*	0.18**	0.21**
	N =	18	32	25
<i>Integrity</i>	Correlation coefficient r	0.23**	0.20**	0.15*
	N =	187	330	252

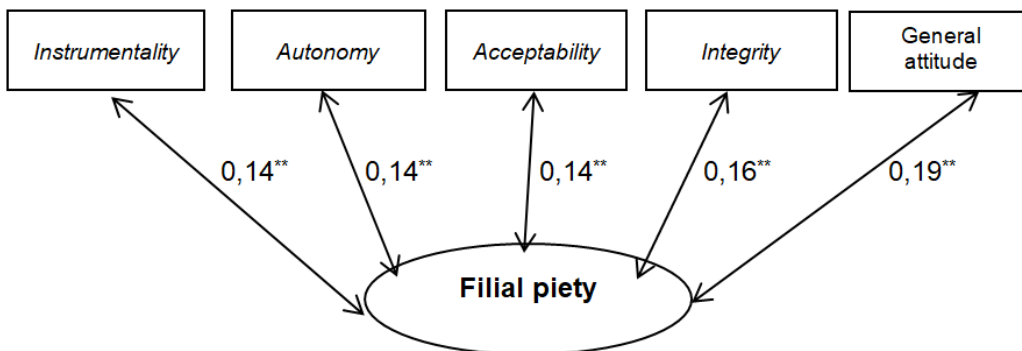
Note: Significance levels: *: $P < 0.05$; **: $P < 0.01$.

Table 4 showed young people’s attitudes towards their elders in conjunction with their relationship to their grandparents. Table 5 shows the confirmation of these correlations between young people’s attitudes to older people (on four dimensions) and their actual relationships with their grandparents through Bivariate Correlations. We can see that, except on the dimension of *Integrity*, the other dimensions *Instrumentality*, *Autonomy* and *Acceptance* have stronger correlation coefficients for grandchildren to their maternal grandparents. In other words, the relationship with maternal grandparents seems to have a greater influence on young people’s attitudes towards older people.

Young People’s attitudes towards the older people and filial piety

According to traditional values, filial piety involves loving, respecting, obeying, caring for parents and grandparents. As a result, filial piety can also be considered as a cultural attitude towards older people. This has become an important belief and value in many countries (Kanti, 2017). In this study, we used a brief Likert-scale to examine young people's attitudes towards filial

responsibility for older people and specifically: ‘To what extent do you agree or disagree with taking filial responsibility for your grandparents? Suggestions of the form this might take included: (i) Looking after them (ii) Assisting them financially (iii) Showing respect towards them, (iv) Obeying them, (v) Seeking to give them pleasure and making them happy, and (vi) Keeping in contact with them.



Note: Significance levels: *: $P < 0.05$; **: $P < 0.001$.

Chart 2. Correlation between young people’s attitudes towards the older people, and their level of filial respect

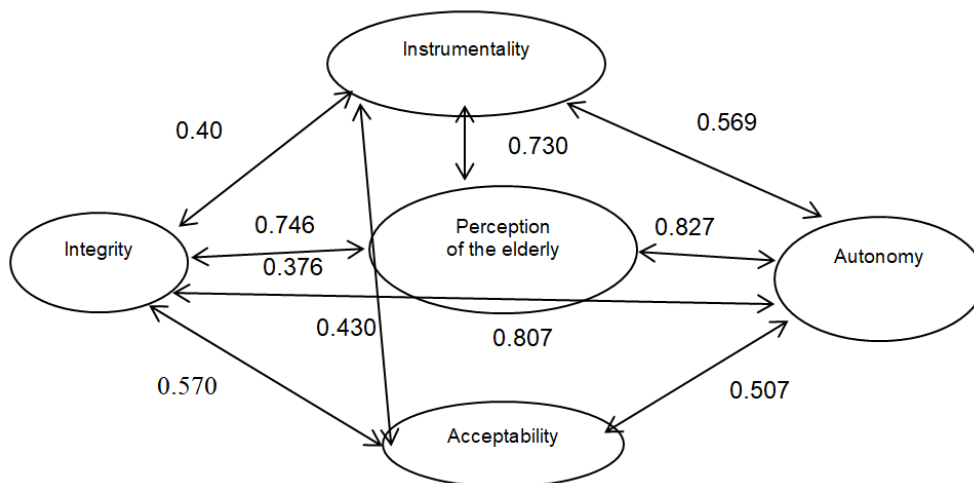


Chart 3. Correlation among the four dimensions of the Likert-scale, and the relationship between these and attitudes towards older people

There is a positive correlation between young people’s filial piety and their attitudes towards older people (Chart 2). In other words, the more positive young people's attitude towards older people, the more they support of the implementation of their responsibilities towards the elderly and vice versa. This result supports the notion that filial piety is a cultural value for older people in general; and therefore, it is correlated with both social and personal attitudes toward old people.

Relation between young people’s attitude toward the elderly, and perception of older people

From the chart, we can see that all 10 pairs of attitudes are positively correlated. Four out of 10 pairs have positive and strong correlation (from 0.73 to 0.82, $P < 0.001$). Those are the relationship among the four dimensions (*Instrumentality, Autonomy, Acceptance, Integrity*). The other pairs also have a positive correlation at a relatively strong level (0.37 to 0.57, $P < 0.001$).

Youth's attitude towards the elderly and the elderly's attitudes towards the elderly

The previous contents clarified the attitudes of young people towards the elderly. In the next, we will clarify the attitudes of the elderly participants towards the elderly in general.

Table 6. Comparison attitude towards the elderly of youth (N = 558) and the elderly (N = 132)

Dimensions	Mean (Youth)	Mean (The elderly)	T-test	Sig
Instrumentality	3.87	4.63	8.80	0.01
Autonomy	4.31	4.95	6.72	0.01
Acceptability	4.84	5.38	5.57	0.01
Integrity	4.64	5.18	4.87	0.01

Note: Likert scale with 7 levels; the higher score indicates a more positive attitude

As we can see in Table 6, in all four dimensions, the older people evaluate themselves more positively than the youth (the differences are statistically significant with $p < 0.05$). In detail, older people's perception of themselves is more positive, including flexibility, independence, initiative, tolerance. Le Van Hao (2016) pointed out similar results in which ageing is felt, and experienced, by the elderly positively. They don't think of themselves as an old person, feeling that they are younger than their biological age.

4. DISCUSSION AND CONCLUSION

The results of this study can be compared certain other international studies, especially those using the ASD scale. Ross, Duigan and Boyle (2014) conducted research on students at Monash University, Melbourne, Australia. In both studies (our study and Ross and his colleagues' study), the dimension of *Instrumentality* shows the most negative attitude towards the elderly. This result is also consistent with a study of over 250 medical students in Australia conducted by Steward *et al* in 2007 (as cited in Ross, Duigan and Boyle, 2014). Their study had a dimension of *Autonomy* which was neutral, and an *Acceptance* dimension with the most positive results. The overall picture of young people's attitudes to older people from two countries Vietnam and Australia seems to have the same trend: biased towards the Instrumentality dimension. As previous mention, *Instrumentality* is the only aspect with a below-average score. In other words, young people in both cultures tend to consider the elderly to be unhealthy, inflexible, passive, backward, conservative. Andrade (2012) used the ASD scale to measure attitudes towards older people of 380 students studying at Shanghai University of Education. Author found that the scores of the entire sample were neutral. Ard-Am's study (2010) shows that older people in Thailand are often considered aristocratic, conservative and outdated. Earlier, Muang-mee (2002) also found that Thai students have negative attitude towards older people seeing them as 'conservative' and 'backward'. The results suggest that despite the filial tradition (derived from Confucianism and

Buddhism), the attitudes and behaviors of young people towards the elderly in Thailand are not always positive.

Our study used the ASD scale that is widely accepted internationally to survey two groups, younger people and older people in Vietnam. Overall attitude of the younger people towards their elders was just slightly positive. Our results seem to be consistent with the studies on attitudes towards older people that we have cited. Many studies have shown filial piety is one of the most important values for Vietnamese people. The results of this study also showed that attitude towards the elderly is positively correlated to a certain degree with filial piety. It can be seen that the cultural identity of the nation has a positive impact on young people's attitude and behavior towards older people. In other words, cultural identity plays an active role in adolescent's behavior in intergenerational relationships. In fact, many domestic and foreign studies on intergenerational relationships, especially on the role of the elderly in the family, have also shown that the elderly play an active role in the family (Vo and Rice, 2002). In short cultures with interdependent generations express greater use for, and have more positive attitudes towards, each other.

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COLD WEATHER METAPHORS IN VIETNAMESE AND ENGLISH IN THE VIEW OF COGNITIVE LINGUISTICS: A CONTRASTIVE STUDY

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ABSTRACT

The study seeks to discover and compare cold weather metaphors in Vietnamese and English from the perspective of cognitive linguistics. Information regarding Vietnamese and English cold weather conceptual metaphors was gathered from dictionaries, official websites, and relevant corpora including Vietlex, COCA, and BNC. The data analysis demonstrated that metaphors related to cold weather serve as reflections of human experiences, expressing many aspects such as human qualities and relationships. Both languages shared certain conceptual analogies related to cold weather, but they also exhibited variances stemming from geographical conditions, agricultural techniques, the human mind, and cultural factors specific to each nation. The study also allows learners of Vietnamese and English to gain a deep understanding of the language and culture.

Keywords: Cold weather, conceptual metaphor, Vietnamese language, English language

1. INTRODUCTION

Metaphors are crucial in the process of acquiring and instructing language. Acquiring metaphors aids in improving vocabulary and foreign language conversational competence, as well as providing a deeper understanding of the new culture. Metaphorical competency specifically refers to the aptitude to understand and employ metaphors in a particular language as they are utilized in everyday conversation. In addition to being verbally fluent, it is necessary to have conceptual fluency in a foreign language in order to understand how that language represents or expresses metaphorical notions. Transferring metaphors from one language/culture to another might be hindered by linguistic and cultural disparities. Therefore, it is crucial to understand conceptual metaphors and how they are expressed in different languages.

Conceptual metaphor theory (CMT)

CMT originated from the publication of “Metaphors We Live By” (1980) by George Lakoff and Mark Johnson. Lakoff and Johnson (1980: 5) describe metaphor as the process of comprehending and seeing one entity by relating it to another.

LOVE IS A JOURNEY Look how far we’ve come. We’re at a crossroads. We’ll just have to go our separate ways. We can’t turn back now. I don’t think this relationship is going anywhere. Where are we? We’re stuck. It’s been a long, bumpy road.

First, let us analyze the conceptual metaphor that portrays love as a journey. When we say “We aren't going anywhere,” the phrase “go somewhere” refers to the act of traveling to a specific destination. In this particular language, it denotes a voyage lacking a predetermined endpoint. The term “we” specifically refers to the folks who are actively involved in the act of traveling. This

sentence outlines three essential elements of journeys: the individuals undertaking the journey, the process of traveling, and the ultimate destination. However, if we consider this phrase in the appropriate context, we can interpret it as referring to love and understand that the speaker is talking about people in romantic relationships, not actual travelers. Moreover, the mention of a journey is figurative, representing the diverse encounters experienced in a romantic relationship, rather than an actual expedition. Likewise, the reference to a destination indicates the goals or desires within the context of the romantic connection, rather than a physical terminus. The phrase “foundering” denotes the presence of substantial difficulties in relationships, making a figurative analogy to the obstacles encountered by vehicles throughout journeys. The expression “It’s been a bumpy road” does not pertain to the difficulties experienced during a physical journey, but rather represents the obstacles confronted by the romantic partners in their relationship. Furthermore, while addressing love, the speaker of “We’ve made a lot of headway” is referring to substantial advancements made in the relationship, rather than the actual distance traveled by the passengers. The expression “We’re at a crossroads” indicates the necessity of making choices within the relationship, rather than alluding to a traveler’s predicament of selecting a course at a fork in the road. One important insight that emerges from these conceptual metaphors is that they typically employ a more abstract concept as the target and a more concrete or physical thought as the source. phrases such as argument, love, concept, and social organization are generally seen as more abstract in nature when compared to phrases like combat, voyage, food, and plant. This generalization is essentially rational. In order to improve our understanding of a concept, it is recommended to utilize an alternative idea that is more tangible, concrete, or observable than the original conception. Our comprehension of intricate and theoretical ideas is built upon the information we acquire via engaging with the tangible aspects of our environment. This explains why, in most cases, it is not possible to interchange the source and destination domains when using popular metaphors. For example, we avoid expressing abstract ideas using food-related language or describing a journey using love-related terms. Unidirectionality refers to the common pattern in which metaphorical growth happens from the concrete to the abstract, but not the other way around.

2. LITERATURE REVIEW

The cognitive perspective on metaphor emphasizes its universal nature as a cognitive tool that allows us to understand abstract and complex concepts by relating them to more real, physical, and directly experienced ones. The motivation behind conceptual metaphors stems from their foundation in human experience, which can be categorized as either physical (pertaining to the body, its structure and movements, perceptual system, and interactions with the physical world) or cultural (pertaining to interactions with others within the framework of social, political, economic, religious institutions, etc.).

Contrastive analysis in linguistics involves studying and comparing two language systems or subsystems to uncover their common features and differences. This approach has attracted significant attention from researchers. Several research investigations have been conducted in Vietnam with a specific focus on metaphors connected to weather. In their 2015 study, Oanh and

Ly examined the utilization of “rain” and “sunshine” metaphors in English and Vietnamese songs from the 20th century. The aim of the study was to analyze the similarities and disparities in the perception of these two natural phenomena. The findings further deepened comprehension of the mechanism by which metaphors associated with rainfall and sunlight are generated. In a study conducted by Sinh (2014), the focus was on investigating idiomatic expressions in English and Vietnamese that incorporate language connected to weather. The study sought to improve English learners' understanding of English and Vietnamese culture, as well as the origins of these colloquial expressions. In a study conducted by Kien (2018), an investigation was carried out on the idioms used in weather lexicology. The study specifically examined the meanings of words and phrases related to weather conditions. This study has the capacity to enhance the comprehension of Vietnamese linguistics for those engaged in the acquisition of the Vietnamese language. Weather phenomena have been examined through comparative studies conducted globally in multiple languages. Żołnowska (2011) emphasized the widespread use of weather-related metaphors to signify the existence or lack of challenges that individuals encounter in their everyday lives. Weather-related expressions are said to mirror the essential encounters of life events. The BNC has categorized weather metaphors into two distinct groups: one group represents pleasant weather and evokes pleasure, while the other group portrays unfavorable weather and elicits feelings of sadness and difficulty. Żołnowska's research conclusively demonstrated that metaphors are an essential component of the human conceptual system. Therefore, the organization of standard communication demonstrates the presence of metaphorical cognition. Żołnowska's study also found that meteorological events are often regarded as indicators of problems, and this conceptual framework is evident in everyday English. In essence, individuals often employ weather-related ideas symbolically to articulate their personal challenges. Valiulienė (2015) undertook a comparative analysis of temperature metaphors in the Lithuanian and English languages. Valiulienė conducted a study to identify temperature metaphors in two languages and draw parallels between them. The study revealed that the spectrum of temperature metaphors in Lithuanian is more extensive compared to English. Furthermore, Valiulienė suggests that both languages exhibit a comparable manifestation of temperature metaphors inside their grammatical framework. However, a distinct distinction was made between the two languages. Lithuanian exhibits a higher frequency of verbs and adverbs, while English metaphors typically have a bigger quantity of adjectival components. Lorenzetti (2009) examined potential discrepancies in temperature terminology between the English and Italian languages. The study collected data from the British National Corpus (BNC), Corpus of Contemporary American English (COCA), and Italian Web Corpus (ItWac). The gathered data encompasses many descriptors, such as hot, cold, cool, and warm, along with extra terms like lukewarm, freezing, chilly, frosty, and tepid. This study also investigated the extensive array of internet-based and youth-generated phrases that have surfaced in recent years, with a particular emphasis on concepts associated with temperature. The study found that metaphorical patterns connecting temperature concepts to emotions are constant across multiple languages, including British English, American English, and Italian. Furthermore, there was a significant reduction in the disparities in the metaphorical use of these phrases between British and American English. Nevertheless, there is a dearth of research that examines and

juxtaposes conceptual metaphors that employ cold weather as the source domain in English and Vietnamese. Thus, the present study is anticipated to address the existing deficiency in the field.

3. METHODOLOGY

3.1. Data collection

The metaphor expressions were gathered from official websites, and relevant corpora including Vietlex, COCA, and BNC. Also, we collected Vietnamese cold weather expressions from reputable idiom dictionaries such as *Từ điển thành ngữ tiếng Việt*, Nxb Khoa học xã hội (Nguyễn Lực, Lương Văn Đăng, 1978) and *Từ điển giải thích thành ngữ tiếng Việt*, Nxb Giáo dục (Nguyễn Như Ý, Nguyễn Văn Khang, Phan Xuân Thành, 1998) while cold weather expressions in English were discovered in the Cambridge Idioms Dictionary, Oxford Dictionary of Idioms, and Longman Dictionary of English Idioms.

3.2. Data analysis

In the study, descriptive and comparative methods are applied to make an analysis of the data qualitatively, in which the data collected is described to set up a foundation for analysis, interpretation, and explanation. Based on that, the methodologies provide a basis for analyzing, comprehending, and elucidating. After identifying metaphorical idioms and conceptual metaphors related to cold weather, the associated semantic and cognitive characteristics are outlined. Thus, the process of employing, comprehending, and elucidating figurative language and abstract metaphors is elucidated. Furthermore, this study predominantly uses the comparative approach to juxtapose the conceptual metaphors associated with cold weather as the source domain, with the aim of discerning both the resemblances and disparities between the two languages.

A conceptual metaphor consists of two conceptual domains, in which one domain is understood in terms of another. The source domains are typically more concrete or physical and more clearly delineated concepts than the targets, which tend to be fairly abstract and less delineated ones. This study will find the target domains which are mapped from the source domain cold weather in English and Vietnamese.

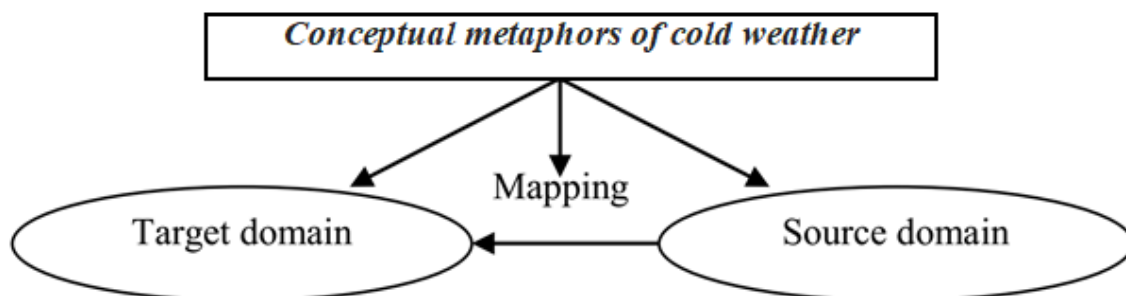


Figure 1. Analytical Framework of cold weather metaphors

4. RESULTS AND DISCUSSIONS

Cold weather conceptual metaphors in Vietnamese

In Vietnamese, there are a variety of words denoting cold weather such as “*lạnh, đông băng...*” and their collocations with “*lạnh lẽo, lạnh gáy, lạnh lùng, lạnh ngắt, lạnh tanh, lạnh toát...*”. The perception of frigid weather with a low temperature was symbolically constructed, alluding to the human experience of dread, human traits, and the interactions between nations or individuals.

FEAR IS COLD WEATHER

Sợ đến *lạnh* người

Nghe rợn người, *lạnh gáy*

Sợ tới mức cảm thấy *ớn lạnh* ở gáy

Lời khai *ớn lạnh* của kẻ sát hại

Hành vi tàn độc và rất *máu lạnh*

In this instance, cold weather encompasses not only a decrease in temperature, but also conveys a sense of apprehension or dread. Cold sensations are frequently experienced by individuals who suffer from acute or persistent anxiety. A significant number of individuals get a sensation of icy shivers when they are abruptly overwhelmed with dread. This is a highly prevalent occurrence preceding anxiety attacks. Individuals who are aware that they might be on the verge of having a panic attack, or those who are apprehensive about it due to their familiarity with typical triggers, often experience a sudden sensation of coldness running down their spine.

UNFRIENDLINESS IS COLD WEATHER

Chiến tranh *Lạnh*

Giọng nói rất *lạnh*

Cái nhìn rất *lạnh*

Mặt *lạnh* như tiền

Thái độ *lạnh lẽo*

Nụ cười *lạnh lẽo*

Thái độ *lạnh lùng*

Thái độ *lạnh nhạt*

Đón tiếp *lạnh nhạt*

Cold weather conceptual metaphors symbolize human traits such as lack of kindness, love, emotion, and friendliness. The name “Chiến tranh Lạnh” (Cold War) specifically denotes the conflict between the United States and the Soviet Union, together with their respective allies. The Cold War was fought by political, economic, and propaganda means, with minimal reliance on weaponry. The term was initially coined by the English author George Orwell in a 1945 article to describe his anticipation of a nuclear impasse between “two or three colossal super-states,” each

armed with a weapon capable of annihilating millions of individuals within seconds. The phrase was initially employed in the United States by Bernard Baruch, an American financier and presidential advisor, at a speech at the State House in Columbia, South Carolina, in 1947.

INACTION IS COLD WEATHER

Ngành hàng không Mỹ *đóng băng* hoạt động bay vì sự cố hệ thống cảnh báo

Bản chất của hiện tượng *đóng băng* tín dụng

Bất động sản *đóng băng*, vốn tín dụng tắc

Tài khoản ngân hàng bị *đóng băng*

It denotes a state of economic adversity characterized by a lack of progress and the absence of various services. Furthermore, the authorities enforce administrative and legal measures to prohibit the utilization or transfer of money or property.

Cold weather conceptual metaphors in English

Cold weather is commonly seen as less enjoyable than warm, sunny weather in the English language. Additionally, phrases associated with cold weather are sometimes employed metaphorically to depict disagreeable individuals or conduct. Coldness in English can stem from various factors, such as unfriendliness and numbers.

UNFRIENDLINESS IS COLD WEATHER

They give me a *cold* welcome. (OALD)

I assume you can explain, she said. There was *frost* in her voice.

Her remote father quickly married a *frosty* snobbish woman who did not like her new daughter.

He never helps the others; he is a *cold* fish.

The Cold War.

“Did you?” said Amanda, with more than a touch of *frost* in her voice.

“I assure you can explain”, Magdalena said. There was *frost* in her voice.

Frost possesses an aesthetic appeal, although it can be disagreeable due to its extreme coldness and the hazardous condition it creates by making the ground slippery. The term “frost” is often figuratively used to describe emotions or behaviors that appear courteous but conceal underlying unfriendliness. This usage is predominantly prevalent in the English language, particularly in the context of novels. Coldness refers to a state of indifference or apathy, characterized by a lack of interest, emotion, or response towards someone or something. Coldness is a term used to describe a lack of emotional connection towards others, or to describe unfriendly behavior that is not outwardly impolite but nonetheless unpleasant.

THE SOURCE: COLD WEATHER	THE TARGET: UNFRIENDLINESS
The cause of coldness	the cause of unfriendliness
The thing that is coldness	the lonely, neglected person
The coldness	the unfriendliness
The effect of coldness	the effect of unfriendliness

QUANTITIES IS COLD WEATHER

Arnold was really *snowed under* with work.

He was *snowed under* with thousands of letters when he was doing his television show.

I was unprepared for the *avalanche* of mail which came in after my programme for BBC Radio Four.

He was eventually buried under an *avalanche* of criticism.

... an *avalanche* of greetings cards from long-lost schoolfriends

The concept of an overwhelming abundance of a specific entity, often referred to as being “snowed under”. If a someone is overwhelmed by an excessive amount of work, correspondence, or phone calls, they are faced with a daunting task that makes it challenging for them to manage and leaves them with insufficient time to do all their desired tasks.

Differences and similarities between cold weather conceptual metaphors in Vietnamese and in English

Both languages perceive cold weather as a manifestation of apathy or hostility in human traits. Although the source target “Fear” is present in Vietnamese, it is absent in English. Unlike English, Vietnamese does not have a specific source for referring to huge quantities when talking about chilly weather.

Target sources	Vietnamese (cold weather)	English (cold weather)
Unfriendliness	+	+
Inaction	+	+
Fear	+	-
Quantities	-	+

The variations in conceptual metaphors regarding cold weather arise from geographical variables, agricultural methods, human cognition, and cultural factors specific to each nation. Vietnam experiences extended periods of sunny weather, and the culture heavily influenced by its rivers significantly impacts the spiritual and material aspects of people's lives. Notably, Vietnam experiences minimal snowfall while Western countries receive a substantial amount.

5. CONCLUSIONS

The concept of cold weather serves as a fruitful source domain in both Vietnamese and English, allowing for the metaphorical representation of abstract concepts such as human qualities and connections. Because of the comparable bodily sensations and common cultural customs, most metaphors related to cold weather in Vietnamese and English are similar. Nevertheless, the representation of cold weather metaphors varies across different languages due to factors such as geographical environment, agricultural methods, human cognition, and cultural influences specific to each nation. This study aims to enhance the process of teaching and learning the Vietnamese language and culture.

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DEVELOP STANDARDIZED TEST – SYSTEM OVERVIEW

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ABSTRACT

A standardized tool is one in which the performance, scoring, and interpretation of results are fully specified. The purpose of standardization is to ensure that score comparisons are meaningful regardless of the time, place, or type of test taker taking the tool. Standardized tests serve as a common method to measure learning outcomes and educational quality across various levels of education and even in the employment sector. These tests are designed to provide a standardized measure of a student's knowledge, or skills compared to a predetermined set of criteria or a reference group, allowing for fair and consistent evaluation. The primary goal of standardized testing is to inform teaching practices, improve learning outcomes, and hold educational institutions accountable for the quality of education they provide. This article will introduce the concept, process, and criteria for evaluating a standardized test. Those who work in the field of education in general and educational assessment and evaluation in particular will find the information in this article to be a valuable reference.

Keywords: assessment in education, building tools, standardized tests, system overview

1. INTRODUCTION

In 7th-century Imperial China, applicants for government jobs took the first known standardized tests. Up until 1898, the exams, which were based on a strict "eight-legged essay" format, assessed candidates' memorization of Confucian philosophy by rote learning (Jay Mathews, 2006; Justin Crozier, 2002).

The Industrial Revolution in the West gave rise to a movement that brought farmhands and factory workers of school age back into the classroom. The recently enlarged student body might be effectively examined thanks to standardized exams (Walter M. Haney, 2006).

Standardized testing was introduced to Boston schools in the mid-1800s by school reformers Horace Mann and Samuel Gridley Howe, who based their initiatives on the centralized Prussian education system. The purpose of the new assessments was to collect unbiased data regarding the caliber of instruction and to offer a "single standard by which to judge and compare the output of each school." National school systems quickly embraced Boston's program (Richard P. Phelps, 2007).

The earliest known published multiple-choice test was created by Kansas school director Frederick J. Kelly and was known as the Kansas Silent Reading Test (1914–1915). Kelly designed the exam with "time and effort" reduction in mind for both scoring and administration (Barry and Dale, 2002).

In educational policy and practice, the standardization of exams for evaluation purposes has gained significant importance. Standardized tests serve several functions, such as curriculum

evaluation, educational quality assessment, and accountability by offering a consistent measure of student performance in diverse educational situations. However, the implementation and implications of standardized testing are complex and multifaceted. The following sections will (1) introduce the concepts of standardized instruments and standardized tests, the meaning of standardized tests, (2) the process of developing a standardized test, and (3) criteria for evaluating a standardized test.

2. METHODOLOGY

In order to conduct a systematic review, we looked through both international and domestic periodicals and documents pertaining to the standardization of testing and measurement tools. We synthesized and examined local and international studies that have relevance to the process of developing standardized instruments in education by employing this review approach. We then discussed the benefits and drawbacks of creating and utilizing standardized exams and instruments, as well as the need for more research on the standardization of measurement tools in education.

The terms "standardized instruments", "standardized tests" and "test standardization process" were used in searches on Google Scholar, ERIC or Science Direct related to this topic. In addition to the previously mentioned terms, we also added filters to limit the scope of results in these databases: "Order by relevance," "cited," and "education." For an article to be chosen for the study, it had to be written in Vietnamese or English, published, and have anything to do with students. Not included were theses, dissertations, books, unpublished publications, and review pieces.

Table 1. Criteria for selecting literature

Criteria	Selection	Exclusion
Time	Unlimited	
Language	Vietnamese, English	Others
Type of documents	Peer-reviewed journal articles, doctoral dissertations, book chapters, official scientific reports.	Non-peer-reviewed articles, unpublished master's theses, undergraduate capstone projects are excluded.
Research topic	"Standardized instruments", "standardized tests" and "test standardization process" in education	Others

Using the following data from the papers, an Excel spreadsheet was made: authors, publication year, objectives, methodology, theoretical framework, primary findings, and limitations. Sub-themes were identified when rereading the paper results. These sub-themes were then gathered and arranged into themes.

3. RESULTS

Some basic concepts

Divergent opinions exist regarding standardized testing. Standardized instruments are those whose administration, scoring, and result interpretation are completely specified, according to

Martuza (1977). To guarantee that results are comparable independent of the date, location, or kind of test-taker, standardization is implemented. Standardized instruments are those whose processes, tasks, instructional materials, and scoring rules are established so that evaluations are comparable across as many different times and places as possible, according to Nitko and Brookhart (2013).

Santrock (2011) argues that standardized tests have uniform procedures for administration, scoring, and often allow student performance to be compared with that of other students of the same age or grade level on a national basis.

According to Popham (2018), a standardized tool is a tool that is administered, implemented, scored, and interpreted in a standardized manner and is designed for both group-based and criterion-based assessment purposes. According to him, the purpose of a standardized tool is to create an evaluation mechanism that makes it possible to make insightful judgments about the degree of knowledge, skills, and abilities needed by students in a certain subject. Furthermore, he thinks that in addition to objective multiple-choice questions (also known as selected-response items) on standardized tests, there has been a recent trend in their design to include constructed-response items, or questions that require candidates to write answers in the form of essays or short answers. In fact, many of these types of questions have been included in the tests. He believes that because standardized tests are important, they need to be carefully constructed, with participants needing the necessary knowledge to meet the requirements of construction and design of standardized instruments to ensure the quality of each compiled question as well as the quality of the instrument. In addition, factors such as reliability and validity are also carefully considered.

The role of standardized tests

Standardized assessments serve as a key tool for evaluating the efficacy and quality of education. Barragán emphasizes that, especially in Latin America and North America, standardized examinations are becoming a more important tool for evaluating the caliber of education and the efficacy of government-run educational initiatives (Barragán, 2023). These assessments make it easier for educational institutions to be arranged hierarchically according to the results of their performance, which has an impact on how resources are allocated, and policies are made. Ozturgut shares this worry, pointing out that because standardized examinations frequently lack contextual validity, they can exacerbate social and educational inequalities (Ozturgut, 2011). To guarantee that test results are properly read and applied, O'Loughlin highlights the requirement for assessment literacy among test users (O'Loughlin, 2013).

Moreover, to guarantee the validity and fairness of standardized exams, guidelines for their creation and administration must be followed. Fairness is emphasized as a fundamental component of testing procedures in the updated Standards for Educational and Psychological Testing (Jonson et al., 2019). This is important because testing companies have difficulty matching their procedures to these guidelines, which can result in inconsistent test result interpretation and application (Camara, 2014). One cannot stress the significance of high-quality score reporting and assessment procedures since they have a direct bearing on the choices students make about their education that are based on test results (Roberts & Gotch, 2019). Furthermore, the integration of frameworks such as Bloom's Taxonomy into assessment design can enhance the effectiveness of standardized tests by ensuring they measure a range of cognitive skills (Kim et al., 2012).

In addition to the technical aspects of standardized testing, there is a growing recognition of the need for a more holistic approach to assessment. Wiggins argues for authentic assessments that replicate real-world challenges, suggesting that traditional standardized tests may not adequately measure students' true capabilities (Wiggins, 2011). This perspective aligns with the findings of Freeman et al., who advocate for active learning strategies that can lead to improved student performance in STEM fields (Freeman et al., 2014). The shift towards more comprehensive assessment methods reflects a broader trend in educational reform aimed at fostering deeper learning and critical thinking skills among students.

In conclusion, while standardized tests play a significant role in educational assessment, their effectiveness and fairness are contingent upon rigorous adherence to established standards and a commitment to equitable practices. The ongoing discourse surrounding standardized testing underscores the need for continuous evaluation and adaptation of assessment methods to meet the diverse needs of learners in an increasingly complex educational landscape.

Process of building standardized tests

According to Shower (2010), when building a standardized test, the following steps are required:

- Step 1. Write the purpose and objectives of the test
 - Step 2. Determine the type of test (referenced by achievement or criteria)
 - Step 3. Develop a technical specification table
 - Step 4. Determine the questions
 - Step 5. Confirm the test content (content validity - experts evaluate the content validity)
 - Step 6. Conduct test testing (determine reliability, analyze the characteristics of each test question, average time for candidates to complete the test)
 - Step 7. Conduct the test
 - Step 8. Score, analyze and interpret test results
- (quoted from Saad F. Shower, 2012)

Nitko and Brookhart (2013) focused only on standardized achievement tests. The author provides a process with specific steps to build standardized tests for group-based assessment, including:

- Step 1. Prepare ideas
- Step 2. Evaluate proposals
- Step 3. Make formal arrangements for test design
- Step 4. Build a test matrix (technical criteria)
- Step 5. Write test questions
- Step 6. Conduct test question testing
- Step 7. Design final tests

Step 8. Build a standardization group

Step 9. Prepare final guidance documents

Step 10. Develop a marketing plan

Step 11. Officially publish standardized tests

Programme for International Student Assessment (PISA) has applied the following standardized test design process:

Step 1: Build a content framework and a table of technical criteria for the test

OECD builds an initial content framework; The Australian Council for Educational Research develops a detailed content framework and technical criteria.

Step 2: Question compilation

PISA establishes several question compilation centers, and the question compilation goes through two stages: Each center compiles questions, tests them independently and evaluates the quality of the questions. PISA participating countries can propose questions but must ensure that they comply with PISA regulations and send them to the question compilation centers for review and selection; All questions will be re-evaluated by other question compilation centers. After editing, these questions will be tested widely in participating countries. PISA will organize training on data coding. The test results will be analyzed by PISA and then sent to each country for re-evaluation through detailed instructions.

Step 3: Design the final test

The assessment councils will review the questions one last time and retain about 200 good quality questions. PISA does not design separate tests for each area but integrates them so that each student takes one test. To optimize the number of students participating in answering each question, the test is designed according to the theory of incomplete equilibrium (OECD, 2018).

In conclusion, creating a standardized tool requires a meticulous process that involves numerous steps and places a strong emphasis on the caliber of each question, exercise, and statement in the tool. One of the best parts of the standardized tool design process is testing the tool and then using the advancements in educational measurement and evaluation science to standardize the tool set, all while confirming the tool's quality through expert methods.

Criteria for evaluating standardized tests

Evaluating standardized tests is finding out whether the test is norm-referenced or criterion-referenced and to what extent the test scores are valid, reliable, and fair.

Norm-Referenced and Criterion-Referenced Tests

Both norm- and criterion-referenced standardized examinations are available. A set of people who have previously undergone testing is known as the norm group, and it serves as the foundation for interpreting test results. Therefore, a student's result on a norm-referenced test is understood by contrasting it with the performance of other students (the norm group).

When a nationally representative sample of pupils is included in the benchmark, a norm-referenced test is based on national standards. For instance, a nationwide sample of fourth graders might be given a standardized examination measuring their knowledge and proficiency in science. The foundation for comparison is the test results from this representative sample of thousands of fourth graders. Pupils from urban, suburban, and rural areas; diverse geographic locations; boys' and girls' schools; private and public; and various ethnic groups should all be represented in the benchmark. Teachers can ascertain if a student is performing above, at, or below the national level based on the results of a standardized science test (Gronlund & Waugh, 2009). Teachers can also see how the entire class is performing relative to the student body as a whole. Standardized assessments known as "criterion-referenced" compare student performance to predetermined standards or criteria (McMillan, 2011). Standardized state exams usually don't use standards; instead, they are criterion-referenced. State criterion-referenced exams, for instance, might determine if a student has attained a given percentage, such as answering 80% of the questions correctly, or has reached a level of performance referred to as "proficient."

Evaluate a test

There are three important ways to evaluate a test: whether it is valid, reliable, and fair.

Validity of a measurement instrument represents the accuracy of the instrument in measuring the object to be measured. Validity refers to whether an instrument measures what it is intended to measure, and whether the inferences drawn from an instrument are appropriate (Cox, Foster and Bamat, 2019). Specifically, for an assessment instrument to have validity, it must satisfy the following criteria: content validity; measurement validity; construct validity.

The precision with which the content is expressed by the measurement tool is reflected in its content validity. Therefore, to properly calibrate the content of a measurement instrument, it must be standardized through clear, focused, and succinct language. This can be achieved by consulting experts in the field through the Delphi research method regarding the instrument's presentation.

Measurement validity is determined through convergent validity and discriminant validity. Convergent validity indicates the degree of correlation between measurement variables (behavioral indicators) in the same component. Discriminant validity shows the distinction between the competencies of this component compared to other components in the same competency structure. In quantitative research on competency measurement tools, convergent validity is determined by the degree of correlation of behavioral indicators, while discriminant validity is tested by examining whether the components in the competency are truly distinct from each other. Construct validity is related to the degree to which the tool measures concepts, behaviors, ideas, and the quality of the theoretical structure. In competency assessment, through measuring and testing construct validity, researchers will be able to model the theoretical structure, accept or correct or propose a new structure consistent with the quantitative results (Ta Thanh Trung et al., 2022).

According to conventional definitions, validity refers to how well a test captures the objectives it is meant to capture. Nonetheless, an increasing number of specialists in educational

assessment maintain that conclusions drawn regarding test results are just as accurate or erroneous as the test's features (McMillan, 2011). Therefore, validity refers to how well a test measures what it is supposed to assess and whether or not conclusions drawn regarding test results are reasonable and correct.

Reliability

To present the concept of reliability, Joppe (2000) expressed as follows: “The extent to which the results do not change over time and represent the exact representation of the studied population is called reliability. If the research results can be replicated using the same methodology, then the measurement tool is considered reliable” (cited in Bashir et al., 2008). Thus, the reliability of a competency assessment tool can be understood as the stability of that tool. The reliability of a scale must satisfy the following criteria: stability; equivalence; internal consistency.

The measurement tool's need to provide stability over time across comparable samples reflects the stability of a competency evaluation tool. That is, a scale will yield comparable findings if it is tested on sets of samples that share the same properties for an appropriate amount of time. A mass survey is required to remove irrelevant factors and a preliminary survey with a limited sample size is required to test the stability of a competency evaluation tool.

The equivalence of the measurement tool is tested with expert groups. Each member of the expert group has the same opinion about the measurement tool, then the measurement tool ensures equivalence. The competency assessment tool is verified for equivalence by asking for expert opinions, variables with high consensus will be kept the same, variables with different opinions will be considered for adjustment.

The internal consistency of the sample when measured by an instrument must give consistent results. Divide the sample into small groups containing full sample data, perform measurements on each group of samples, the results obtained must match, if there is no discrepancy, it must be considered for correction (cited by Ta Thanh Trung et al., 2022). According to Santrock (2011), reliability is understood as follows: The extent to which the test produces consistent and repeatable scores is its reliability. To be called reliable, the score must be stable, reliable and relatively free of measurement error. Reliability can be measured in many ways, including test-retest reliability, alternative reliability and split-half reliability.

Test-retest reliability is the degree to which a test yields the same results when a student is given the same test twice. Therefore, if a set of students took a standardized fourth-grade science test today and then again, a month later, and their results were consistent on both tests, the test would be deemed trustworthy. Test-retest reliability has two drawbacks: some students may perform differently on the second test because they are more accustomed to it, and others may perform differently because they have acquired new information in the meantime.

Test equivalence reliability is determined by giving different forms of the same test on two separate occasions to the same group of students and observing the consistency of scores. Although they are not the same, the two test versions are comparable. By using this strategy, the chance that students will do better on the second exam because they are more accustomed to the items is

eliminated; nevertheless, the chance that students will gain more knowledge and comfort with the testing methods and procedures is not eliminated.

Split-half reliability involves dividing test items into two halves, such as odd-numbered and even-numbered items. To find out how consistent students are on each set, the scores on the two sets of items are compared. An internally consistent test is one that has a high split-half dependability. Students' results on odd- and even-numbered items in a fourth-grade standardized science examination, for instance, can be compared. The scientific test has good split-half dependability if their scores on the two sets of questions are comparable.

Reliability is affected by several measurement errors (Popham, 2010). A student may have adequate knowledge and skills but still not perform consistently across a few tests due to several internal and external factors. Internal factors include health, motivation, and anxiety. External factors include poor examiner guidance, unclearly written items, poor sampling, and ineffective scoring. When students perform inconsistently across a class on the same or similar tests of their knowledge and skills, careful analysis of the internal and external factors that may contribute to the inconsistency is required.

Validity and reliability are related (Anderman et al., 2010). A valid test score is reliable, but a reliable test score is not necessarily valid. People may respond consistently on a test, but the test may not measure what it is intended to measure.

Fairness and bias

Fair tests are unbiased and non-discriminatory (McMillan, 2011). They are not influenced by factors such as gender, ethnicity, or subjective factors such as rater bias. When tests are fair, students can demonstrate their academic ability so that their performance is not influenced by gender, ethnicity, disability, or other factors unrelated to the purpose of the test.

A exam that disadvantages a specific set of students is considered unfair (Green & Johnson, 2010). This typically occurs when a test item increases the difficulty for students who possess traits. For instance, let's say that students are required to write a brief narrative about a boy who works hard to improve his soccer skills and get on the team for a writing test. Given that boys are often more familiar with soccer than girls, it seems to reason that this kind of question would be simpler for boys than for girls, making the test unfair to girls in terms of evaluating their writing skills.

For students with disabilities, equity often requires adjustments in test administration. Many accommodations depend on the specific disability. The goal is to reduce the negative impact of the disability on the trait being tested. For example, for students with hearing impairments, ensure that instructions are written; for students with visual impairments, ensure that instructions are given orally (cited in Santrock, 2011).

4. CONCLUSIONS

Modern technological and pedagogical developments have had a big impact on how standardized examinations are developed in the digital age. The use of digital tools to enhance

assessment activities is a popular trend that makes testing environments more dynamic and interesting. Furthermore, the emergence of various digital technologies, such as mobile computing and data analytics, has altered traditional evaluation methodologies into more dynamic and flexible formats. Nambisan et al. explore how digital innovation, defined as the use of technology to create new market services and business processes, can be used to create standardized examinations that better reflect the demands of modern education (Nambisan et al., 2020). As noted by Lim et al., who support technology-enabled learning to improve authentic assessment processes, this move to digital innovation necessitates a thorough awareness of current technologies and their consequences for assessment design (Lim et al., 2023).

Standardized testing in education has become an important aspect of assessing student achievement and the quality of education. While standardized tests have their benefits, such as providing a common measure of student achievement, there are also challenges associated with their implementation. For example, Hoffman and Lowitzki discuss how standardized tests may not accurately predict college success for minority students, suggesting that these assessments can disadvantage those from underrepresented backgrounds (Hoffman & Lowitzki, 2005). Moses and Nanna (2007) highlight the relationship between high stakes testing and educational prospects for kids from low-income backgrounds and students of color. They caution that such examinations have the potential to worsen already-existing gaps. A curriculum that prioritizes test preparation over in-depth study may result from the emphasis on standardized testing. This may have a detrimental effect on instructional strategies and student participation, especially in schools with poor academic performance (Wasserberg and Rottman, 2016).

All things considered, the educational standardized testing procedure is a complicated and diverse problem. Standardized tests have drawbacks and restrictions that should be carefully considered, even though they can provide important information regarding student accomplishment. Therefore, equity, accessibility, and developmentally appropriateness must all be considered while developing standardized examinations. Current developments in digital assessment reflect how educational demands and technological advancements have come together. To produce assessments that are not only valid and reliable but also interesting and available to a wide range of users, standardized test developers must take these trends into account as they continue to build new exams.

5. ACKNOWLEDGEMENT

Authors thanks Vingroup innovation foundation – Institute of big data for the topic: " Nguyen Thi Huong was funded by the Master, PhD Scholarship Programme of Vingroup Innovation Foundation (VINIF), code VINIF.2023.TS.046".

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INNOVATION IN ANTI-CORRUPTION EDUCATION FOR STUDENTS AT TAY BAC UNIVERSITY

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ABSTRACT

This article aims to share the results and experiences of implementing 03 Vietnam anti-corruption initiative projects (VACI 2011, 2013, 2015) and anti-corruption education activities for students at Tay Bac University. From there, we propose some creative solutions that can be replicated at other universities in Vietnam. By analyzing and synthesizing theory and analyzing practical experience, we have come up with a creative approach to the content and form of educational organization, turning the inherently dry topic of anti-corruption into a new one, confusing content into simple, easy - to - understand content. In addition to helping students identify and prevent corrupt acts, we focus on educating moral integrity and building a good lifestyle for students to create a generation of corruption-free leaders in the future. By approaching the needs and interests of youth, we have used a variety of organizational forms such as participatory training, organizing forums, seminars, innovation competitions, and organizing mock-ups, creating a creative library, establishing a beautiful living club, and campaigning to build and promulgate a code of conduct between teachers and students in schools. Those results contributed to raising awareness for nearly 500 youth union and student union officials and more than 4,000 students in the school, motivating them to proactively prevent corruption and build their own moral integrity, build a standard of pure and healthy Teacher - Student relationship, and create a democratic and civilized school environment. These creative solutions can be completely replicated in other schools in Vietnam.

Keywords: Vietnam Anti-corruption Initiative (VACI) program, creative innovation, anti-corruption education, students, Tay Bac University.

1. INTRODUCTION

According to Vietnam's anti-corruption law, "Corruption is the behavior of people with positions and powers who take advantage of those positions and powers for personal gain" (Assembly, 2018). Corruption is a negative and evil social phenomenon that exists in every country and every era; in order to survive and develop strongly, countries must pay attention to the fight against corruption (Trong, 2023, p.15). According to President Ho Chi Minh, preventing corruption is fighting on the ideological and political fronts, there must be planning, organization, and must gather all classes of officials, people and education in school (Secretariat, 2021b).

In the field of education, special attention should be paid to anti-corruption education because it has negative impacts on society and most importantly, corruption will lose people's trust. In schools, if students believe that school entrance exams and grades can be bought, this threatens the economic and political future of a nation (Deliversky, 2016). In Vietnam, Directive

No.10/CT-TTg of 2013 of the Prime Minister directed the introduction of anti-corruption content into teaching at schools from the 2013-2014 school year (Minister, 2013).

The Ministry of Education and Training of Vietnam has also issued documents guiding schools to implement Directive No.10/CT-TTg (M. o. E. a. T. o. Vietnam, 2013), (M. o. E. a. T. o. Vietnam, 2014a), (M. o. E. a. T. o. Vietnam, 2014b). This shows the necessity as well as the legal basis for bringing anti-corruption education content into schools. Anti-corruption education in schools is not only about imparting knowledge but also creating a foundation for personality and moral development for students, the future owners of the country. The question here is how can anti-corruption education in schools attract learners to participate and be effective? How to make educational knowledge about anti-corruption more familiar, simple, understandable and interesting to learners?

Tay Bac University is a multidisciplinary university affiliated with the Ministry of Education and Training of Vietnam, located in Son La province, a cultural and scientific center, the main training place for human resources for the Northwest region of Vietnam. At Tay Bac University, there are 3 award-winning projects that have been implemented under the Vietnam Anti-Corruption Initiative Program organized by the World Bank and the Government Inspectorate from 2011 to 2016. The projects have been successfully implemented for students at Tay Bac University and have brought positive effects, raising awareness and proactive participation of students in the fight against corruption, building clear and transparent lecture halls. Therefore, this article aims to share the results and lessons learned from implementing 03 anti-corruption initiative projects at Tay Bac University, sharing good and creative ways to document reference on anti-corruption education in schools for other universities in Vietnam.

2. LITERATURE REVIEW

2.1. Some viewpoints and legal basis on anti-corruption education in schools in Vietnam

In President Ho Chi Minh's view, embezzlement and waste are enemies of the people and the Government; they are the country's "internal invader" (Secretariat, 2021a). The origin of corruption is the pursuit of personal gain, ideological deviation, and moral degradation. Preventing corruption is also preventing the deterioration of political ideology, ethics, and lifestyle of officials and party members (Trong, 2023, p.16).

At the 12th Congress, the Communist Party of Vietnam clearly pointed out that the deterioration of political ideology, ethics, lifestyle and the complicated developments of corruption and waste are among the serious risks and challenges to the leadership role of the Party and the management effectiveness of the Vietnamese State (C. P. o. Vietnam, 2016, p.196). The Communist Party of Vietnam affirms that the fight against corruption is a very important task in the process of building and rectifying the Party organization and the process of building the country (C. P. o. Vietnam, 2021,p.193-206).

In 2013, the Vietnamese Government issued Directive No.10/CT-TTg on introducing anti-corruption content into teaching at schools from the 2013-2014 school year (Minister, 2013). The Ministry of Education and Training of Vietnam issued Official Dispatch No.5571/BGDĐT-TTr

dated August 13, 2013 guiding the implementation of Directive No. 10/CT-TTg of the Prime Minister (M. o. E. a. T. o. Vietnam, 2013) and issued decisions approving programs and teaching materials on anti-corruption for all levels of education; requires schools to implement anti-corruption education programs through integration into teaching and extracurricular activities (M. o. E. a. T. o. Vietnam, 2014a), (M. o. E. a. T. o. Vietnam, 2014b). In 2023, the Ministry of Education and Training issued Official Dispatch No. 2059/BGDĐT-GDĐH requesting schools to continue to strictly implement Directive No. 10/CT-TTg on incorporating anti-corruption content into teaching (M. o. E. a. T. o. Vietnam, 2023). The above quotes are the legal basis for bringing anti-corruption education into schools in Vietnam.

2.2. Practical basis for implementing anti-corruption initiative projects at Tay Bac University

The Vietnam Anti-Corruption Initiative Program (referred to as VACI) is the result of a long-term cooperation process between the Vietnam Government Inspectorate and the World Bank along with the UK Ministry of Development and a number of other development partners (Government Inspectorate, 2016).

The program is organized in the form of a competition to select excellent projects and fund their implementation. Through three times of organization in 2011, 2013, and 2014, there were a total of 378 projects. Of these, there are nearly 80 projects that won awards and received funding from the program to deploy in the community (inspection, 2015).

To promote effectiveness and maintain sustainability, the Vietnam Government Inspectorate implemented the "Vietnam Anti-Corruption Initiative Replication Program" in 2015 sponsored by the United Nations Development Program. As a result, 10 excellent projects were selected to sponsor and deploy in the community (Inspection, 2016).

At Tay Bac University, 03 projects have been implemented, including 01 project that won the VACI 2011 program, 01 project that won the VACI 2013 program and 01 project under the Vietnam Anti-Corruption Initiative Replication Program 2015.

2.3. Research methods

Theoretical research method (also known as document research method): collect information through reading selected documents to find documents and articles suitable for the topic of the scientific article. Information collected includes the concept of corruption, policy documents related to anti-corruption education in Vietnam, and the theoretical basis for bringing anti-corruption education into schools.

Theoretical analysis and synthesis method: analyze the documents and information collected according to each structural section of the article's content. Synthesize and link documents and topics into the complete content structure of the article. Arrange the documents in the order of citation of each content according to regulations.

Method of analyzing and synthesizing experience from practice: conduct a practical analysis of 03 anti-corruption initiative projects in schools that have been practically implemented from

Tay Bac University. From there, summarize the results achieved, draw lessons about success as well as limitations and give suggestions for other universities to apply.

3. RESEARCH RESULTS AND DISCUSSION

3.1. Results of implementation of 03 projects

* Results of project implementation VACI 2011 - P26

Project name: 3T Witch Shop - For a new day without corruption. 3T means (Communication + Knowledge => Future)

This is a project proposed by the Youth Union of Tay Bac University, and received an award from the Vietnam Anti-Corruption Initiative Program (VACI 2011) for implementation at the University in 2011/2012.

The project aims to: Organize a creative communication model in the form of a student cafe, combining business with media to attract the attention and promote the participation of young people in prevention, and anti-corruption issues.

Table 1. Summary of main activities implemented and results of implementation of VACI Project 2011- P126

Activity	Content	Implementation results
1. Organize anti-corruption education and communication through the "3T Quan" business model	Linking water sales activities with communication: - Customers can read books for free when entering the shop, including books on building a beautiful lifestyle and books on law. - Show videos on the topic of living a beautiful life and preventing corruption in education - Decorate slogans and posters about a beautiful lifestyle on table menus and pictures at the shop. - Give away propaganda leaflets	+ Every day, about 60 - 70 people come to the restaurant and access propaganda messages. + There were over 13,000 visitors to the shop model, about 3400 people came to the shop to read books during 6 months of implementing the model (Including students and residents)
2. Organize media events at the shop	Organize weekly, monthly, and quarterly events at the model with a variety of forms such as playing games to learn knowledge about anti-corruption, inviting speakers to share about beautiful lifestyles among young people.	Organized: + 25 weekly events, 1300 participants. + 6 monthly events, over 400 participants. + 2 quarterly events, over 1000 participants
3. Propaganda on local radio and television stations	- Read radio broadcasts on weekday afternoons at school. - Invite local television to report the news	Organized 25 radio shows with over 150 different articles and collections on the topics of beautiful living and anti-corruption; There have been 04 news programs on local television about the project's activities.
4. Organize a Student Forum	Organize a Student Forum with the theme "Students and anti-corruption work, in schools and communities"	+ There were 243 students and teachers participating. + There were 5 reports and over 20 opinions exchanged and discussed on the topic of building a beautiful lifestyle among students, the roles and responsibilities of students in anti-corruption work.

* Results of project implementation VACI 2013 - P25

Project name: Seeds of anti-corruption in schools and communities, code VACI 2013 – P25

This is a project proposed by the Youth Union of Tay Bac University, and has received an award from the Vietnam Anti-Corruption Initiative Program (VACI 2013) to deploy anti-corruption education activities in the community. school in 2013/2014.

The project aims to build the young generation into "core seeds" with knowledge, understanding, ethical integrity, a sense of responsibility, and positive attitudes and behaviors that contribute to prevention and control. Effective corruption in schools and communities.

Table 2. Some results of VACI 2013 - P25 project implementation

Activity	Content	Implementation results
1. Training Youth Union and Association officials	Training on basic knowledge of anti-corruption laws, identification skills and anti-corruption skills.	+ There were 456 officials participating and improving awareness
2. Student training	Training on anti-corruption and ethical and integrity education for students.	+ Nearly 4,000 students participated, 50% actively discussed and expressed opinions on topics
3. Youth Union branch activities	Organize events on transparency of general fund expenditures and ethical and integrity education.	+ Organized 280 activities at more than 100 union branches with many creative forms applied.
4. Innovation contest	Organize the contest "Initiatives to prevent corruption in schools" and sponsor the 10 best ideas to implement	+ There were 51 ideas proposed for participation, + There were 10 excellent ideas funded with small funds to deploy in the community, creating a positive impact.
5. Establishment of a Club	Established 01 Club "Youth live beautifully" and organized propaganda events through cell activities	+ The club has 50 key members, who are "propaganda seeds" about a beautiful lifestyle and preventing corruption in schools. + The club is a place to organize media events for students.
6. Communication	+ Broadcasting propaganda on the school radio station. + Distribute propaganda leaflets + Report news on local television stations	+ Has conducted 25 radio broadcasts with over 100 propaganda articles + There were 5,000 leaflets distributed to students + There were 4 news broadcasts on local television stations about project activities.
7. Propaganda camp	Organize an anti-corruption propaganda camp with many lively and creative activities such as camp presentations, propaganda pictures, organizing propaganda picture sticker games...	More than 8,000 students participated and raised awareness about beautiful living and anti-corruption.
8. Student Forum for Living Beautifully	Organize the forum "Students live beautifully" with articles and shares about beautiful lifestyles among young people	+ Nearly 200 staff and students participated + There were 5 reports and many opinions were presented and discussed.

* Results of implementing the project to replicate the Vietnam anti-corruption initiative in VACI 2015

Project name "Transparent lecture halls in the hands of young people", code VACI- P18 NR

The project "Transparent lecture halls in the hands of young people" was implemented by the Youth live beautifully Club of Tay Bac University in 2015/2016, and is one of 10 projects that received funding from the «Innovation Replication Program. Vietnam anti-corruption initiative» in 2015.

The project was implemented with the goal of building healthy and pure teacher-student relationship standards; building a transparent classroom environment, contributing to preventing corruption in schools and the community.

Table 3. Summary of some main results of the VACI - P18NR project

Activity	Content	Implementation results
1. Develop a Rules for candidacy between teachers and students in school	+ Organize 01 scientific conference to get opinions from relevant parties + Develop and advocate policies for the School to promulgate a set of rules in schools	+ Has built a set of Rules for candidacy between Teachers and Students in schools. + The School Principal has signed a decision to promulgate a code of conduct applicable to all lecturers, staff and students at Tay Bac University from 2017 until now.
2. Construction and communication on the Website "Bright Lecture Hall"	+ Website setup; + Write and post propaganda articles on anti-corruption education and beautiful lifestyle; standard relationship between teacher and student.	- Number of propaganda articles published: More than 100 articles. - Number of visits: Over 20,000 views - Fanpage: 3,000 likes.
3. Writing contest "Teacher in my heart"	+ Organize 01 writing contest on the standards of pure and healthy teacher-student relationships. +Organize judging and awarding prizes	- Number of contest entries: 115 contest entries from lecturers and students. - Awarded 15 prizes to winning works
4. Talk show "Standards of teacher-student relationship"	+ Organize a talk show with the topic "Building healthy, pure teacher-student relationship standards and preventing corruption in education" + Invite speakers and teachers to share with students.	- Number of attendees: More than 500 lecturers, staff and students.
5. Creative and transparent Library model	+ Improve and redecorate the school's library into a creative learning space with green decorations and media messages; + Build media bookshelves including law books, skills books, and books about beautiful living. + Organize events and activities to attract students to read books every day	- Model area is 150 m ² . - Number of propaganda books: over 300 books on beautiful living and law. - Number of people accessing the model: over 6,000 students and teachers/year.

* Analyze the impact of 03 projects on students' awareness and behavior:

The outstanding impact of the 03 projects on students is to help students increase their awareness of anti-corruption. They have a correct awareness of their position and role, so they actively participate in activities of training, thematic reports, forums and communication activities of the project. In particular, students become proactive in planning and organizing communication activities in school such as writing propaganda articles, making communication posters, building plans, organizing events, giving speeches and sharing opinions at forums and seminars. They have proactively maintained and developed the results of the project such as the model "Creative Library" and the club "The Youth Living Beautifully"; contribute ideas to develop a code of behavior in schools... This demonstrates students' caring attitude, sense of autonomy and proactive behavior in anti -corruption in schools and communities.

Table 4. Impact of 03 projects on students' awareness and behavior

Project number	Implemented content
VACI 2011- P126	<ul style="list-style-type: none"> - There were 60 students participating in the recruitment exam for staff of the communication model. They proactively learned about anti-corruption knowledge to participate in the exam; - There were 47 students submitting ideas for the contest to design shops based on the theme of anti-corruption communication. - There were 5 students writing papers and 20 students speaking and sharing their thoughts at the student forum - There were 150 students writing propaganda radio articles. - There were over 1,000 students actively participating in activities at the restaurant model, writing media messages and organizing events.
VACI 2013 - P25	<ul style="list-style-type: none"> - Students have organized 280 sessions on: publicizing general fund expenditures, ethical and integrity education, anti-corruption education. - There were 93 people who submitted ideas to participate in the innovation contest organized by the project. - Students implemented 10 creative ideas on anti-corruption sponsored by the project: attracted 300 signatures on the slogan: "Lecturers and students of Tay Bac University join hands to prevent negativity in schools, in exams"; Wrote over 150 messages and hung them on the "Unity Against Corruption Tree" at the Propaganda Camp; Painted over 30 propaganda paintings; Designed 10 themed propaganda leaflets; writing and performing plays, propaganda skits... - Students actively participated in the club "Youth Living Beautifully" and built their own plans and organized media events at the club; - Students proactively give their opinions and views at meetings, seminars, and forums; Wrote 100 radio articles.
VACI - P18NR	<ul style="list-style-type: none"> - There are over 100 students who are class presidents or class secretaries contributed their opinions to the development of the "Code of Behavior of School" and expressed their opinions at the workshop to develop and advocate for promulgation of the Code of Behavior of School; - There were 115 students and lecturers submitted entries to the "Writing contest on standards of pure and healthy teacher-student relationships", expressing their views on this issue. - There were over 100 students wrote propaganda broadcasts and posts on the project's website - Students self-manage and maintain the operation of the website, maintaining the model "Creative Library" to communicate anti-corruption in schools.

3.2. Discuss

From the results of implementing the above 03 projects at Tay Bac University, it shows creativity in the approach to anti-corruption education in schools. Participatory approach, beneficiaries are students who can directly participate, hold meetings, plan and organize activities. Creative in organizational form, activities are built based on students' interests and needs through quick surveys and are organized in a variety of forms (training, coaching, conferences). workshops, camps, forums, competitions...). Approach anti-corruption education content in a simplified, familiar, and easy-to-understand manner like what is corruption? Harmful effects of corruption; Identify corrupt practices and corruption in education; anti-corruption measures, roles and responsibilities of students in the fight against corruption; build ethical integrity and healthy lifestyle; Build standards of pure and healthy teacher-student relationships to contribute to preventing corruption.

The outstanding creative idea of the VACI 2011 - P126 project is to approach anti-corruption education through the creative business model "3T Witch Shop - For a new day without corruption", 3T means (Communication + Knowledge => Future). Customers coming to the

restaurant can sit in a beautiful space with green trees, bookshelves and many communication messages cleverly and delicately decorated on the menu, on the walls or trees in the restaurant, and have access to Propaganda messages to raise awareness and take action to prevent corruption in schools and communities.

The outstanding creative idea of the VACI 2015 - P25 project is to train students to become seeds of anti-corruption propaganda in schools through activities to improve knowledge, skills, and union activities. can. Attract active participation of students through writing proposals for innovative ideas to compete and receive small grants to deploy in the community. Establish a beautiful living youth club to create a healthy living environment for students. This project is also very sustainable because the beautiful living youth club, established in 2014, continues to operate and communicate about beautiful living and anti-corruption among students.

The outstanding creative idea of the VACI - P18NR project is to strongly promote the role of students in building a transparent classroom environment through typical activities such as building a Rules for candidacy between teachers and students in schools; Maintain a creative library model with many books on beautiful living, life skills education books, and law books to increase information access for students.

The Projects have created profound and positive impacts on both lecturers and students at Tay Bac University, with about 500 lecturers and about 4000 students being direct beneficiaries or having received benefits. Regularly access project information.

The first outstanding impact of the projects is "raising awareness about anti-corruption". Through activities such as thematic training, TOT training, organizing creative idea contests, writing competitions, organizing talk shows, forums, seminars, and building a code of conduct. These activities have helped students and lecturers become more aware of integrity, openness, and transparency in the classroom. The second outstanding impact of the project is to contribute to improving the teacher-student relationship: The project has rung a gentle warning bell about standard deviations in the teacher-student relationship or the phenomenon of corruption in schools. Contribute to building standards through a code of conduct with strict terms and rules. From there, clarify the responsibilities of lecturers and students to jointly build a bright and healthy classroom environment. The third outstanding impact of the project is that it has attracted the attention of students, lecturers, staff and the community to anti-corruption education activities in schools. Through project activities, news and articles on the school's website, radio station and local television, along with introductions and replication of the project, the message of anti-corruption has been spread to the the whole community.

Projects have high feasibility due to their low cost, ease of implementation, and close proximity to educational activities in schools (training, organizing competitions, forums, seminars, fairs, creative libraries, create ...). Projects that are certain and capable of being maintained after completing activities (for example, the activities of the beautiful living youth clubs established in 2014 have been maintained to date; the Rules for candidacy between teacher and student was banned in 2017 and applies to this day at school).

From the analysis of the project implementation process and organized activities, it shows the outstanding difficulties of the projects: Firstly, difficulties in accessing content, how to transform classroom education content of anti-corruption into a simple, easy-to-understand issue that attract students to participate. This requires the project implementation team to continuously survey and evaluate the needs and interests of students before, during and after organizing activities to choose the most suitable activities. Then, discuss and select basic, easy-to-understand content for propaganda. Secondly, the organization of project activities easily overlaps with students' study schedules and others activities. Therefore, the project implementation team mobilized the participation and support of University leaders and leaders of Youth Unions and Student Associations in organizing activities for students. At the same time, integrate and integrate the content of anti-corruption education and ethical and integrity education into Youth Unions and Student Associations activities and organize major events with the participation of school leaders.

3.3. Lessons learned and tips for replication at other universities in Vietnam

Through the implementation of projects, we have learned a number of lessons to well organize anti-corruption education activities for school students:

- + Use a participatory approach: students need to be involved in all stages of the educational process such as being consulted, exchanging, discussing, and participating in planning. This will create opportunities for students to express their opinions, show their creativity and help them see more clearly their role and responsibility towards social problems, especially corruption.

- + Use active teaching methods, learning through experience according to the learner-centered motto. This approach makes students become subjects of the cognitive process, making them more excited and proactive as well as avoiding boredom in learning.

- + Approach based on students' needs and interests: before organizing educational activities, it is necessary to survey and collect students' opinions to know what they need and want? What activities do they like to participate in? This will help students be proactive and excited as they feel important and respected.

- + Use diversity and coordination of different forms of educational organization:

It is not simply about reporting topics or opening training classes, but it is necessary to diversify forms of education through competitions, camps, forums, organizing games, drawing propaganda pictures, watching media clips...

- + Simplify and animate educational content: transform knowledge into simple, easy to understand, focus on what educators want from students, help them understand what corruption is, its nature nature of corruption, origin, harmful effects of corruption, equipping them with skills to identify and take effective measures to fight against corruption. In schools, the main content should focus on educating moral integrity, promoting a beautiful lifestyle and healthy relationships between teachers and students to build a transparent, bright and healthy classroom.

- + Regularly monitor, supervise, evaluate and continuously innovate: when implementing educational programs, there should be specific, detailed plans, monitoring and evaluation to promptly

adjust accordingly. and efficiency. Encourage creativity and innovation in ways of organizing activities to attract student participation.

+ Promote the application of information technology, social networks and local media channels to increase the provision of information on anti-corruption education in schools, increasing access to information for students.

+ Mobilize coordination, participation and sponsorship from units and organizations inside and outside the school. Educational activities are also a service activity where teachers are businessmen and students are customers. We need to mobilize all resources, create many networks of relationships and investors for educational programs.

With the lessons we have shared, we recommend that schools, especially universities in Vietnam, can refer to and choose some typical and appropriate activities to implement, because:

- The application model is simple and easy to do: Activities such as forums, competitions, camps, building a rules for candidacy and library model, club model are forms of educational organization familiar, low cost, easy to implement, and easy to integrate into activities at schools, especially universities.

- Easy to apply and suitable for the 4.0 era: Currently, schools are strongly applying 4.0 technology, the ability to access and use technology with students is becoming more and more popular and easy. Educational communication on websites and social networking sites such as Face Books and Zalo is very simple and easy to do at schools.

- Participation activities promote creativity and are appropriate to the needs and interests of students: through organizing writing contests, forums or talk shows, Club activities events (etc.) are forms of organization that are highly interactive, full of excitement and easily attract the participation of students and lecturers.

4. CONCLUSION

The results of implementing 03 innovative projects at Tay Bac University are one of the clear demonstrations of the ability to apply innovative new solutions and ways of doing anti-corruption education at schools. The outstanding results of the three projects have shown creativity in approaching content, form and organization method. Implemented activities that are sustainable, feasible, simple, and easy to implement can be easily applied and replicated in schools in Vietnam, especially in universities.

Acknowledgements: The author would like to sincerely thank the World Bank and the Government Inspectorate for organizing the Anti-Corruption Initiative program in Vietnam (VACI 2011, 2013, 2014) and the program to replicate award-winning projects in Vietnam. Nam 2015 and awarded grants to winning projects to deploy in the community. The authors would like to sincerely thank the Board of Directors of Tay Bac University and the students, staff and students who participated in implementing these projects.

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UNDERGRADUATE CURRICULUM DEVELOPMENT RESPONSIVE TO THE INDUSTRY 4.0

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ABSTRACT

Higher education in the Industry 4.0 is open education which is considered a learning ecosystem for everyone with smart global connections anytime, anywhere. Aiming at the goal of training high-quality human resources to meet the urgent requirements of the Industrial Revolution 4.0, developing adaptive and effective undergraduate curriculums in an interdisciplinary and transdisciplinary direction should be focused and invested at higher education institutions. A literature review and analysis of curriculums development to meet the Industry 4.0, thereby orienting higher education institutions in designing, operating and developing effective curriculums to help to improve the training quality are made in the article.

Keywords: Curriculum development, curriculums, university, the Industry 4.0.

1. INTRODUCTION

In the context of the powerful development of the Industrial Revolution 4.0, the development of undergraduate curriculum that meets the requirements of the times is an urgent and extremely important issue. The Industry 4.0 is a combination of the development of the Industrial Revolution 4.0 and the innovation of Education 4.0; the intersection between them is timely and urgent issues for education, especially higher education, to best meet the requirements of the Industry 4.0 (Tang Dinh Thanh, 2023). Developing adaptive and effective undergraduate curriculums in an interdisciplinary and transdisciplinary direction is one of the current requirements. Author Dong Thi Kim Xuyen (2019) pointed out 07 basic characteristics of higher education 4.0, in which curriculums are more transdisciplinary than interdisciplinary. In the Industrial Revolution 4.0, knowledge is interdisciplinary and transdisciplinary (one discipline is deeply integrated in another discipline) and there is an increasing tendency to blur the boundaries among disciplines. Therefore, the basic content that universities should provide to learners in the Industrial Revolution 4.0 will be STEM education (science, technology, engineering and mathematics) and liberal education (Nguyen Dinh Duc, 2019).

A curriculum of a certain training program at a specific level includes: general objectives, specific objectives and output standards for disciplines and each module; training content, assessment methods and duration for a discipline and each module (Ministry of Education and Training, 2016). The curriculum is an important blueprint, a core tool for lecturers and learners to implement training activities to help learners gradually achieve the output standards of the course/training program. In addition, with the rapid development and change of the requirements

of the times, curriculums are required to adapt promptly through design, updating and development. The literature review and analysis of curriculum development to meet the Industry 4.0 era are focused in the article.

2. RESEARCH METHOD

Literature reviews with legal documents and research works of scholars relevant to the development of curriculums are adapted to analyze, synthesize, generalize... thereby solve the research tasks set out.

3. LITERATURE REVIEW ON CURRICULUM DEVELOPMENT RESPONSIVE TO THE INDUSTRY 4.0

In the context of the Industry 4.0 which have a strong and comprehensive impact on all aspects of social life, including educational activities in general and undergraduate curriculum development in particular, the opportunities and challenges that the Industry 4.0 poses for undergraduate curriculum development activities are enormous, requiring universities to conduct thorough and in-depth research to find appropriate and effective directions, measures and methods.

In Vietnam, current issues of university output quality have become a matter of public concern due to the increasing number of unemployed students. The reason is partly due to the slow innovation in quality of training programs/curriculums, which fails to keep up with the changes and developments of society and employers (Tran Thi Thu Thuy, 2022). It is focused on limited assessment of training programs at universities and proposing some basic solutions to improve education quality in the coming time.

Among the impacts of the Industrial Revolution 4.0 on higher education innovation, one of the necessary and important factors that need to be innovated is the training program/curriculum. To develop an effective curriculum that meets the times, according to author Tran Thi Hoai (2021), the perspectives on curriculum development include: the curriculum is a tool to achieve goals and to convey output standards to learners; the curriculum must be suitable for the training level and human resource requirements of the times; curriculums must be suitable for learning system being implemented. Currently, the "Academic credit system" is gradually shifting to the "Experiential learning system"; curriculums are the core contents for direct and online teaching and learning activities. According to author Le Duc Ngoc (2022), developing a curriculum based on output standards is a tool to convey output standards to learners, helps learners have competences to respond to the Industry 4.0 through satisfying output standards.

In their research, authors Pham Xuan Hau and Nguyen Duc Vuong (2023) affirmed that currently, the development of training programs and curriculums in a cross-disciplinary direction is an inevitable trend, but it also poses many challenges for universities in training human resources. With the particulars of the Industrial Revolution 4.0 and Education 4.0, the concept of interdisciplinary is not enough, but also requires transdisciplinary training. Therefore, transdisciplinary training requires a systematic, flexible training/curriculum and flexible teaching

strategies based on each individual learner with his/her learning reality: learner's competencies, communication and discussion skills for deep and broad connections among different disciplines based on performance and work efficiency of the components in a group or a transdisciplinary curriculum. However, the study only stops at presenting the basic issues of personalizing the training program according to a transdisciplinary approach for human resource training to meet the labor needs of the Industrial Revolution 4.0.

The transdisciplinary approach to curriculum development and design has the following characteristics: emphasis on the real context of society; courses are all related, but only contribute to solving independent projects proposed by students; the highest level of integration; focus on learners' projects; cognition, attitudes and social areas are center of the process; basing on the nature, needs and interests of learners; developing learners' initiative, imagination, creativity, research skills, synthesis and independence; learners set their own schedules (Alberta Education, 2007). Universities are now tending towards offering interdisciplinary courses and programs as an alternative to or alongside specialized courses. The focus on knowledge intergrated in the curriculum by courses and interdisciplines means that interdisciplinary knowledge is classified and framed less strongly than course-based knowledge (Shay & Peseta, 2018).

The authors Ajao *et al.* (2022) identified that direct stakeholder involvement in curriculum design was not mentioned and that alumni desired that curriculums should have specialized modules from the first year. The study was collected using an open-ended questionnaire with three themes: the MoET curriculum design/development; stakeholder consultation and principles considered in the curriculum design. However, the scope of the study focused on the agricultural curriculum in Nigeria to promote career readiness of learners. Contents related to the Industry 4.0 were not mentioned.

The general requirement for training undergraduate human resources in the Industry 4.0 is to implement higher education activities in a smart education system. Therefore, author Nguyen Thien Tue (2017) stated that when designing a program, it was necessary to reasonably allocate time, the number of subjects in each knowledge block (general education; basic disciplinary and major education), the ratio of theory to practice and experiments; the ratio of elective courses in each knowledge block. Its limitation is that it only focuses on systematizing some basic theoretical issues: objectives; program content; methods, forms of organization; means and conditions; evaluation of results when developing undergraduate curriculums to equip students with competencies to adapt to the requirements of the Industrial Revolution 4.0.

Author Nguyen Van Huan *et al.* (2019) shared the experience of developing a training program of the Faculty of Economic Information Systems including 5 steps, including: organizing a survey of training needs; analyzing contexts; setting up program objectives/expected output standards; program development with core courses with specific characteristics associated with social needs; timely adjustments to complete the training program to ensure the performance of training objectives and meet social requirements in the period of the Industrial Revolution 4.0. However, it focuses on sharing experiences in program development within a specific faculty at the University of Information and Communication Technology, Thai Nguyen University.

The study by Thai Van Thanh *et al.* (2018) considered the CDIO-based program development approach as one scientific and consistent with the development trend of the region and the world when it enters the Industry 4.0. It also proposed a 6-step process when developing a curriculum, including: comparing the current curriculum with new output standards; designing the curriculum framework; designing the teaching sequence of output standard topics on skills and attitudes; allocating the teaching sequence of topics into courses; designing course outlines; developing survey forms and collecting opinions on the curriculum framework and content of the detailed course outlines according to CDIO. However, it aims at applying to teachers training sector and follows the CDIO approach.

A study by Tran Thi Hoai (2021) proposed a model and solutions for developing undergraduate curriculums at Vietnam National University, Hanoi (VNU) to respond to the Industrial Revolution 4.0. Besides, it also developed 03 new module outlines for undergraduate curriculums at VNU to adapt to the Industrial Revolution 4.0 with the following 12-step process: analyze the context; determine the objectives of the curriculum; develop the output standards of the curriculum; draft the curriculum framework; determine the objectives of the courses; course content; develop the output standards of courses; develop the content of curriculums; appraise and accept curriculums and promulgate them; develop a bank of questions and course exercises; develop a plan and implement teaching; evaluate and improve curriculums. The research has not focused on the interdisciplinary and transdisciplinary nature of a curriculum - an important feature of curriculums in the Industry 4.0.

Thus, many domestic and foreign authors have researched the 4.0 era and built training programs and curriculums to meet that context. However, the above works are mainly researching training programs and curriculums; building and developing training programs or managing training programs and curriculums at higher education institutions. The interdisciplinary and transdisciplinary characteristics in curriculum development to meet the Industry 4.0 are still vague; Researches focus on a part, an perspective, or an aspect of the curriculum to meet the Industry 4.0 or on a certain scope to contribute to solving problems raised in that scope (certain case study); Not only that, curriculums, especially curriculums responsive to the Industry 4.0, are very rarely researched in systematic and comprehensive manner by authors. This is a new research direction, urgent for universities to have a comprehensive panorama of the development of curriculums responsive to the Industry 4.0.

4. DEVELOPMENT OF CURRICULUMS RESPONSIVE TO THE INDUSTRY 4.0

The Industrial Revolution 4.0 is the combination of technology in the fields of physics, digital technology and biology, creating completely new production capabilities and having profound impacts on economic, political and social life. Education and training are directly and most affected, because they have the task of training human resources to serve the Industry 4.0, with a strong transition from manual labor to automation systems, machines and artificial intelligence replacing human labor, which has been rapidly changing the labor structure and labor market.

Moreover, the trend of university autonomy is becoming more widespread as an inevitable part of education history. In fact, higher education institutions are required to make efforts to adapt and respond to challenges, avoiding the risk of falling backward and being eliminated. According to Wonglimpiyarat (2016), with the trend of the Industry 4.0, universities which provide society with human resources and labor will have to train according to Education 4.0 standards. At that time, the role and training goals take change towards promoting the spirit of innovation and creativity for learners, teaching learners to develop individual talents and know how to make collective creativity. Author Ong, J. C. B. (2017) briefly described the development of higher education through 4 stages with 8 basic characteristics: Focus, Curriculum, Technology, Digital Literacy, Teaching, Quality Assurance, School and Output. Of which feature of curriculums in the Education 3.0 is Interdisciplinary and in the Education 4.0 is Transdisciplinary. Transdisciplinary approach is when new approaches are made and integrated in the process of solving complex, real social problems (Drake and Burns, 2004). This is also an urgent requirement for universities in setting up, designing and developing undergraduate curriculum.

In our country, Resolution No. 29-NQ/TW on fundamental and comprehensive innovation of Vietnamese education is being performed in specific situations of Vietnam and the context of the **Industrial Revolution 4.0**. After 10 years of implementation (2013-2023), education and training have made many developments, however, issues and contents remain in need to be further studied and effective solutions proposed for stronger development to meet the requirements of the country in the new period, new stage. The Communist Party of Vietnam (2021) stated that "Training high-quality human resources has not met requirements of economic and social development". It is considered an important content that requires higher education to have positive changes and innovations to continuously train high-quality human resources to serve the rapid development of society. To effectively carry out this task, universities should develop appropriate curriculums responsive to the social development, focusing on output standards and practical skills in the professional society of learners after graduation.

However, Vietnamese education is mainly approaching curriculums with mono- and multi-disciplinary method, using technology with papers, pencils and desktop computers and laptops; teaching methods include mainly one-way and two-way; the school model is mostly of brick-mortar and brick combined with mouse click (Nguyen Loc, 2021). In addition, the Communist Party of Vietnam (2021) also pointed out that the content and curriculum of education and training are mostly theoretical and less practical. Training is still not associated with scientific research, production, business and the needs of the labor market. Not enough attention is paid to developing learners' qualities and skills. Moreover, the training and curriculums are still not flexible; the content is not suitable for the needs and trends of the labor market in the **Industrial Revolution 4.0** (Ha Thi Thu Thuy, 2019). Horizontal and vertical connectivity in curriculums are not systematic and ineffective...

To solve current shortcomings, according to author Nguyen Loc (2021), higher education needs to quickly apply integrated and transdisciplinary curriculum approaches to adapt best the needs of personalized learning, while forming 21st century skills such as problem solving, coordination among many people, human management, critical thinking... to cope with the instability of the Industry 4.0. On the other hand, the rapid development of Industry 4.0 requires

that the Education 4.0 must also transform the current education framework 2.0 to 3.0 and 4.0 (Diwan, 2017). Or author Nguyen Dinh Duc (2019) also believes that training programs and curriculums must transform in accordance with the interdisciplinary and transdisciplinary trends of the **Industrial Revolution 4.0**, and such programs needs to deeply integrate with regional and world programs.

The interdisciplinary and transdisciplinary nature of a curriculum is to systematically and scientifically embed relevant contents and knowledge from different disciplines into the curriculum to establish an intelligent ecosystem for learners to solve new problems and tasks in the most comprehensive and effective manner to meet the topical requirements. The interdisciplinary and transdisciplinary feature makes the boundaries between curriculums or disciplines increasingly interact with each other, create a more open space for learners to acquire knowledge. With this feature, learners will have deep (being experts in their qualification), broad (understanding many disciplines and professions) knowledge to quickly adapt to the powerful variations and changes in the society, as well as in the labor market and the occupational world.

When developing an interdisciplinary and transdisciplinary curriculum, it is necessary to pay attention to:

- Analyzing the context, clearly identifying the requirements for learners in the context of the Industry 4.0; interdisciplinary and transdisciplinary context in training;
- Clearly defining the objectives and output standards of curriculums in the interdisciplinary and transdisciplinary context;
- Determining the topics/groups of topics that learners need to master in order to achieve their objectives and to meet output standards;
- Determining the relevant curriculums and disciplines and the proportion of their contributions to the content of such curriculums (contribution matrix);
- Developing detailed lessons to specify the topics/groups of topics identified according to the contribution matrix;
- Establishing the appropriate methods of teaching; testing and assessment;
- Implementing educational renovations.

Reality shows that universities need to have policies, guidelines and directions to conduct in-depth research on the Industry 4.0 (including the Industrial Revolution 4.0 and Education 4.0). Thence, urgent and necessary requirements for education, especially higher education are identified; Develop curriculums according to a transdisciplinary approach (integrated disciplines); Approach the role of the school as a learning ecosystem for learners. Only when curriculums are set up and developed systematically and according to standards in the Industry 4.0, the training quality will be improved.

5. CONCLUSION

Developing undergraduate curriculums responsive to the Industry 4.0 is a core task to ensure sustainable development of higher education institutions, contributing to training global citizens and human resources that adapt to constant development of the era.

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DEVELOPMENT OF TEACHERS ORGANIZING EXPERIENCE AND CAREER GUIDANCE ACTIVITIES AT SECONDARY SCHOOLS IN BINH DUONG PROVINCE

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ABSTRACT

The development of teachers organizing experience and career guidance activities is essential, and decisive for the success of renewing educational goals to develop students' qualities and abilities. This paper describes the importance, necessity, and efficiency of the development of teachers organizing experience and career guidance activities at secondary schools in Binh Duong province. To conduct this research, a survey of 215 managers and teachers at six secondary schools in Binh Duong province with a 5-point Likert scale was conducted and processed with SPSS 22.0 software to calculate the mean and standard deviation. The results showed the current situation still has some shortcomings, from planning, organization of selection, use, training, and assessment to motivation for teaching workers. Based on those results, we make a number of suggestions for improving the efficiency of this work, particularly at secondary schools in Binh Duong province in reality.

Keywords: Development, teachers, experience and career guidance activities, secondary school.

1. INTRODUCTION

In the knowledge economy, the quality of human resources or teachers is the most important factor, in determining the quality of a school's teaching and education. The development of teachers organizing experience and career guidance activities (ECGAs) in general and teachers organizing ECGAs in particular is essential, and decisive for the success of renewing educational goals to develop students' qualities and abilities.

In 2018 National Curriculum, ECGAs are compulsory educational ones, designed and guided by educators, giving opportunities for students to approach reality, experience positive emotions, take advantage of existing experiences, and mobilize knowledge and skills of subjects to perform assigned tasks or solving problems of practical school, family and social life in accordance with age; Thereby, transforming the experiences into new knowledge, new understanding, and new skills, contributing to promoting creative potential and adaptability to life, environment and future careers (Ministry of Education & Training, 2018). At the same time, for the first time, ECGAs are designed into a program, spending time in class equivalent to one subject, and the learning results of students are also assessed and used as much as other subjects. As the new content of ECGAs also poses new requirements and challenges, requiring teachers to be fully equipped with the quality and capacity to organize ECGAs to achieve quality and effectiveness.

In fact, the development of teachers organizing ECGAs at secondary schools in Binh Duong province has been considered a practical task, which is widely implemented throughout the province. The correct assessment of the current status of development of teachers organizing ECGAs at secondary schools in Binh Duong province will provide more important information, helping managers to plan, organize training, refresher, testing, assessing and motivating teachers organizing ECGAs to order to meet the requirements and achieve the set educational goals.

2. LITERATURE REVIEW

Education is an essential tool for the development of people and nations. Education involves the process of imparting knowledge, developing an individual's attitudes, skills, and abilities through the process of teaching and learning (Tilije & Victoria, 2024). The quality of education in any given society will determine the size and level of professional teachers. (Ogbonnaya *et al.*, 2020) has affirmed that national achievement is measured or determined by achievement in education. At the same time, many researches on education have referred to as in the discussion that “teacher quality is the most important factor that can affect student achievement and improve the quality of school education” (Desimone, 2009, 2011; Macià & García, 2016). Therefore, education managers and scientists have focused on researching and developing teachers, improving teaching quality to improve students' learning and achievements. Yearly, countries that invest millions of dollars in improving the quality of skills and qualifications of teachers by developing professional development opportunities (Sancar *et al.*, 2021). Leonard and Zeace (1989) have developed human resource management profiles that describe the relationship between tasks in human resource management. He said that human resource management must conduct 3 main tasks: 1. Human resource development; 2. Use of human resources; 3. Human resource environment. In addition, teaching workers should be aware that professional development is their right, not their responsibility (Hur, 2019).

Research and developing teachers have been of interest to educational scientists and domestic research authors. In order to develop sufficient training in quantity and quality, the unanimous cooperation of many other educational forces to meet the requirements of the 2018 National Curriculum is required (Ngo & Pham, 2023). According to Pham (2022), the development of teachers is carried out through the contents of planning management, organizing, directing management, testing and assessment. The research on the current situation of the development of teachers in organizing ECGAs at high schools in Cao Lanh city has also been implemented with the following contents, including: Planning; organizing the selection, using, training and refresher, testing and motivating teaching workers in organizing ECGAs as a basis for the issuance of teacher development measures that are flexible and suitable to the context (Tran, 2023).

Thus, it can be seen that the development of teachers in organizing ECGAs in general and the development of teachers in organizing ECGAs at secondary schools in Binh Duong province is an essential demand and different aspects should be surveyed in order to gradually contribute to improving the quality and effectiveness of education in the context of current educational innovation.

3. METHODOLOGY

The convenience sampling method was used. We sent our questionnaire to 215 managers and teaching workers at six secondary schools in Binh Duong province. The survey was conducted with the 5-level Likert scale which showed the level of the importance, necessity, and efficiency of the development of teachers in ECGAs: Level 1: $1.00 \leq M < 1.80$; Level 2: $1.80 \leq M < 2.60$; Level 3: $2.60 \leq M < 3.40$; Level 4: $3.40 \leq M < 4.20$; and Level 5: $4.20 \leq M \leq 5.00$.

4. RESULTS

Awareness of managers and teachers about the role of developing teachers in organizing ECGAs at secondary schools in Binh Duong province

Table 1. Awareness of the importance of the development of teachers in organizing ECGAs at secondary schools in Binh Duong province

Level	Very important	Important	Relatively important	Less important	Un- important
Frequency (n)	198	15	2	0	0
Rate (%)	92.1%	7.0%	0.9%	0%	0%

The results of Table 1 show that 92.1% of managers and teachers believe that the development of teachers organizing ECGAs at secondary schools is very important. The new National Curriculum is a change in name, tasks, functions and organizational methods of education activities outside of class hours in the previous national curriculum (Tran Thi Huong *et al.*, 2023). Teaching workers are the ones who orient, design, organize and guide the implementation, give students opportunities to participate in practical activities and experiences in order to form and develop students' practical capacity and personality qualities. Therefore, the development of teachers organizing ECGAs at secondary schools is considered a key stage in determining the quality and effectiveness of this educational activity.

The current situation of the development of teachers organizing ECGAs at secondary schools in Binh Duong province

Table 2. The level of necessity for the development of teachers organizing ECGAs at secondary schools in Binh Duong province

Development content of teachers	M	SD	Ranking
Planning for the development of teachers organizing ECGAs	4.21	0.81	4
Organizing the selection and employment of teachers organizing ECGAs	4.27	0.76	2
Directing training and refresher of teachers organizing ECGAs	4.38	0.69	1
Testing and assessing teachers organizing ECGAs	4.11	0.74	5
Forming an environment and creating a driving force for the development of teachers organizing ECGAs	4.25	0.79	3
Total	4.24		

The results of Table 2 show that the necessary level of the development of teachers organizing ECGAs is to conduct the assessment at a very essential and necessary level, with an

overall average score of 4.24. At the same time, the feedback of managers and teachers is also high. The dispersion of the standard deviation is low ($SD = 0.69 - 0.81$). The content of “Directing the training and refresher of teachers organizing ECGAs” is highest appreciated ($M = 4.38$; $SD = 0.69$), rated 1/5. This shows that, the training and refresher activities will help secondary schools in Binh Duong province own teachers who meet the requirements of organizing the school's educational activities. The content “Organizing the selection and employment of teachers organizing ECGAs” is also considered very necessary ($M = 4.27$; $SD = 0.76$), rated 2/5. Next, 3/5 position is the content “Forming an environment and creating a driving force for the development of teachers organizing ECGAs” which is assessed at a very necessary level ($M = 4.24$; $SD = 0.79$). The content of “Planning for the development of teachers organizing ECGAs” where ($M = 4.21$; $SD = 0.81$) is rated at the very necessary level and is ranked 4/5. This shows the very necessary role and importance of the planning for the DTWs. Finally, “Testing and assessing teachers organizing ECGAs” is the lowest rated ($M = 4.11$; $SD = 0.74$), ranked 5/5 and reached the level is necessary. However, this means that the testing and assessment will be easier if the managers have taken good steps from the planning; selection and employment; training and refresher; as well as creating an environment and driving force for the development of the school's teachers organizing ECGAs.

Table 3. Implementation results of the planning for the development of teachers organizing ECGAs at secondary schools in Binh Duong province

Planning for the development	M	SD	Ranking
1. Forecasting demand and determining the development goals of ECGAs	3.37	0.83	3
2. Making a (long-term, medium-term, short-term) plan for the development of teachers organizing ECGAs	3.47	0.87	1
3. Surveying and assessing the capacity of teachers organizing ECGAs	3.31	0.77	4
4. Making a plan to refresh the capacity of teachers organizing ECGAs	3.42	0.60	2
5. Selection of contents, methods and resources that are required for the development of teachers in organizing ECGAs	2.97	0.83	5
6. Assessing the process of implementing the plan for the development of teachers organizing ECGAs	2.89	0.78	6
Total	3.24		

The results of Table 3 show that the assessment results of managers and teachers on the implementation results of the planning for the development of teachers organizing ECGAs gains an overall average score of 3.24, level 3 compared to the main scale, corresponding to the average level. The assessment responses show concentration ($SD = 0.60 - 0.87$) with low dispersion. In which, there are 2 criteria that are assessed at a good level: “Making a (long-term, medium-term, short-term) plan for the development of teachers organizing ECGAs” ranked the highest level ($M = 3.47$; $SD = 0.87$), ranked 1/6 and the criterion “Making a plan to refresh the capacity of teachers organizing ECGAs”, ranked 2/6 ($M = 3.42$; $SD = 0.60$). Thus, it can be seen that the planning for the development of teachers organizing ECGAs at secondary schools in Binh Duong province is cared and it has been implemented in recent years, but it is still restricted. This will somewhat

affect the DTWs, leading to failure to meet the requirements of educational innovation in general and the organization of ECGAs at secondary schools in Binh Duong province today.

Table 4. Results of organizing the selection and employment of teachers in organizing ECGAs at secondary schools in Binh Duong province

Organization of selection and employment	M	SD	Ranking
1. Determining the criteria for selection and employment of teachers in organizing ECGAs	2.87	0.75	7
2. Implementing the process of organizing public and objective selection based on the prescribed criteria	3.23	0.59	5
3. Assigning professional teams and teachers capable in organizing theme ECGAs	3.37	0.68	3
4. Assigning homeroom teachers to organize ECGAs in class activity period	4.01	0.75	1
5. Assigning the Secretary of the HCM Communist Youth Union, in charge of the HCM Communist Youth Team to organize ECGAs at the activity period under the flag	3.83	0.73	2
6. The probationary organization of selected teachers to come up with a timely adjustment plan	3.14	0.67	6
7. Decision on the employment of teachers with sufficient qualities and capacity to organize ECGAs as planned	3.31	0.73	4
Total	3.39		

The results of Table 4 show that the results of the selection and employment of teaching workers in organizing ECGAs are focused at an average level with an overall average score of 3.39. The low standard deviation ($SD = 0.59 - 0.75$) proves that the answers of managers and teachers are relatively even and concentrated. The lowest ranking is “Determining the criteria for selection and employment of teachers in organizing ECGAs” with ($M = 2.87$; $SD = 0.75$), ranked 7/7; followed by “The probationary organization of selected teachers to come up with a timely adjustment plan” with ($M = 3.14$; $SD = 0.67$), ranked 6/7; “Implementing the process of organizing public and objective selection based on the prescribed criteria” with ($M = 3.23$; $SD = 0.59$), ranked 5/7; next is to make a “Decision on the employment of teachers with sufficient qualities and capacity to organize ECGAs as planned” with ($M = 3.31$; $SD = 0.67$), ranked 4/7. However, there are 2 criteria that are assessed at a good level: “Assigning the Secretary of the Ho Chi Minh Communist Youth Union, in charge of the Ho Chi Minh Communist Youth Union Team to organize ECGAs in the activity period under the flag” ranked 2/7 ($M = 3.83$; $SD = 0.73$); the highest ranking is “Assigning homeroom teachers to organize ECGAs in class activity period” with ($M = 4.01$; $SD = 0.75$), ranked 1/7. In fact, these are quite familiar educational activities and such activities have been implemented very often by schools and teachers organizing ECGAs the previous National Curriculum. This result shows that the organization of the selection and employment of teachers organizing ECGAs at secondary schools in Binh Duong province has somewhat been successful, but there are still many shortcomings in the selection and employment of teachers organizing ECGAs. After practical discussion with administrators in some schools, it is shown that balancing the number of lessons to arrange for teachers to carry out the organization of ECGAs in accordance with their expertise is also a difficult problem, affecting the quality and effectiveness of this activity. Therefore, it is necessary to continue to review measures to overcome the current difficulties and obstacles.

Table 5. The current situation of the implementation results of direction for training and refresher of teachers organizing ECGAs at secondary schools in Binh Duong province

Direction of training and refresher	M	SD	Ranking
1. Directing the implementation of the planning on the development of teachers organizing ECGAs	3.44	0.86	1
2. Directing the assessment of the capacity of teachers organizing ECGAs	3.04	0.69	6
3. Directing the planning implementation to send teachers to participate in the capacity fresher training course to organize ECGAs	3.41	0.83	2
4. Directing the organization of training, seminar, thematic activity classes by group/block and coordinating with professional clusters for teachers organizing ECGAs	3.04	0.75	6
5. Directing the mobilization of resources for the refresher plan of teachers organizing ECGAs	3.17	0.75	4
6. Directing teachers to actively participate in training, refresher courses, visiting and learning to improve the organizational capacity of ECGAs	3.26	0.67	3
7. Directing the assessment of training and refresher results on knowledge and skills of teachers organizing ECGAs	3.12	0.65	5
Total	3.21		

The survey results obtained in Table 5 show that the criteria for the implementation of the direction of training and refresher of teachers organizing ECGAs at secondary schools are assessed by managers and teachers only at the average level, the overall average score is 3.21. The standard deviation (SD = 0.65 - 0.86) proves that the responses of managers and teachers are relatively evenly, with concentration. There are 2 criteria that are assessed at a good level: “Directing the implementation of the planning on the development of teachers organizing ECGAs” with (M = 3.44; SD = 0.86), ranked 1/7; followed by “Directing the planning implementation to send teachers to participate in the capacity fresher training course to organize ECGAs” ranked 2/7 with (M = 3.41; SD = 0.83). Thus, from the results in Table 5, it has been shown that training and refresher have also been implemented, but only few criteria of the implementation direction of the planning and implementing the plan to send teachers to participate in training classes organized by the Department of Education and Training, the Educational Office, etc. However, in general, there are many other criteria that have not been fully implemented, which is one of the reasons affecting the quality of teachers organizing ECGAs at schools.

Table 6. The current situation of the results of the testing and assessment of teachers organizing ECGAs at secondary schools in Binh Duong province

Testing and assessment	M	SD	Ranking
1. Developing and applying criteria for testing and assessment of teachers organizing ECGAs	2.86	0.78	7
2. Testing the capacity group to prepare for the organization of ECGAs	3.37	0.77	4
3. Testing the capacity group to make a plan in organizing ECGAs	3.85	0.84	1
4. Testing the capacity group to implement the plan to organize ECGAs	3.47	0.77	2
5. Testing the capacity group to asses the results and adjust ECGAs	3.42	0.78	3
6. Using the assessment results of the development of the contingent of teachers in organizing ECGA as a condition in the assessment of the completion of the school year	3.28	0.72	5
7. Collecting information on testing and assessment as a basis for adjusting the development plan of the teachers in organizing ECGAs	3.19	0.72	6
Total	3.35		

The survey results and assessment of managers and teachers on the testing and assessment of teachers organizing ECGAs at secondary schools with an overall average score of 3.25, reaching the average level. A low standard deviation (SD = 0.72 - 0.84) shows that the responses are quite concentrated and less scattered. There are 3 criteria that are assessed at a good level by the implementation results, namely “Testing the capacity group to make a plan in organizing ECGAs” with (M = 3.85; SD = 0.84), ranked 1/7; followed by “Testing the group of capacity to implement the plan to organize ECGAs” with (M = 3.47; SD = 0.77), ranked 2/7; and the criterion of “Testing the group of competencies to assess the results and adjust the contents of ECGAs” (M = 3.42; SD = 0.78), ranked 3/7. The other criteria, all 4/7 criteria are only ranked at the average, low level, which is “Developing and applying criteria for testing and assessment of teachers organizing ECGAs” with (M = 2.86; SD = 0.78), ranked 7/7. Overall, this result shows that the testing and assessment of the organization of ECGAs at secondary schools also has many shortcomings, specifically if the testing and assessment of the organizational capacity of teachers organizing ECGAs are not successful, resulting in un-reasonable grounds, accurate feedback to come up with timely and appropriate plans, measures, and adjustments to the plan in order to improve specific qualities and competencies such as the preparatory capacity group; capacity group to develop plans; the capacity group to implement the plan; and the capacity group to assess the results and adjust teachers organizing ECGAs to meet the requirements and effectively organize ECGAs at econdary schools in Binh Duong province.

Table 7. The current situation of the implementation results of creating the environment and driving force for the development of teachers organizing ECGAs at econdary schools in Binh Duong province

Creating environment and driving force	M	SD	Ranking
1. Promoting the emulation movement in the development of teachers organizing ECGAs	4.16	0.90	1
2. There are mechanisms, policies, and preferential regimes for teachers organizing ECGAs	3.25	0.75	5
3. Improving the sense of responsibility, the positivity of teachers who like to participate in organizing ECGAs	3.87	0.75	2
4. Appreciating the achieved results, showing the good values brought by the teachers organizing ECGAs successfully	3.73	0.79	3
5. Responding to the expectations for the teachers on finance, time, facilities, means and conditions for organizing ECGAs	3.32	0.59	4
Total	3.67		

The survey results on creating an environment and driving force for the development of teachers organizing ECGAs at secondary schools in Binh Duong province are assessed by managers and teachers at a good level, with an overall average score of 3.67. The responses are quite concentrated, and the opinions are scattered with a fairly low standard (SD = 0.59 - 0.90). In which, 3/5 criteria are assessed at a good level, specifically the highest ranking is the criterion “Promoting the emulation movement in the development of teachers organizing ECGAs” with (M = 4.16; SD = 0.90), ranked 1/5; followed by “Improving the sense of responsibility, the positivity of teachers who like to participate in organizing ECGAs”, ranked 2/5 with (M= 3.87; SD = 0.75); followed by “Appreciating the achieved results, showing the good values brought by the teachers

organizing ECGAs successfully” with ($M = 3.73$; $SD = 0.79$), ranked 3/5. The other criteria are assessed at an average level as “Responding to the expectations for the teachers on finance, time, facilities, means and conditions for organizing ECGAs” with ($M = 3.32$; $SD = 0.59$), ranked 4/5; the last is “There are mechanisms, policies, and preferential regimes for teachers organizing ECGAs” with ($M = 3.25$; $SD = 0.75$), ranked 5/5 at the lowest level. Thus, it can be seen that the construction of the environment and creating driving force for the development of teachers organizing ECGAs at secondary schools in Binh Duong province has been implemented successfully by the schools, however, it is necessary to continue to improve such as researching and promulgating mechanisms and policies, the preferential regime for teachers, as well as responding to teachers’ expectations in finance, time, facilities, means and conditions for organizing ECGAs are practical contents that help develop teachers organizing ECGAs at secondary schools in Binh Duong province with more quality and efficiency.

5. CONCLUSIONS

The development of teachers in general and teachers in organizing ECGAs at secondary schools in Binh Duong province in particular has been cared and directed by education managers at all levels and has achieved certain results. Based on our analyses, we offer several suggestions for various stakeholders on the topic of developing teachers for organizing ECGAs at secondary schools in Binh Duong province: Firstly, making a plan to develop teachers in each school; Secondly, selecting and employing quality teachers; Thirdly, leading and supporting teachers in professional and personality development; And fourthly, creating the environment and driving force for the development of teachers. If each school does the above four things well, it will contribute to improving the quality of teachers, developing teachers organizing ECGAs by the actual context and conditions of the locality, and contributing to further improving the education quality of Binh Duong province.

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IMPROVE THE QUALITY OF PROFESSIONAL PRACTICE OF ARCHITECTS IN THE CONTEXT OF INDUSTRY IN BINH DUONG PROVINCE, VIET NAM

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ABSTRACT

Professional internships are modules that help students apply the theoretical and practical knowledge they have learned at school to apply it in practice at manufacturing enterprises, design companies, and design companies. Institute of planning and architecture...

This article researches and proposes solutions to improve the quality of professional internships for construction architects at Thu Dau Mot University based on teaching experience and survey results of business opinions on labor use. is a former student of Thu Dau Mot University.

Keywords: architects, education, human resources, students...

1. INTRODUCTION

Nowadays, along with the development of life and industrial production, there is a continuous increase in the high aesthetic demands of people for living, working, and recreational spaces. In response to this reality, the architecture industry has become an attractive profession in society with much potential for development.

Architecture is a unique field that lies between the realms of art and engineering, involving the organization and arrangement of spaces, and the preparation of design documentation for architectural projects. The work of an architect involves designing the layout, space, form, and structure of a building and providing architectural solutions in various construction fields based on the actual needs for housing, recreation, work, transportation, etc.

The Fourth Industrial Revolution is taking place vigorously and continuously in all fields and industries worldwide, from Europe, Asia, to the Americas. Along with this is the breakthrough development of science and technology, especially digital technology, which has profoundly impacted and changed all areas, from manufacturing and business services to cultural, social, defense, and security sectors.

New technologies and techniques, especially CD (Computational Design) and BIM (Building Information Model) technologies, from the conceptual design stage to implementation and operation, have opened up unlimited creativity for architectural design, something that traditional design methods have long been unable to achieve. "This great and rapid change requires Vietnamese architects to be equipped with new knowledge and technological skills to keep up with and shape the architectural and design technology trends of the era." (Nguyen Cao Lanh, 2022).

In the context of the ongoing Fourth Industrial Revolution, graduates not only need knowledge but also practical experience in the workplace. Therefore, for students to clearly orient their abilities and meet the practical demands of their work, they need to gain early practical experience in working environments at businesses, design companies, production companies, event companies, design and planning institutes, etc., to adjust their learning goals and further hone their skills. Through practical lessons at companies and enterprises, students will grasp the basic requirements of the profession they are studying.

2. LITERATURE REVIEW

With the development orientation and strategic vision of Thu Dau Mot University to become a center of culture, education, science, and technology; providing quality human resources and scientific and technological products to serve the socio-economic development and international integration of Binh Duong province, Southeast Vietnam, and the whole country. To meet this strategy, the architecture program sets the goal of developing a quality workforce of architects to meet the demands of the market and society. In the architecture training program, besides the theoretical knowledge students receive at school, the program includes practical field trips and internships closely aligned with business activities. The content of the internship courses is as follows:

+ Enterprise Internship 1, 2: These courses are part of the experiential learning modules. In these courses, students visit factories, architectural projects, and construction design consulting companies, and gain practical experience at the internship sites. The course equips students with practical experiences and skills in design planning. Through this, students understand the roles and responsibilities of an architect. *“Lecturers guide students to visit businesses and architectural works. Through real architectural projects, students explore design solutions such as layout, elevations, and sections under the guidance of company staff and lecturers.”* (Architecture Program, 2022).

+ Graduation Internship: This is a specialized module in the architecture training program. Through this course, students will gain practical work experience to facilitate their consulting activities after graduation. The course provides an overview of tasks related to planning, the roles and responsibilities of architects in consulting, designing, leading, or participating in projects. The content students need to study during their internship includes: *“Company organization management, business planning, human resources, financial management; regulatory documents on design, architecture, and construction management; approaching and working with clients and partners, and developing a professional demeanor.”* (Architecture Program, 2022).

3. METHODOLOGY

The article uses analytical and synthesis methods. It employs and studies secondary documents on improving the quality of architect training. The method involves analyzing survey data from businesses, design companies, production companies, event companies, and design and planning institutes that employ alumni of the Architecture Department at Thu Dau Mot University.

This data is used to research the main issues aimed at enhancing the quality of training for construction architects, ensuring that graduates can grasp their work in the rapidly developing context of the digital and global integration of the architecture industry.

4. RESULTS AND DISCUSSION

4.1. Results

The questionnaire is designed to survey businesses and companies in Binh Duong province and the Southeast region, where students from the architecture program of the Architecture

Department at Thu Dau Mot University intern. Data collection will be conducted by sending the questionnaires directly to companies or via email to participating companies. However, direct delivery to companies will be the main priority to increase the number of survey samples.

Table 1. Types of businesses where students do internships

Business type	Frequency	Scale %
State agency	4	14,29
Private enterprise	18	64,29
Foreign joint venture company	4	14,29
100% foreign-owned companies and enterprises	2	7,14
Total	28	100

The type of businesses outside of government agencies accounts for 85.71%, representing the primary employers. This group is also the main employment target for architecture students over the years.

Table 2. Assess student knowledge after internship

Content	Poor	Average	Fair	Good	Very Good	Average Score
Professional competence	0	0	0	42,86	57,14	4,57
Skills in using specialized computer software	0	0	21,43	42,86	35,71	4,14
foreign language ability	0	0	21,43	7,14	71,43	4,5
Communication and problem solving skills	0	7,14	7,14	28,57	57,14	4,36
Leadership ability and qualities	0	7,14	0	7,14	85,71	4,71
Discipline and eagerness to learn at work	0	0	21,43	14,29	64,29	4,43

Based on the survey results from Table 2 evaluating student knowledge during internships, the following observations can be made:

+ The professional competence of students is rated well by businesses, with an average score of 4.57. This indicates that the architecture training program has a substantial content of theoretical knowledge and practical project work closely related to real-world applications.

+ The application of specialized computer software by students is not highly rated by businesses, with an average score of 4.14. This reflects the reality that there are certain limitations in students' use of computer software in architecture.

+ Foreign language skills are rated quite well by businesses, with an average score of 4.5. This result shows that students have made the right investment in equipping themselves with a foreign language as a necessary tool for their future careers. *"Because with the rapid globalization and the multinationalization process in companies, graduates will find it easier to communicate with foreign colleagues and clients."* (Luong Thanh Ha, 2022)

+ Communication and problem-solving skills, as well as discipline and a proactive attitude in work during internships, remain limited among students. Currently, soft skills training is the responsibility of the university's social skills training center, and these skills are one of the graduation requirements. This indicates a lack of coordination between the department and the center in ensuring that students are adequately trained in soft skills. As a result, some students are not fully equipped with these skills and remain hesitant during internships, leading to lower evaluations by businesses.

4.2. Solutions to Enhance the Quality of Professional Internships for Students

4.2.1. Establishing Clubs

To enhance the architectural rendering skills of students, allowing them to effectively convey design ideas in course projects, improve hand-drawing and sketching skills, and enhance interior and exterior photography abilities, the Architecture program has established the Sketchers - TDMU club. The club is run by current students and alumni. Weekly, the club holds meetings to exchange learned knowledge and practice through rendering drawings. Each session has its own theme, which is always consulted with the program leaders, lecturers, architecture alumni, and design company leaders.

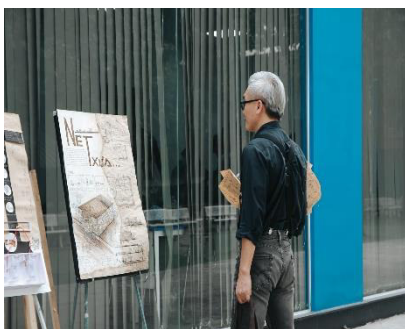


Figure 1. Arc. Bùi Hoàng Bảo – MIA Design Studio at the club launch ceremony (Sketchers Club)



Figure 2. Sketching club of Phu Cuong cathedral, Binh Duong province (Sketchers Club)



Figure 3. Sketching club of Summer Edutainment Camp, Binh Duong province (Sketchers Club)

4.2.2. Field Visits to Companies

Annually, the Architecture Department organizes field trips for second-year students to visit businesses involved in the production and sale of products related to the architecture and construction industry. These field trips are attractive activities that yield many positive results. They help students understand their field of study, the functional layout of production lines in factories, and the production processes. The practical knowledge gained from these visits serves as valuable material for students in their course projects, such as public architecture projects (showrooms) and industrial architecture projects. After each field trip, students feel highly satisfied and develop a greater passion and commitment to their chosen profession.

Table 3. Business field trips for students

Year	Enterprise Internship
2021 – 2022	Architecture – Forest – Flowers in Da Lat, Lam Dong province Visit Ceasar Sanitary Equipment Company to learn about the manufacturing process and sanitary products
2022 - 2023	Visit Binh Duong Center for Community Initiatives and Startup Support (BIIC) and Binh Duong Intelligent Monitoring and Operation Center (IOC) Visit the Warehouse - factory, model house and Showroom of An Cuong Wood Joint Stock Company, Binh Duong province
2023 - 2024	Visit Viglacera Tile Factory in Ba Ria - Vung Tau province Visit Sado Aluminum and Glass Factory in Dong Nai province



Figure 4. Visit Sado Aluminum and Glass Factory in Dong Nai province

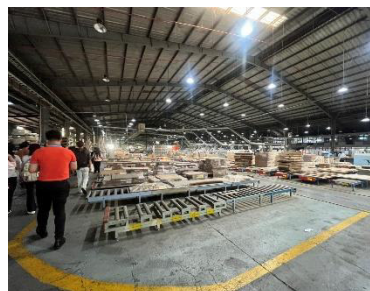


Figure 5. Visit the Warehouse – factory of An Cuong Wood Joint Stock Company, Binh Duong province



Figure 6. Visit Viglacera Tile Factory in Ba Ria - Vung Tau province

4.2.3. Organizing Competitions for Architecture Students Both Inside and Outside the University

Annually, the Architecture Department collaborates with architectural design companies in Binh Duong province to regularly organize academic competitions for all students passionate about design art at Thu Dau Mot University and other universities in Binh Duong, such as architecture, planning, construction, fine arts, graphic design, and woodworking technology. These competitions aim to create a forum and organize academic activities for students to engage, exchange, discuss, and summarize experiences during their academic and scientific research endeavors.

Table 4. Competitions for students

Year	Competitions for students
2020 - 2021	Digital Fabrication
2021 – 2022	Urban public design Architecture- health- work
2022 - 2023	Public space for everyone – landscape of Bach Dang walking street toilet Binh Duong province
2023 - 2024	Fast construction Architectural design data analysis



Figure 7. Fast construction competition



Figure 8. Architectural design data analysis



Figure 9. Public space for everyone – landscape of Bach Dang walking street

4.2.4. Organizing Seminars with Businesses

Table 5. Student Talks

Year	Discussion content
2020 – 2021	Random thoughts on studying and practicing architecture Techniques for presenting architectural projects
2021 – 2022	A conceptual design approach Interior design trends Archicad Bim 2022 Insee prize 2022, sustainable materials for green buildings
2022 – 2023	The evolution of building facades Sharing experiences in designing high-rise architectural projects in Vietnam Insee prize 2023, solutions for green buildings and project life cycle
2023 – 2024	Application of AI technology in architectural design Insee prize 2024, green buildings and practical applications Aluminum and glass, modern architectural language Design for Greater Efficiencies (DfGE), cooperation between IFC and Thu Dau Mot University

The seminars help students understand the profession, the advantages, and the challenges of being an architect. Business leaders also discuss the discrepancies between theory and practice, helping students grasp the current demands of their field of study. These experiences guide students on what they need to learn and improve upon.

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4.2.5. Simulation and Virtual Reality Practice Room

It is proposed that the department and school invest in a virtual reality (VR) practice room. With the rapid development of modeling and simulation software, students and lecturers can easily model projects on computers with 2D and 3D images. However, to allow students to see the projects they design clearly, the application of virtual reality will enable them to engage with architectural projects in drawing form in the most detailed and interesting way. Virtual reality will allow students to enter the architecture with an interactive 3D environment. Compared to the limitations of 3D models, VR offers a more complete experience.



Figure 10. Virtual reality glasses used in architectural simulation (Dinh Anh Tuan, 2017)



Figure 11. Simulation practice room of Ho Chi Minh City University of Technical Education

Architects can use 3D designs combined with VR to test the evacuation system, ventilation system, and various real-world reactions. *“Through this, architects will be able to make assessments, generate ideas, and perfect the design to the highest level.”* (Nguyen Cuc, 2023)

4.2.6. Enhancing the Professional Skills of Lecturers

To enhance the professional skills of lecturers in line with the training orientation for architects in the era of the Fourth Industrial Revolution and in accordance with market trends, several solutions are proposed:

- Improving lecturers' foreign language skills is essential in the current trend. This helps lecturers read and understand foreign educational resources, stay updated on new issues in teaching, and increase their ability to communicate with foreign business partners and universities around the world.

- Creating a connection between businesses and the training program requires that lecturers accompany students throughout their internships at companies. This provides an opportunity for interaction between businesses and the program, as well as a chance for lecturers to observe the

gap between theoretical knowledge and the practical applications that are rapidly evolving. This way, lecturers can incorporate real-world practices into their teaching content, making it more dynamic and practically relevant.

5. CONCLUSIONS

The internship courses in the training program are crucial as they are the initial steps to help students engage with the real working environment in businesses. These courses provide students with practical knowledge and valuable lessons, allowing them to gain experience in applying their design project courses and preventing them from being overly focused on the aesthetics of architectural projects while neglecting the essential functionality of each type of building.

Survey results indicate that businesses with student interns highly value the students' professional competence, independent thinking, and leadership qualities. However, there are still some limitations, such as soft skills in communication between students and company staff. To address these limitations, the department has proposed collaborating with the university's social skills training center to enhance students' soft skills. Additionally, the department plans to organize more seminars and knowledge-sharing events on real-world design and planning between businesses and students, as well as design competitions to provide students with more experience and exposure to the profession. Notably, student competition entries will be judged by invited businesses.

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TYPICAL SYSTEM OF ARTISTIC IMAGES IN MODERN VIETNAMESE POETRY WRITTEN ABOUT THE SEA AND ISLANDS

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ABSTRACT

Abstract: Vietnam is a maritime country, so the seas and the islands have become an indispensable part of space in the minds of Vietnamese people in general as well as poets in particular. Accordingly, the theme of seas and islands also appears quite a lot in poetic works. The article studies the system of typical artistic images in modern Vietnamese poetry, specifically through some poems by authors Nguyen Viet Chien, Nguyen Ngoc Phu, Nguyen Huu Quy, Tran Dang Khoa, Huy Can, Trinh Cong Loc, Nguyen Trong Van,.... These are the images of the seas and the islands associated with the Fatherland, the image of the soldiers, the image of the workers, etc. Although each artistic image is built in a unique way of each poet, the common meeting point here is the voice of affirmation defining sovereignty and sacred love for the seas and the islands, thereby also demonstrating the writer's uniqueness and talent.

Keywords: Modern Vietnamese poetry, artistic images, fatherland, islands, soldiers, workers

1. INTRODUCTION

Inspiration about the seas and the islands is one of the main sources of inspiration in poetry so far. Modern Vietnamese poetry about the seas and the islands is diverse with the number of works increasing day by day. Among them, there are many works that have won prizes in poetry competitions. The interesting thing is each poet exploits the seas and the islands from own perspective through a system of images, symbols and language. With a prominent system of images: the image of the seas and the islands associated with the Fatherland, the image of the soldier, the image of the worker, the authors Nguyen Viet Chien, Nguyen Ngoc Phu, Nguyen Huu Quy, Tran Dang Khoa, Huy Can, Trinh Cong Loc, Nguyen Trong Van,... have recreated the image of the seas and the islands in a truly tragic and heroic way. However, there have not been many in-depth studies on the system of images in modern Vietnamese poetry about the seas and the islands until now, almost only individual articles with small sections in theses and research dissertations about poets Huu Thinh, Tran Dang Khoa, etc. or scattered articles discussing the topic of sea and islands in Vietnamese poetry in newspapers. Therefore, this study wants to point out the system of artistic images in some typical poems about seas and islands to affirm the voice of sovereignty and the sacred love of poets for sea and islands as well as affirm the uniqueness and talent of poets when exploiting this topic.

2. METHODOLOGY

To clarify the uniqueness and talent of the authors when constructing artistic images in poems about the sea and islands, we use a number of research methods such as: systematic method

(systematizing typical artistic images were recreated by poets through a number of typical poems written about the sea and islands); comparative method (comparing and contrasting to find unique features in the creation of images of the sea and islands); statistical and classification method (statistical and classification of poems written about the same image to see a unique perspective); analytical and synthetic method (analyzing the beauty of each poetic image about the sea and islands, thereby having a general view of the beauty of modern Vietnamese poetry written about the sea and islands).

3. RESULTS

3.1. Artistic images

Literature reflects life through artistic images, which are a method of capturing and recreating reality that is unique and only exists in art according to the laws of imagination and artistic fiction.

The basic characteristic of artistic images is the reproduction of the world, making people and life appear vividly and realistically. However, a work of art is not an exact copy of real phenomena, it's a selective and creative reproduction through the imagination and talent of the artist. Through specific materials, artistic images allow people to admire, enjoy and imagine. It can be an object, a natural landscape or a perceived social event. When it comes to common and most important artistic images, they are human images, which can be a group of people with rich emotional expressions.

Through artistic images, the artist makes a deep impression on the reader as well as expresses the entire concept and vivid perception of reality. The value of the image is both expressing specific, individual features that do not repeat, and having the ability to generalize, reveal the nature of a type of person or a life process according to the artist's concept. Therefore, the image focuses on expressing the anthropological and aesthetic values of art.

If the material of painting is lines and colors, of architecture is blocks, of music is melody and sound, the literature uses language as material, so the artistic image is the image of language. Poetry is a typical genre of literature that reflects the reality of life through images. Through the material of language, poets have built artistic images through which to express thoughts, feelings, perceptions of the surrounding world, especially about people.

Choosing the seas and the islands as the reality to reflect, modern Vietnamese poetry about the seas and the islands has prominent images such as: the image of the seas and the islands associated with the Fatherland, the image of soldiers, the image of working people.

3.2. The image of the seas and the islands is closely associated with the Fatherland

In modern Vietnamese poetry about the seas and the islands, the image of the seas and the islands is both sacred, majestic and familiar, always associated with the Fatherland and the Country. From the perspective "from the sea", the Fatherland is the sea and the sea is also the Fatherland.

For Nguyen Viet Chien, the Fatherland is vast in both space and time, vast in the boundless love of every Vietnamese citizen for the Fatherland. In the poem “The Fatherland seen from the sea”, the Country has just gone through a thousand years of pain and loss with countless dangers, but from that time, the Fatherland has indomitably raised its head and defeated the enemy:

“If the Fatherland looks from many dangers
 Ten times the enemy came from the East Sea
 The waves became the brave Bach Dang
 The white - haired Thoat Hoan feared the bronze drums”
 (*The Fatherland seen from the sea* - Nguyen Viet Chien)

The country in the poem “Three thousand kilometers of sea in the homeland” by Nguyen Ngoc Phu is very rich and beautiful with priceless resources “bags of black gold - underground oil mines”:

“My homeland has three thousand kilometers of sea
 Mong Cai - Ca Mau is shaped like a fishhook
 Fishing for bags of black gold - underground oil mines”
 (*My homeland has three thousand kilometers of sea* - Nguyen Ngoc Phu)

The country of “three thousand kilometers of sea” also marks many losses and sorrows with memorial tombs and marking the great contributions of the children of the Motherland who fell to protect the milestones and sovereignty of the sacred Fatherland:

“Co Lin - Gac Ma, many young soldiers never return
 The tired island embraces the windy grave
 The Fatherland here marks with rows of steles”
 (*My homeland has three thousand kilometers of sea* - Nguyen Ngoc Phu)

The country with a historical tradition of fighting to build and defend the country has many heroic sons who have sacrificed their lives, forever lying under the sea:

“Blood flowed down Truong Sa that day
 My friend was buried in the deep sea by the waves”
 (*The Fatherland seen from the sea* - Nguyen Viet Chien)

The country of the children of the beloved Motherland are every minute, every second bravely defend the island, protecting every inch of land, every sky, every beloved sea: “He stand guard. It's late at night. The island is deserted.” (Love poem of a marine soldier - Tran Dang Khoa). The seas and the islands are the Fatherland, the territorial waters that our ancestors have explored and built for generations, “The Fatherland of Vietnam begins here”.

The awareness of preserving and protecting the seas and the islands has always been present through the generations. The beloved sea is Mother, the soldiers are the waves that always embrace the sea:

“I follow my father to protect the country on the East Sea
 The sea is my mother and we are the waves
 When the country faces storms

The whole sea waves build a thousand-mile wall”

(The Fatherland on the shore of the sea - Nguyen Viet Chien)

At present, the country has “never been peaceful”, never free from “dangers” from the sea:

“The land of hardship has never been at peace

The storm has not stopped in the white mourning bands”

(Love poem of a marine soldier - Tran Dang Khoa)

However, the Country still carries the aspiration to reach out to the sea every day and every hour to affirm its height and solid position:

“Now,

from the sea again

the last place Hoang Sa,

the last place Truong Sa

the shoulders

with the vast sea and sky

bearing the hardships of the country

like Truong Son,

bearing the blood and bones of war

like history, bearing ups and downs with every step!

Here Hoang Sa and here Truong Sa finally

once again carry the vastness on the shoulders and go!”

(From the sea to go - Trinh Cong Loc)

The country is forever moving forward with the journey of “always going out to sea”:

“The soul of the nation

has not been subdued for thousands of years

The silhouette of the ship still heads out to sea”

(The Fatherland seen from the sea - Nguyen Viet Chien)

The country is associated with the image of a flag flying tirelessly in the vast ocean:

“I look up at the crimson flag

The image of the Fatherland - engraved - on - body

The country

The image of the Fatherland flies tirelessly

The sky is vast

The wind is vast

The ocean”

(Fatherland - the horizon - Nguyen Trong Van)

Truong Sa is the beloved Fatherland, always standing tall and mighty in front of the East Sea, a milestone of the country's sovereignty. The image of the country is peaceful green with the aspiration to reach far and wide to Truong Sa:

“Truong Sa Archipelago

The heroic East Sea

Navy cap
Hang the bayonet as a “landmark”
- Country!
The blue sea has cleared the enemy’s shadow
With the shape of Truong Sa stretching forever”
(*Fatherland - the horizon* - Nguyen Trong Van)

3.3. Image of soldiers

In poems about the seas and the islands, the image of the soldier appears quite often and is considered the central image. With the inspiration of praise, poets have honored the soldiers who are protecting the sea and sky of the Fatherland day and night. Their beauty is depicted in many aspects from life to soul.

The soldiers fought to protect the beloved sky and sea, many sacrificed themselves “forever under the grass”, leaving only “wind graves” under the deep blue sea in exchange for the peace of the ocean:

“Here is the wind grave,
the earth becomes bones
Just call it up and the shape is clear
Here is the wind grave, the sand becomes flesh
Smoothly go, gently towards the sky...”
(*Wind Grave* - Trinh Cong Loc)

The sacrifice of the soldiers on the islands is great. They have exchanged their youth and sweet happiness for the peace of the Fatherland:

“In his dreams he return
with dull eyes that have never been men
with purple lips that have never been kissed
with arms that hang down at night that have never been hugged
with shoulders that have never carried a child
with murmuring tears...”
(*Launching the Dreams* - Nguyen Huu Quy)

Today’s soldiers are day and night firmly holding their guns at the forefront of the wind and waves to protect every inch of land, every island of our beloved Fatherland. Those brave people have to be far from the mainland, living on remote islands with undulating waves and countless hardships and deprivations:

“The island hides itself under three meters of water
The bamboo shoots are all dried up.
Only the vast blue sea
There is no net but fish are playing before our eyes
Where can we find a bowl of soup?”
(*Written on the sunken island* - Tran Dang Khoa)

dedicated to the sea next to you and you on the mainland
Yes, the poetry has wrong rhythm and rhyme
it doesn't matter,
soldiers should usually be careless”
(*Launching the Dreams* - Nguyen Huu Quy)

What is admirable about soldiers is that they always love each other like blood relatives, in hardship they are still optimistic, love life, day and night turn to the mainland with burning love. The love of soldiers at sea is rustic, simple and full of “soldier” qualities:

“I stand guard. It’s late. The island is deserted
The sea on one side and you on the other.
The sky might not have you
There’s no more sea. Only me and the grass
Even so, I still remember
The sea on one side and you on the other...”
(*Love poem of a marine soldier* - Tran Dang Khoa)

In the middle of the ocean, the small but resilient soldiers who stick to the sea day and night, protecting the sea, are the ones who create the soul and beauty of the vast ocean:

“The sea is vast
the islands are just small dots
and humans can't be any bigger
but without us the sea would be lifeless
the sea would thirst in the vast monotony!”
(*Launching the Dreams* - Nguyen Huu Quy)

The image of soldiers on the islands is forever a beautiful image of the Vietnamese people. Those people have, are and will go with the Fatherland to the great sea to affirm their height and position:

“And today
(...)
with the Fatherland, we sail the great sea
Our generation is boundless
not in the dark
(...)
Launching the splendid dream of Truong Sa!”
(*Launching the Dreams* - Nguyen Huu Quy)

3.4. Image of workers

The image of people working in the rough sea is also a source of inspiration for many artists both familiar and new.

The life of seafarers is very hard, they have to fight against big waves and strong winds every day to win their lives. Each going to sea, they have to live and die with the sea:

“Is it seawater or salty sweat
Soaking your body as you drive in the dark night?
Survival, just one mistake
Is a broken board, is a bone sinking with rocks”.

(A night awake in the storm - Huy Can)

Despite the hardships and difficulties, they are always filled with optimism and excitement in their work. The echoes of the ocean blend with the singing voices of the female workers at the port:

“You sing this afternoon in the wind
Your person on the harbor has black eyes
A thousand seagulls are flying in formation
The sea music of a thousand years lifts your voice”

(Singing on the harbor - Huy Can)

Inspired by the universe and human beings, poet Huy Can vividly recorded the scene of “Fishing boats” going out to sea:

“The sun sets into the sea like a ball of fire
The waves have locked the door and the night has closed
The fishing boats set sail again
The song fills the sails with the offshore wind”

(Fishing Boat Fleet - Huy Can)

That is the beauty of the night fishing scene and the joy of the fishermen, filled with the sea and the stars in the sky. The fleet of boats eagerly set out to glide over the sea and the sea and the vast universe become close to humans. Here, the working people become the masters of the sea, friends of the moon and stars:

“Our boat steers the wind with the moon sails
Gliding between the high clouds and the flat sea,
Mooring far away to probe the ocean's belly,
Arming the nets in battle formation”

(Fishing Boat Fleet - Huy Can)

If the fishing boats set out in the dark night with a light and airy atmosphere, then when they return in the morning sunshine, they are also eager, enthusiastic and refreshed because they have achieved good results from a night of hard work. Even more wonderful is that whether they set out or return, people and the sea become one in trust and love:

“The song fills the sails with the offshore wind,
The fleet of boats races with the sun.
The sun rises from the sea with a new color,
The eyes of the fish shine brightly for thousands of miles”.

(Fishing Boat Fleet - Huy Can)

Poet Huy Can also depicts the beautiful scene of “fishing friends” going out to sea in harmony with nature. The sails leisurely sail in the wind or the initiative of people to fight against storms:

“The boat is finished, the net is dyed
 In the morning, the sails are set afloat at night.
 Tomorrow, the boat will set sail early
 In time for the monsoon to come, the fish will change course”
 (*The Fishermen Lower the Boat into the Water*”- Huy Can)

Generation after generation of island workers seek life at sea, anchoring themselves to the ocean to survive, but they are also enriching our Fatherland every day.

3.5. Discussion

Within the scope of the topic, the study only mentioned some typical artistic images in some poems by authors such as: Nguyen Viet Chien, Nguyen Ngoc Phu, Nguyen Huu Quy, Tran Dang Khoa, Huy Can, Trinh Cong Loc, Nguyen Trong Van,... Therefore, the research results have not systematized all the typical artistic images in modern Vietnamese poetry about the sea and islands. On a larger scale, the study will mention other artistic images such as: images of sea waves, sea wind, sea storms, images of blood,... to have a more comprehensive and rich view of the image of the sea and islands in modern Vietnamese poetry.

4. CONCLUSIONS

Literature reflects life through images and each form of life when becoming the result of the creative process is always a symbol that contributes to encoding the content and thoughts of the artist. Writing about the seas and the islands, poets choose a system of typical artistic images and symbols to express their thoughts. Among many images of life, the authors have chosen the image of the seas and the islands associated with the Fatherland, the image of soldiers and the image of workers at sea to arouse the sacred and flesh-and-blood feelings for the homeland's sea and islands, creating artistic beauty that is very pervasive. At the same time, expressing personal thoughts placed in the great aspirations of the collective, community, nation... In that way, the seas and the islands appear with a more authentic, diverse and “poetic” beauty because the seas and the islands are inherently a source of poetic inspiration.

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IMPROVING ENGLISH LISTENING COMPREHENSION FOR VIETNAMESE STUDENTS THROUGH TEACHING CONNECTED SPEECH: A CASE STUDY AT AU CHAU ENGLISH CENTER

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ABSTRACT

Language acquisition and communication heavily depend on listening comprehension, which is a complex skill requiring both background knowledge and an understanding of linguistic principles. EFL learners' ability to understand spoken English may be affected by various factors. Conducted both quantitatively and qualitatively via the tools of questionnaires and an experiment, the current study aims to investigate the effectiveness of teaching and learning connected speech sounds in improving listening comprehension skills for students at Au Chau English Center in Binh Duong province, Viet Nam. The sample involved 60 students divided into two groups: a control group and an experimental group. Both groups completed a pre-motivational questionnaire; however, only the experimental group received a six-hour training session focused on connected speech. A pre-test and a post-test of listening skills were used to measure the differences within and between the groups. A post-motivational questionnaire was also administered to the thirty students in the experimental group to gather qualitative data, aiming to get further insights into the study's results. The findings highlight the importance of teaching connected speech sounds to enhance students' listening comprehension abilities in the EFL curriculum.

Keywords: listening comprehension, connected speech, EFL students.

1. INTRODUCTION

The ability to listen and understand native English speakers' speech is essential for students learning English as a foreign language. This ability is among essential ones that can help students to succeed in meeting both their academic and communicative objectives. In the view of Morley (2001), listening not only helps internalize language standards, but also enhances other language skills in second language acquisition. Traditionally, language acquisition and usage have greatly relied on listening. However, due to its complexity and the various types of knowledge required, foreign language learners often find listening challenging (Graham & Macaro, 2008). It might also be challenging for teachers and students to master listening skills. Even for skilled speakers and listeners, understanding rapid debates or talks can be challenging. Many individuals experience anxiety during English listening tests, regardless of their proficiency in other areas (Austin, 1970). The complexity of listening makes it challenging in various contexts. The features of connected speech, in particular, can lead to "jungle listening", where comprehension becomes difficult (Cauldwell, 2013). By focusing on connected speech, which is a critical component of English pronunciation, listeners' comprehension can be significantly improved. As a result, it is widely believed that utilizing connected speech techniques may significantly help improve EFL learners' listening skills.

Numerous studies have explored the challenges and strategies for improving listening comprehension by teaching connected speech sounds in foreign contexts, including those conducted by Rahimi & Chalak (2017), Musfirah, Razali & Masna (2019), and Omar (2022). These studies indicated a strong focus on connected speech patterns in ESL/EFL education, with significant outcomes. However, in Vietnam, studies on connected speech sounds are relatively limited. The majority of studies have overlooked the long-term effects of training on learners' perception accuracy regarding connected speech sounds. These gaps and inconsistencies highlight the need for further research to demonstrate the effectiveness of connected speech training in EFL teaching and learning. Despite its various roles, connected speech is understudied and rarely included in Vietnamese EFL programs, with no comprehensive instructional materials currently available. As a result, the lack of concrete data and conflicting research findings were the primary reasons for the current study to be conducted.

The current research aimed to: (i) identify problematic connected speech sounds for Vietnamese learners in listening comprehension, and (ii) develop strategies to enhance students' awareness and control of these sounds. To achieve the above-mentioned objectives, the following question was put forward: "How effective is the teaching and learning of connected speech sounds in improving students' listening comprehension skills?" To guide the research, the following hypotheses were also proposed: (1) There is a significant difference in students' listening comprehension abilities before and after instruction in connected speech sounds; (2) There is no significant change in students' listening comprehension abilities before and after instruction in connected speech sounds.

2. LITERATURE REVIEW

2.1. Listening skills

Listening involves the active process of hearing and interpreting spoken (and sometimes non-verbal) communication (Nordquist & Richard, 2019). Proficiency in listening is critical for properly understanding and receiving messages. Listening includes both the auditory perception of speech and cognitive engagement with the speaker (Vishwanath, 2013). In the view of Howatt & Dakin (1974), listening is the ability to perceive and comprehend the spoken words of others. Listening involves understanding a speaker's accent or pronunciation, as well as their grammar, vocabulary, and intended message. Diaz-Rico (2002) indicates that listening can be categorized into 3 main types: (i) echoic listening, (ii) comprehensive listening, and (iii) active listening, each serving different purposes. Rost (2011) mentions six different types of listening, which include: (i) discerning listening, (ii) engaging listening, (iii) extensive listening, (iv) responsive listening, and (v) autonomous listening. Shelton (2008) suggests that effective listening is challenging and requires considerable time and effort. One must consider various aspects, including different accents or pronunciation, unfamiliar vocabulary, grammatical structures, competing background sounds, and the need to stay attentive while avoiding distractions. To fully grasp the significance of any communication, it is necessary to address all these aspects simultaneously. These definitions clarify the specific characteristics of listening skills needed to achieve proficiency in both native and non-native languages. Pronunciation is regarded as one of the key variables that

influence listening abilities (Avery & Erhrich, 1992). According to Ur (1996), pronunciation encompasses phonological aspects, such as tension, rhythm, and intonation, and involves the accurate production of each sound segment. Pronunciation is a common occurrence. While poor pronunciation can hinder comprehension, good pronunciation facilitates it. As a result, mastery of pronunciation is essential for fluent understanding as it affects both speech and listening accuracy (Fangzhi, 1998).

2.2. Connected speech

Several studies have investigated connected speech and its impact on listening comprehension. Crystal (1980) defines connected speech as the way words are joined together in natural speech, forming a continuous stream. EFL learners whose native languages lack strong and weak stress patterns often find connected speech particularly challenging (Norris, 1994). Connected speech is an integral part of spoken language and occurs at all levels, from casual conversations to formal presentations. Regarding formality, connected speech reflects the natural flow of native speakers' English (Brown & Kondo-Brown, 2006). Underhill (2005) indicates that phonemes can be linked and categorized into connected speech, a continuous stream of simplified sounds. Native speakers often reduce their speech unconsciously, which may include contractions, elisions, assimilations, and reductions (Brown et al., 1986). Rosa (2002) states that reduced forms are a variation in natural speed pronunciation in neighboring words or sounds. While most native English speakers can understand such connected speech, non-native speakers may feel overwhelmed and frustrated. The biggest challenge for non-native English learners is to understand the connected speech of native speakers, which involves elisions, assimilations, and weak forms. English learners must recognize that native speech is rapid and fluid, with features, like contractions, elisions, assimilations, intrusions, and weak forms. Students who are almost accustomed to slow, carefully articulated English often struggle to understand native speakers in real conversations.

2.3. Types of connected speech

Various studies have shown that the teaching of reduced forms, like contractions, elisions, assimilations, liaisons, and reductions is an effective way to improve phonological awareness and listening comprehension (Brown & Hilferty, 1986; Yang, Lin, & Chung, 2009; Lee & Kuo, 2010). Rosa (2002) stated that reduced forms are a natural speed pronunciation variation in neighboring words or sounds. Larger speech units and their components, particularly stresses, affect individual sounds in connected speech, while smaller sounds in the surrounding area can also influence these sounds. Jones & Daniel (1990) identify two types of processes: positional changes and combinative changes, which include elisions, assimilations, and other phonetic adjustments. The criteria that are used to distinguish isolated forms from context-influenced forms can be grouped into three categories: weak form neutralizations, accentual pattern variations, and phonetic variations within words and at word boundaries (Cruttenden, 2014). Underhill (2005) classified sounds and simplifications in connected speech using the following CSPs: elisions, assimilations, vowel reductions, strong and weak forms, liaisons, contractions, and junctures. Celce-Murcia et al. (2010) states that common reductions in connected speech among English speakers in everyday

conversations include contractions, blends, reductions, linkings, assimilations, dissimilations, deletions, and epenthesis. The above-mentioned classifications show how connected speech terminology varies. The current study adopted the connected speech sound classification as identified by Celce-Murcia et al. (2010), which include assimilations, linkings, reductions, flapping /d/, contractions with auxiliary verbs, weak-form words, stresses, and intonation.

3. METHODOLOGIES

3.1. Research design and sampling methods

The study employed a mixed-method design, utilizing questionnaires, pre-tests, and post-tests for both control and experimental groups. According to Arikunto (2013), experimental research, where the researcher designs connected speech exercises for students to complete during a listening skill exam, is an effective approach for analyzing cause-and-effect relationships. To assess the effectiveness of the intervention, the pre-test and post-test results were compared. During the study, participants in the experimental group attended six-hour sessions on connected speech. The test results of the experimental group were then compared with those of the control group. After the post-test, a questionnaire was also distributed to the experimental group to assess their knowledge of connected speech. In addition, data were carefully compared and analyzed to determine the impact of connected speech instruction and the listening ability progress of the students. In the sampling method, the study selected 60 students from two KET 5 classes based on their listening comprehension skills. These students have learned four integrated skills as part of their Cambridge exam preparation. Both parents and teachers play a significant role in their children's English language development, particularly in the areas of listening comprehension and speaking skill development.

3.2. Research instruments and procedures

Both groups completed an identical pre-motivational questionnaire to assess students' awareness of listening skills and connected speech sounds. Initially, a pretest comprising 25 listening comprehension questions was administered, prior to introducing connected speech to the experimental group. Following randomization, the class was divided into two groups, each containing 30 students: Group A (the control group) and Group B (the experimental group). In the study, both groups received English lessons from the Wider World 2 book series. To fulfill the research objectives, however, the experimental group also received explicit training in connected speech components through the tools of a laptop and LCD screen. The connected speech sound lessons' regular school sessions were held at the same institution. There were four lessons in two weeks, and each session lasted approximately 90 minutes. These students were shown instructional videos in their native language, which they then practiced to correspond to the specific subject matter discussed in the related session. After their regular lectures, the experimental group was also given a handout on connected speech throughout each session for review. Two tests, known as post-tests, were later used to evaluate the impact of the intervention on students' spoken language comprehension and to identify any differences between the two groups. The statistical

technique through the Statistical Package for the Social Sciences Version 20.0 was utilized to assess and analyze data, based on the means, the t-tests, the standard deviations, and the percentages regarding the results from the questionnaires and the tests (the pre-test and the post-test). To ensure clarity, all of the questions in both the pre-and post-questionnaires were designed to conform to the same format, based on 5-Likert scale items. As quoted by Sujarweni (2019), the paired sample T-test is a parametric difference test on two paired data that compares whether or not there are differences between two groups in pairs.

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Results from the pre-motivational questionnaire

Initially, a pre-motivational questionnaire was administered. Students completed the motivation questionnaire before the experimental lessons. Results showed no statistically significant differences between the control group and the experimental group when comparing their responses.

Table 1. Students' motivation for listening comprehension skills among the control group and the experimental group

Items	N	Control group		Experimental group	
		Mean	Std. deviation	Mean	Std. deviation
1. Do you think listening is a crucial skill for students of English?	30	4.57	.568	4.43	.504
2. How difficult do you think listening is?	30	3.77	.679	3.67	.758
3. How much do you like listening in the classroom?	30	2.50	.731	2.90	.959
4. How difficult do you feel when improving your listening ability?	30	3.90	.662	3.67	.758
5. How confident do you feel in listening lessons?	30	2.70	.596	2.97	.556
Valid N (listwise)	30				

Table 1 shows the comparable outcomes for both the control and the experimental groups. The mean scores of the responses to Item 1 were 4.57 in the control group and 4.43 in the experimental group. These results indicated that the majority of the students expressed their belief that listening ability was an essential component in the process of English language learning. The mean ratings for the control and the experimental groups in response to Item 3 were 2.50 and 2.90, respectively. Most of the students indicated a lack of enthusiasm in acquiring listening skills. Both groups obtained an equal mean score of approximately 3.00 when asked about the level of confidence they had in increasing their listening abilities. It was, therefore, believed by a significant proportion of students that enhancing their listening skills was a challenging task.

Table 2. The reasons why students are not good at listening comprehension

Items	Control group			Experimental group		
	N	Mean	Std. deviation	N	Mean	bStd. deviation
1. I do not have enough vocabulary for the listening text.	30	4.20	.407	30	4.43	.504
2. I do not have enough grammar structures for the listening text.	30	3.83	.531	30	4.00	.643
3. I am unable to recognize connected speech sounds.	30	4.23	.504	30	4.33	.547
4. The speakers are speaking so fast .	30	4.50	.509	30	4.43	.568
5. Connected speech lessons are not paid enough attention in English language classes.	30	3.37	.964	30	3.27	1.015
Valid N (listwise)	30			30		

Table 2 displays the comparable mean and Std. deviation of both the control group and the experimental group regarding the problem of impacting listening comprehension, including the capacity to identify connected speech and speaking speed. The majority of the students expressed an absence in vocabulary and grammatical skills, which were believed to negatively impacts their ability to comprehend spoken language and inhibits their overall understanding. These students demonstrated an inability to differentiate between connected speech sounds during auditory perception. They also expressed a lack of instruction on connected speech in their classes, which was essential for them to easily comprehend the speed at which speakers communicate.

4.1.2. Results from the tests

a) Comparison of the control group's pre-and post-test scores

A pre-test and a post-test in English were utilized to evaluate the proficiency levels of students in the control group. These students were taught by traditional methods in 2 weeks (4 sessions). SPSS 20.0 was used to evaluate the data once they were fully collected it in various ways.

Table 3. The control group's pre-test and post-test totals

Groups	Descriptive statistics				
	N	Minimum	Maximum	Mean	Std. deviation
Pre test control group	30	2	8	5.27	1.507
Post test control group	30	3	8	5.00	1.174
Valid N (listwise)	30				

Table 3 displays the distribution of the total pre-test and post-test scores. The pre-test mean was 5.27, with a standard deviation of 1.507, and the post-test mean was 5.00, with a standard deviation of 1.174. There were no statistically significant differences between the scores of the two tests. As the pre-test and post-test scores were identical, it could be believed that traditional methods did not improve the listening skills of the control group.

The research group collected the students' scores obtained by the control group in the pre-test and the post-test. In both the pre-test and the post-test, the minimum and the maximum were 2 and 8 respectively, and the mode was 5.

Table 4. The frequencies of the pre-test and post-test scores obtained by the control group

Valid	Pre- test		Post-test	
	Frequency	Percent	Frequency	Percent
2	1	3.3	0	0.0
3	2	6.7	2	6.7
4	7	23.3	9	30.0
5	7	23.3	10	33.3
6	6	20.0	6	20.0
7	5	16.7	2	6.7
8	2	6.7	1	3.3
Total	30	100.0	30	100.0

As can be seen in Table 4, in the pre-test, 23.3% of the students obtained a score of 4, whereas in the post-test, 30% of the students received an identical score. A significant proportion of students, 23.3%, achieved a score of either 5 or 7. Irrespective of the overall students counted, two students, constituting 6.7% of the group, obtained the score of 8 in the pre-test. Yet, there was just one student who achieved the same score on the post-test. As a result, the academic competency of students in the control group, who were taught using conventional techniques, showed no significant improvement.

b) Comparison of the pre-test and post-test scores in the experimental group

The experimental group demonstrated a discernible disparity in the students' listening proficiency before and after receiving instruction on connected speech.

Table 5. The total pre-test and post-test scores obtained by the experimental group

Tests	Descriptive statistics				
	N	Minimum	Maximum	Mean	Std. deviation
Pre-test	30	2	9	5.40	1.522
Post-test	30	3	9	6.03	1.273
Valid N (listwise)	30				

As can be seen in Table 5, the experimental group achieved improved outcomes on the post-test with the implementation of connected speech techniques in their English lessons. The average pre-test total score for the experimental group is 5.40, with a standard deviation of 1.522, whereas the average post-test total is 6.03, with a standard deviation of 1.273. The average score after the test (Mb 6.03) was then believed to be higher than the average score before the test (Ma 5.40), with a mean gain of 0.63 points.

Table 6. The statistics of the pre-test and the post-test in the experimental group

N		Pre test	Post test
	Valid	30	30
	Missing	0	0
Mean		5.40	6.03
Median		5.50	6.00
Mode		6	6
Std. Deviation		1.522	1.573
Minimum		2	3
Maximum		9	9

As can be seen in Table 6, the average score for both the pre-test and post-test was 6. Statistically significant differences were observed when comparing the results from the two tests. The smallest value recorded during the pre-test was 2, while the greatest value was 9. The post-test had a minimum value of 3 and a maximum value of 9.

With the implementation of connected speech instruction, the frequencies of scores for the post-test changed significantly. No students received a score of 2 or 3 in the post-test, representing 3.3% of the total group. The majority of the students scored 6 points in the post test, accounting for 36.7% of the total students. In addition, the number of students who scored 8 points increased from 3.3% in the pre-test to 10% in the post-test. Analyzing the pre-test and post-test data showed that the experimental group improved a lot in their listening comprehension skills. As a result, it can be concluded that teaching connected speech is one of the best ways to use actual language material to promote listening comprehension and motivation. Utilizing speech sounds that are relevant to the study and instruction of the English language can ultimately result in an improvement in students' proficiency levels.

Participants in both the experimental group and the control group showed equivalent pre-test listening abilities. For the experimental group, the mean of the pre-test totals was 5.45 ± 1.572 , compared to 5.90 ± 1.287 of the control group. The majority of the students within the two group had low scores on the pre-test, despite having studied English for a minimum of 2 years. Since the school exams almost focused on grammar or reading only, listening procedures were eventually forgotten. As a result, most English learners found listening the most difficult.

The experimental group exhibited higher post-test results, with the mean of 6.03 ± 1.273 , compared to 5.00 ± 1.174 of the control group (Table 7). In Sujarweni's (2019) study, a T-test was employed to compare English-language test scores between the pre-test and post-test. The interpretation of the results in the current study was also based on the significance level (Sig.) from a two-tailed test, with the following criteria: (i) If the Sig. (2-tailed) value is less than 0.05, the null hypothesis (H0) is rejected, supporting the alternative hypothesis (H1); (ii) If the Sig. (2-tailed) value exceeds 0.05, the null hypothesis (H0) fails to be rejected.

Table 7. Paired sample test

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% Confidence interval of the difference				
					Lower	Upper			
Pre-test	Control group Exp. group	-.133	2.315	.423	-.998	.731	-.315	29	.755
Post-test	Control group Exp. group	-1.033	1.731	.316	-1.679	-.387	-3.268	29	.003

The sig (2-tailed) value of 0.003 obtained from the paired sample T-test table is lower than the significance level of 0.05 ($0.003 < 0.05$). This implies that there is a statistically significant disparity between the initial and final variables, showing that the therapy has a substantial impact on the observed difference in each variable. As a result, H2 was rejected, whereas H1 was approved. The hypothesis is confirmed, suggesting that the instruction of connected speech sounds can be beneficial in enhancing listening abilities for these students.

4.1.3. Results from the post-motivational questionnaire

After administering a post-test and analysing the scores obtained by the students, a post-motivational questionnaire was also extended to the experimental group (N=30) to get further insights into the issues. The mean for the responses to Item 1 (How important is the listening skill to you in learning a foreign language?) was 4.60, among which “very important” was chosen by 18 students (60%); 12 students (40%) responded “important” while none replied “completely unimportant” or “unimportant”. The mean for the responses to Item 2 (How important are the knowledge of connected speech and its roles to you in developing listening skills?) was 4.57, among which “very important” was chosen by 17 students (56.7%), and 13 (43.3%) selected “important”. In response to Item 3 (Which parts of connected speech sounds do you most have problems with?) about connected speech sound difficulties that impacted their listening comprehension, the majority of the respondents selected linkings and reductions as their primary factors, followed by contractions and assimilations. The mean for the responses to Item 4 (How often are you provided with extra-lessons related to connected speech and its roles in your listening classes?) was 2.80, among which “sometimes” was chosen by 24 students (80%) while 6 students (20%) selected “occasionally”. These results suggested students really lacked connected speaking instruction. The mean for the responses to Item 5 (Do you want to be provided with extra lessons related to connected speech and its roles in your listening classes?) was 2.80, among which “strongly agree” was chosen by 11 students (36.7%); 19 (63.3%) chose “agree,” and none of the students chose “disagree” or “completely disagree”. There were statistically significant variations in the post-motivational questionnaire responses in the experimental group. As post-motivational questionnaire scores are greater, it can be concluded that the teaching and learning of connected speech not only motivate students to learn English but also give them opportunities to develop their listening comprehension skills in their language learning.

4.2. Discussion

4.2.1. Students' perceptions of challenges in listening

The vast majority of students acknowledged that listening is a crucial skill in the overall process of learning English. They encountered varying degrees of difficulty in improving their listening skills. These difficulties impacted their confidence in listening to lessons. They also recognized that improving their listening comprehension was the most effective way to maximize their learning progress. Yet, they also considered the understanding of connected speech as a challenging obstacle to overcome. Both groups in the current study asserted that their listening comprehension skills were affected by various factors, among which are insufficient vocabulary and grammar knowledge. As native speakers often speak rapidly, students almost have to struggle to identify connected speech sounds in their listening comprehension practices. The absence of connected speech lessons in the language curriculum ultimately can hinder students' ability to improve listening comprehension abilities in their language learning.

4.2.2. Students' perceptions of problems with connected speech sounds

Most students, with a mean score of 4.57 and 56.7%, consider listening to be essential for the acquisition of listening skills in foreign language learning. They highly appreciate the understanding of connected speech and its significance in enhancing their listening comprehension capabilities. Hence, when given the opportunity to receive further instruction on connected speech and taught about its significance in their listening courses, 63.3% of the students were willing to receive. It was worth noticing that students sometimes got extra lessons on connected speech and its values in their listening sessions (80%).

These students also acknowledged that they frequently faced challenges in understanding spoken language, particularly in relation to connected speech sounds such as linkings (30%), reductions (30%), contractions (20%), and others. Unfortunately, these problematic sounds were frequently neglected in the language classroom.

4.2.3. Effectiveness of teaching connected speech sounds in developing students' listening skills

The sig (2-tailed) value of 0.003, obtained from the paired sample T-test table, is lower than the significance level of 0.05 ($0.003 < 0.05$). This implies that there is a statistically significant disparity between the initial variable and the final variable, showing that the treatment has a substantial impact on the observed difference in each variable. According to Alameen (2014), non-native English speakers must study and practice connected speech. A fundamental grasp of connected speech processes can help ESL/EFL students understand native speakers easily, hence improving their listening comprehension. Effective communication necessitates these processes, yet ESL and EFL education materials neglect them (Alameen 2014). Students' communication skills are heavily dependent on their ability to listen and comprehend spoken English (Celce-Murcia & cs., 2010). Connected speech sounds may help students acquire languages. These findings are comparable to those mentioned in the study of Omar & Pilus (2022), who believe that instructors, researchers, syllabus designers, and material producers can use these pronunciation features to address Libyan EFL learners' listening comprehension issues and how adding connected speech to

learning and teaching materials becomes excessive. These authors also found that after 12 weeks, the treatment group had fewer comprehension challenges than the control group in a quasi-experimental study. As the t-score was higher ($3.61 > 2.04$) than the t-table, the teaching and learning of connected speech were believed to improve listening comprehension, as it was claimed by Musfirah & cs. (2019).

4.2.4. Strategies to incorporate connected speech instruction into the language curriculum

As pronunciation is one of the most influential factors in speaking and listening comprehension practices (Gilbert, 1993), it is necessary for students to master the pronunciation of a language in order to communicate effectively in that language. As a part of pronunciation components, the mastering of connected speech sounds is of great importance in improving students' listening comprehension skills. To help students master this natural and connected speech, it is necessary to raise students' awareness and give them sufficient opportunities to practice and master English pronunciation in general and connected speech sounds in particular, which is crucial for their own improvement both in listening and speaking practices. In the era of Industry 4.0, it is necessary for teachers to give students sufficient instructions so that they can take online pronunciation courses or practice these features themselves. Remember that in teaching aspects of pronunciation, authentic materials are of crucial importance: It is through larger samples of real language that the relationship between supra-segmentals and meanings becomes evident (Celce-Murcia & cs, 2010). The teaching of pronunciation, as presented in this study, is, of course, no exception.

5. CONCLUSION

The study examined the potential impact of instructing EFL students on connected speech sounds, on their ability to recognize words and comprehend spoken language, and their attitudes towards natural connected speech characteristics. The study also investigated the proficiency of individuals in their ability to listen, comprehend, and interpret auditory information. Listening comprehension test results indicate that practicing connected speech components can enhance students' listening comprehension skills. Through the implementation of connected speech in their lessons, students were claimed to be fully aware of connected speech sounds and the roles of mastering these sounds in enhancing their listening skills. However, it is rather difficult to make broad generalizations about language learning based on a single piece of research. For further investigations, it is crucial to consider several methodological limitations that may have influenced the findings of the current study. Irrespective of its contributions, the current study was still limited by the small sample size of a single institution. As a result, conducting a more extensive study with a larger sample size from more educational institutions might give more insights in to the issues, assisting us in establishing initial results. The length of the training period is an additional obstacle. As the influence of practice was another obstacle, the post-test phrase configurations were randomized in order to minimize the impact of practice on the results.

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MOTIVATION FOR LEARNING ENGLISH OF NON-ENGLISH MAJORS AT THU DAU MOT UNIVERSITY

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ABSTRACT

English is considered a burden to the number of Vietnamese non-English majored students in higher education due to a wide range of reasons including the lack of motivation. The proposed study, therefore, investigates the motivation that non-English majors at Thu Dau Mot University (TDMU) need in English learning and the factors affecting their English learning needs. To achieve this aim, questionnaires will be administered to 100 non-English-majored students at TDMU. Through analysis of the survey results, some difficulties that non-English major students have to face when learning English as well as the factors affecting non-English major students' motivation for learning English can be proposed through this paper.

Keywords: non-English major students, Thu Dau Mot University, motivation, difficulty, factor

1. INTRODUCTION

In the context of international integration and the 4.0 revolution and as a result of globalization, parallel to changes in the fields of science and technology, English plays an even more important role and has widely been considered a global language as well as the most important foreign language at all national education levels in Vietnam. Hence, the Vietnamese government and the Vietnamese Ministry of Education and Training (MoET) have highlighted in the legal documents that Vietnamese higher education students must attain a proficient level of English to effectively communicate in a global working environment. (MoET,2003; MoET, 2004). In contrast to this expectation, there is a wide range of English learners in Vietnam in general and particularly in higher education who demonstrate poor levels of English proficiency.

Looking for the reasons why English learners acquire poor levels of proficiency, researchers find out that motivation is one of the main causes. Dornyei and Guilloteux (2007) stated that motivation is one of psychology's most vital concepts, leading to educational performance success. Hence, many researchers have found that motivation is the key to success in language learning and suggested flexible strategies to teach and learn English as a foreign language with the highest achievement.

Unfortunately, although English is included in the curriculum in almost every school and university and has been viewed as one of the significant foreign languages, students whose majors are not concerning English seem reluctant to learn English as a compulsory discipline due to their lack of interest in English, poor learning condition and traditional teaching methods and their anxiety of this subject (Tran & Baldauf 2007). It's clear that many students are not fully aware of

the crucial role that English plays in their lives. This issue makes the authors really concerned and willing to carry out this research.

2. LITERATURE REVIEW

2.1. Definition of motivation

Motivation, the process that initiates, guides, and maintains goal-oriented behaviors, is significant in its role in language learning success. Narayanan (2006) proposed that motivation is the reason behind one's actions or behaviors. It is widely acknowledged among researchers that motivation plays a pivotal role in the process of learning a second language. (Ekiz & Kulmetov, 2016). As highlighted by McCoach and Flake (2018), motivation plays an important component of academic success serving as driving force in doing the things that they have set their mind to do. Motivation is the fuel that enables the ability to be harnessed to reach those tremendous triumphs, even while innate skill or giftedness predicts academic and career success.

2.2. Types of motivation

Baily & Garratt (2002) have classified motivation as Intrinsic and Extrinsic motivation.

Intrinsic motivation is defined as “motivation that stems from factors such as interest or curiosity”. Intrinsic motivation occurs when motivation comes from “internal” factors to fulfill personal needs. We pursue activities because we enjoy them, not because we obligated to do so. When you are intrinsically motivated, you love a hobby, a course of study, or the development of a skill only for the fulfillment of education and enjoyment. Intrinsic refers to motivation that originates from internal or inside oneself. Examples include raising the bar high enough to become a mentor or role model or investigating opportunities for personal growth so that you may feel competent in a task. In everything you accomplish, your personal fulfillment and success are your ultimate goals. Intrinsic motivation is internal and arises from within the individual, such as when doing a complicated crossword puzzle.

As stated in Santrock's 2004 book, “extrinsic motivation involves doing something in order to obtain something else (a means to an end), driven by external stimuli like salary or praise. This kind of motivation is prevalent across society and is employed all the time. Extrinsically motivated persons are those who are driven to perform, accomplish, study, or do anything based on a carefully determined outcome rather than for enjoyment, personal progress, or pleasure. Our extrinsic motivators alter as we age, and we become more selective about what drives us. Extrinsic motivation arises from outside of the individual and often involves external rewards such as trophies, money, social recognition, or praise.

2.2.1. Factors affecting non-English majored students' motivation for learning English

Student-related factors

A number of variables, such as sex, age, culture, personal interests, prior acts, expectations, social or effective features, environment, impact students' motivation in foreign language

acquisition (Dörnyei, 2001). The learner's capability refers to the degree of aptitude, creativity, intellect, and other skills required for learning. According to the findings of Rahman et al. (2017), motivation plays a major role in students' success and failure. If the learner is willing to learn, he will develop motivation to learn. Along with readiness, strong will is necessary to overcome obstacles and problems because willingness will help develop a positive attitude in learners.

Parent-related factors

The findings indicate that kids acquire English language skills because their parents support them in doing so, acknowledge their accomplishments in the language, and show a strong interest in the language. Parents are viewed as motivators, and there is a strong correlation between the home and the school in encouraging students' desire to study (Dörnyei, 2001). More specifically, children who have English-speaking parents are more motivated to learn the language.

Teacher-related factors

Teacher-related factors such as performance, teaching approaches, feedback giving, or personality have been shown to influence students' motivation. As noted by Harmer (1991), "if the students lose the confidence in the teachers' teaching method, they will become demotivated". According to Murray et al. (2011) and Lasagabaster et al. (2014), fostering relationships between teachers and students is crucial in language courses. Thus, teachers praise students who do poorly for doing well and achieving high scores, and the teacher's explanation of what needs to be improved are the motivators that motivate students to try to learn English. These findings are consistent with the theory stated by Murray et al. (2011); Hadfield and Dörnyei (2013); and Dörnyei (2001).

Classroom-related factors

Lee (2020) and Khau (2021) concluded that poor learning conditions may demotivate students to learn English. The physical conditions refer to the classroom environment. For instance, if students must study in a cramped space, they may lose interest or become less motivated to learn. Students will find it difficult to focus if there is excessive light, noise, or both in the classroom. Realizing this, teachers and students alike must set up and maintain well-kept classrooms in order to attain successful teaching and learning objectives. The significance of comprehending motivation in second language acquisition is demonstrated by the effects of these interactions in language learning environments (Lasagabaster et al., 2014).

Textbook-related factors

The effective use of teaching materials is vital in fostering communicative language skills. According to Aduwa et al. (2006), traditional resources like textbooks, workbooks, dictionaries, chalkboards, and posters are the most commonly used media in English classrooms while modern media such as audio and video, programmed texts, language laboratories, flashcards, computers, magazines, and newspapers are rarely utilized. It's important to ensure that tasks and texts are engaging for students and emphasize speaking activities rather than just grammar and structure. Selecting appropriate texts is essential for positive learning outcomes.

2.2.2. Research questions

As teachers of English, the authors care about how to help students be more involved and passionate about learning English, which motivates the authors to carry out the paper. The study aim is to investigate the non-English majored students' motivation for learning English as a foreign language as well as to investigate the factors affecting non-English majored students' motivation for learning English at Thu Dau Mot University. As a result, the research on English language learning motivation was carried out in order to find out the answers to the following research questions:

1. What motivates the non-English majored students to learn English as a foreign language?
2. What are the factors that influence the motivation of Non-English students to learn English?

3. METHODOLOGY

The sample group of this research will comprise one hundred non-English majored students at Thu Dau Mot University in Thu Dau Mot, Binh Duong province who volunteer to participate. A quantitative research method designed to investigate the non-English majored students' motivation for learning English as a foreign language was employed to collect data for this study through a three-part questionnaire. The first part includes seven demographic questions. The second section consists of the motivating factors affecting learning English such as student-related factors, parent-related factors, teacher-related factors, classroom-related factors, and textbook-related factors. The final part of the questionnaire is designed to find ways to motivate learners to learn English faced by non-English majors in the learning English.

4. RESULTS AND DISCUSSION

4.1. Factors affecting non-english majored students' motivation for learning english at Thu Dau Mot university

According to the findings of the study, students could get many factors affecting their motivation when learning English. The result shows that strong agreement and agreement options were the most voted by students, followed by neutral choices, and the disagreement and strong disagreement options made up a small portion of all choices.

4.1.1. Student-related factors

Table 1 illustrates student-related factors affecting non-English majored students' motivation for learning English as a foreign language. As can be seen from the given table, there was a much higher proportion for strong agreement and agreement than disagreement and strong disagreement. Clearly, students shared that they need to set the goals of the student that must match their ability. It is obvious that to most students, student-related factors are very important for them to motivate in learning English. In short, the following factors received the majority of responses from non-English majored students, which is obvious that to most students, student-related factors are very important for them to motivate in learning English.

Table 1. Student-related factors

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The subjects I am studying bring them joy and comfort, and I will work considerably harder.	0%	3%	18%	68%	11%
2. The need for success, growth, progress, and the work itself become motivators to learning English.	1%	2%	13%	63%	21%
3. English would advance my job in the future	0%	1%	13%	56%	30%
4. English would enable me to earn a high wage in the future	0%	3%	15%	57%	25%
5. Learning languages and achievement tend to require not only the learner's interest but also prolonged motivation.	1%	2%	14%	57%	26%
6. Learning languages and achievement tend to require not only the learner's interest, but also prolonged capability.	1%	1%	15%	56%	27%
7. Willingness will help develop a positive attitude in learners.	0%	2%	14%	58%	26%
8. I want to be open and confident.	0%	2%	16%	55%	27%
9. I want to speak to social people like English-speaking people	0%	1%	10%	53%	36%

4.1.2. Parent-related factors

While the parents' abilities to speak English significantly impact the students' motivation to learn the language, their parents are workers or farmers. The results from Table 2 demonstrate that the parents' related factors in developing their English are positive. 86% non-English majored students chose the strong agreement options and the agreement options whereas only a few chose the disagreement option (2%) of the statements that "The parents can speak English were found to have a significant impact on the students' motivation to learn the language".

Table 2. Parent-related factors

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
10. The parents speaking English were found to have a significant impact on the students' motivation to learn the language	0%	2%	12%	63%	23%
11. Parents are viewed as motivators between the home and the school in encouraging students' desire to study.	0%	2%	16%	55%	27%

4.1.3. Teacher-related Factors

Teachers should utilize various resources and teaching techniques, encouraging students to pick up the language. In addition, teachers should utilize various resources and teaching techniques, encourage students to pick up the language and Teachers should utilize various resources and teaching techniques, encouraging students to pick up the language is also very important when students are learning English. The data in Table 3 vividly illustrates students'

resounding agreement with these teacher-related factors, reaffirming the impact of a positive and motivating learning experience.

Table 3. Teacher-related factors

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
26. When students are driven by outside forces, like incentives or penalties, they pick up knowledge without consciously intending to.	1%	2%	17%	59%	21%
34. When teachers are enthusiastic, many pupils are tremendously driven to learn English	1%	1%	14%	58%	26%
35. When teachers have a positive attitude about the subject, many pupils are tremendously driven to learn English	1%	2%	16%	49%	32%
36. Teachers provide motivating feedback, students are also highly motivated	0%	1%	14%	61%	24%
37. Student motivation is influenced by teaching methods	0%	1%	14%	55%	30%
38. Student motivation is influenced by the way teachers impart knowledge to students	0%	1%	14%	58%	27%

4.1.4. Classroom-related Factors

The results from table 4 that the students' perception of the learning environment has a significant impact on language learners. Furthermore, classmates also play an important role in motivating their friends to study. All can contribute to students' motivation or demotivation to learn English. *The good or bad points of their friends, good or bad attitudes and so on can contribute to students' motivation or demotivation to learn English.*

Table 4. Classroom-related factors

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
39. The good or bad points of their friends also play an important role in motivating them to study.	1%	1%	16%	61%	21%
40. The learning environment has a significant impact on language learners	0%	1%	11%	53%	35%

4.1.5. Textbook-related Factors

These are vital factors that increase or decrease the motivation of students. Textbook-related factors also are crucial in promoting communicative language use. It is apparent from Table 5 that textbook-related factors also are crucial in promoting communicative language use with lots of students agreeing (60% and 20% of students "Agree" and "Strongly Agree"). Most student's difficulties in learning English as a foreign language are mainly related to the kind of textbooks.

Table 5. Textbook-related factors

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22. The text contains too complicated structures that are beyond students' comprehension	0%	3%	17%	60%	20%

4.2. Approaches to motivate Non-English majored learners to learn English

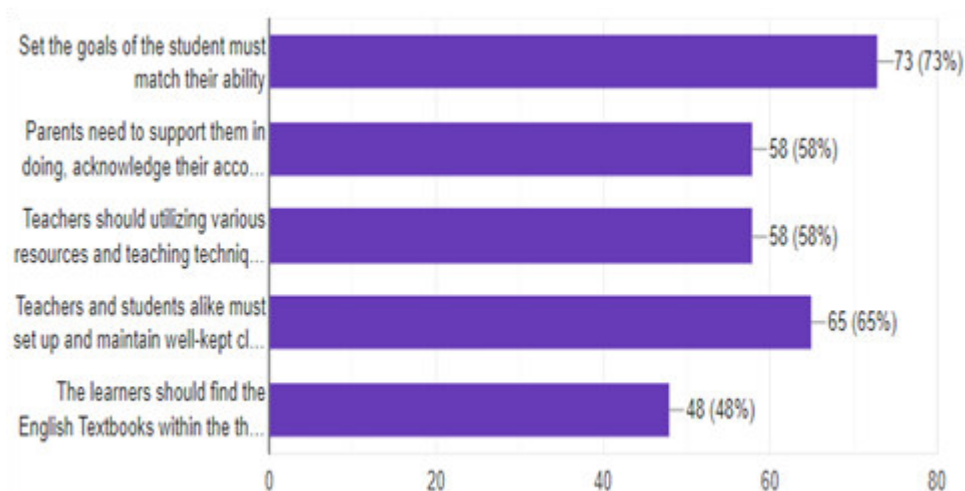


Figure 1. Approaches to motivate non-English majors

In the data presented, the most common ways are “Set the goals of the student must match their ability” with 73% percentage and “Teachers should utilize various resources and teaching techniques, encourage students to pick up the language” with 65% percentage. In addition, “Teachers should utilize various resources and teaching techniques, encourage students to pick up the language” and “Teachers should utilize various resources and teaching techniques, encourage students to pick up the language” is equal with 58% percentage. On the other hand, "The learners should find the English textbooks within their background knowledge and cognitive maturity" had a lower agreement percentage at 48% compared to the other activities.

5. CONCLUSION

In summary, the results in both study objectives are very positive. The result shows the current status of learning English as a foreign language for non-English majored students at Thu Dau Mot University. There are a lot of motivations that occur and a lot of factors affecting non-English majored students during their learning and that just partly become the reason for them to give up on learning English or continue with it. This study wants to carry out that problem to let Thu Dau Mot University know more clearly about those learn English as a foreign language for non-English majored students and want to find out the best ways for those in order to make better education program also a better internship environment for students in Thu Dau Mot University.

In this study, there are two future directions that the researchers aim to explore. The first direction involves more about the motivations of non-English majored students to learn English as a foreign language and also wants to show detailed insights into the specific difficulties they face. The second direction is to discover the factors affecting non-English majored students' motivation for learning English particularly those that may affect the students of Thu Dau Mot University.

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INNOVATIVE TEACHING METHODS TO DEVELOP CREATIVE THINKING FOR FASHION DESIGN STUDENTS AT SCHOOL HANOI INDUSTRIAL UNIVERSITY

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ABSTRACT

The article explores innovative teaching methods aimed at fostering creative thinking within fashion design education. This innovation is reflected in the enhancement of students' abilities to design fashion collections creatively and effectively, addressing both artistic and market demands. In terms of methodology, the author conducted a small-scale class experiment using a new instructional approach. This approach involved the implementation of mind mapping techniques to improve students' costume sketching skills. Furthermore, qualitative research methods were employed, including direct interviews with student participants, to gather in-depth insights. The outcomes of this approach will be compared to those of traditional teaching methods, allowing for an analysis of both the strengths and limitations of each. Ultimately, the findings will contribute to the development of a fashion design curriculum that aligns with current educational trends, equipping students with practical skills and critical creative thinking abilities to meet the demands of the modern workforce.

Keywords: Mind map; Idea icon; Innovate methods; Creative thinking; Fashion design; Design ideas.

1. INTRODUCTION

Creative thinking integrates both theoretical and practical knowledge, making it an essential component in fashion design education. Fashion design students are tasked with creating new products that balance artistic value with practical applicability. However, to successfully navigate the process of ideation and realization, a structured methodology is required—this is where creative thinking plays a pivotal role.

In response to the trends of modern society, fashion design education has undergone significant changes over the past decades, driven by advancements in science and technology. Emerging technologies, such as 3D printing, design software for fashion illustration, fashion shows, and technical production tools, have revolutionized the field. These developments have prompted educational reforms, including adjustments to the goals and outcome standards of training programs, particularly in both core and specialized courses. Moreover, lecturers have continuously worked to enhance their qualifications and professional skills in order to keep pace with technological advancements and the evolving demands of society.

The ability to design costumes within a cohesive system is a fundamental requirement of the specialized modules in the Fashion Design training program. Instructors guide students through this process using the following general framework:

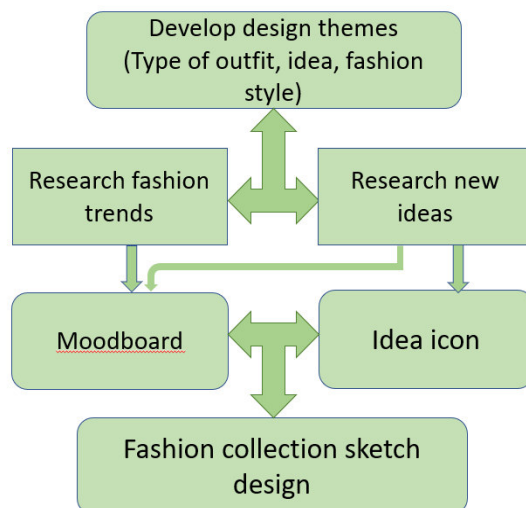


Diagram 1. Fashion collection design process

This fashion collection design process is employed in teaching the specialized modules of the Fashion Design training program at Hanoi University of Industry. Instructors provide individual guidance to students at each step of the research process. However, no formal procedures or principles are applied at each stage. Instead, instructors primarily rely on students' creative freedom, offering feedback, suggestions, and selecting sketch samples that align with the chosen research topic. Due to the lack of specific guidelines, students often engage in parallel research, combining data, moodboards, and sketches to design fashion collections. This approach, while time-consuming, has not proven to be particularly effective. As such, the author identifies a need for innovation in teaching methods to facilitate students' understanding and enhance their skills in fashion collection design.

Based on the reasons outlined above, the author has undertaken a study titled "Innovating Teaching Methods to Develop Creative Thinking for Fashion Design Students at Hanoi University of Industry." The findings of this research aim to contribute to the ongoing efforts to innovate teaching methods in fashion design education at Hanoi University of Industry.

2. LITERATURE REVIEW

Integrating innovation into modeling skills in fashion design education is essential in the current context. This approach helps students acquire specialized knowledge, technologies, and techniques, providing a strong foundation that enables graduates to adapt to professional environments and meet the evolving needs of consumers in society [4]. Fostering creative thinking should be a primary objective in the education and training of future designers [5]. Creativity can be defined as intentional, imaginative, and original thinking that challenges conventional norms and leads to actions that encourage new ways of thinking [3]. Creative thinking is not an innate talent but a skill that can be cultivated. It offers individuals numerous opportunities by enhancing their natural abilities, improving teamwork, and increasing both productivity and overall outcomes [3]. Current research highlights the importance of a balanced education that integrates the development of conceptual thinking with practical skills. This approach is essential for fostering both critical and creative thinking abilities [1].

3. RESEARCH METHODS

To conduct the research, the author organized a class of students and implemented a new teaching method. This method involved the use of mind maps to enhance costume sketch design skills. Specifically, the method allowed students to design structured recovery pages based on layered configurations.

3.1. Designing and applying mind maps in costume sketch development.

* Cognitive goals

Upon completing the lesson, students will have a comprehensive understanding of the following concepts:

- The concept of mind maps and their role in illustrating the relationships within information structures, developing ideas, and effectively solving problems.

- The primary objective of mind maps, which is to systematically develop and expand ideas.

- The structure of mind maps, which includes:

- + Creating a central topic for the mind map, such as "Designing a Costume Collection."

- + Identifying branches in a hierarchical structure, for instance, developing versions or variations within the same original outfit model.

- + Utilizing symbols and images to establish connections across different generations within the design hierarchy. Additionally, students will be able to create keywords to annotate ideas efficiently, saving space within the mind map.

* Skill goals

- Design the structure of the mind map in alignment with the established goals.

- Apply mind maps to the creative design of costumes within a hierarchical framework to achieve systematic organization and synchronization of creative ideas.

3.2. Evaluate the effectiveness of applying mind maps to costume sketch design

To assess the effectiveness of the innovative teaching methods aimed at enhancing creative thinking in Fashion Design students through the application of mind maps in costume sketch design, a survey must be conducted to evaluate the learners. It is essential to develop a set of questions addressing students' awareness, application skills, and the effectiveness of mind maps in the design process. Key areas of focus include:

- The role of mind maps in developing costume design ideas.

- The efficiency and time required for applying mind maps in fashion collection design.

Based on learners' assessments of cognitive skills and design abilities, the effectiveness of applying mind maps in fashion collection design will serve as the foundation for comparing the results with those of traditional teaching methods in fashion collection design.

4. RESULTS

This article focuses on researching innovative teaching methods aimed at enhancing creative thinking, which is reflected in the development of creative design skills for producing effective fashion collections that meet market demands. The research findings are as follows:

4.1. Designing and Applying a Mind Map to Costume Sketch Development.

Mind maps are structured in a hierarchical model, generating multiple design iterations, such as Generation 1, Generation 2, and beyond. The process begins with researching mood boards and symbolic ideas, which provide critical data for creating new outfit models.

To achieve uniformity in costume design, key elements such as costume shape, primary color tones, fabric materials, and decorations must be thoroughly studied. These factors are utilized to create the first generation of costume models, referred to as the G1 generation (First Generation). The first generation typically includes three designs: A1, B1, and C1 [Diagram 2]. Further designs are unnecessary at this stage, as the G1 models evolve into the G2 generation (Second Generation), with subsequent generations continuing to develop based on established design principles.

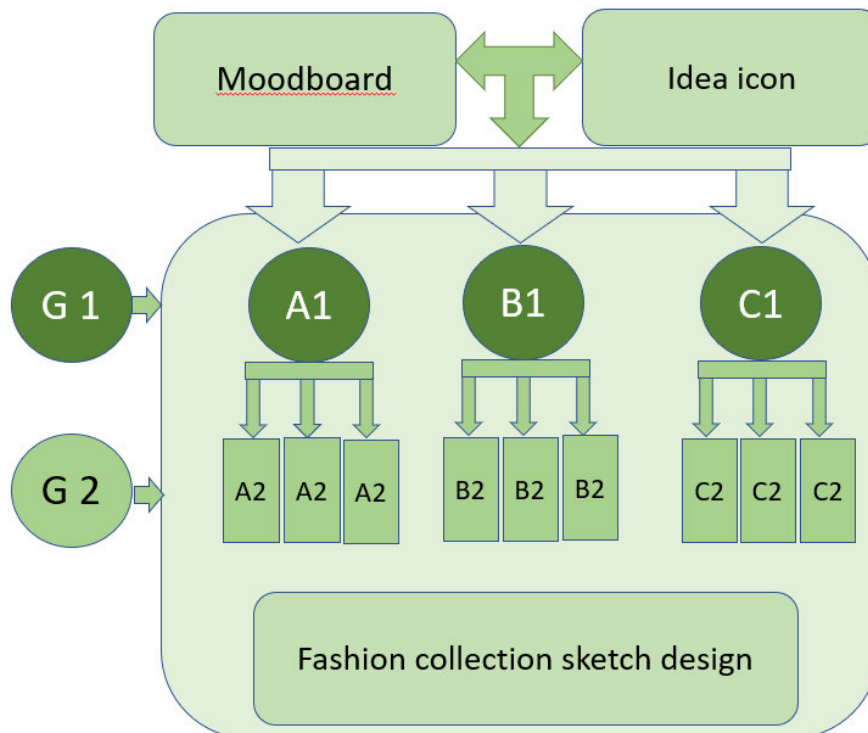


Diagram 2. Mind map design in the fashion collection sketch development process

From the three designs in the G1 generation, specific design principles were applied to create the G2 generation. The key principles are as follows:

- **Principle of Repetition:** Repetition is a fundamental principle for creating connection and harmony in design. Elements such as color, decoration, and material are employed in this technique to achieve a cohesive outcome.

- **Principle of Swapping:** Swapping design elements is a critical technique for fostering creativity within a synchronized system. In addition to promoting creativity, this approach provides visual guidance for other clothing models in the collection.

Among the five elements of costume design, the shape of the costume remains consistent to ensure stability and unity. If changes are made, they should be proportional and create a rhythmic flow. Visual elements such as texture, color, material, and decoration can be swapped across designs to enhance creative diversity.

Both principles are applied simultaneously throughout the design process, reducing the risk of redundant shape analysis and moodboard creation, ultimately saving time on research and analysis during this stage.

4.2. Evaluating the effectiveness and comparing the results of new teaching methods with traditional methods.

To assess the effectiveness of the innovative teaching method, the author organized a class for a group of third-year students. These students had previously completed three different fashion design courses using traditional methods. The mind mapping method was introduced during three class hours, where instructors provided 20 minutes of guidance, followed by 160 minutes of student practice. After the three-hour session, each student produced a fashion collection based on moodboard data, representing ideas from prior fashion design courses.

The use of moodboard data and ideas from earlier courses is a key aspect of this study. The primary goal of the research is to propose a new teaching method that fosters creative thinking in the context of fashion collection design. By introducing students to the new design method, they were able to directly compare its effectiveness with the traditional methods they had previously learned.

Develop a set of questions focusing on students' awareness, application skills, and the effectiveness of using mind maps in costume sketch design. These questions will be posed to each member of the class for evaluation.





Figure 1. Collection design using mind maps.

[Student Nguyen Ngoc Quynh work in class]

Figures a1, b1, c1 belong to G1; Figures a2, b2, c2. Belongs to G2

The questions posed to students were as follows: After learning the mind map design method and applying it to fashion collection design, how do you evaluate this method?

- Regarding design time.
- Regarding design skills (how easy or difficult was it to design a fashion collection?).
- Regarding the quality of each outfit model in the collection (Were the models consistent? Were they creative or monotonous?).
- After learning the design method and applying mind maps, do you wish to continue using this method in future design courses?

The evaluation process has concluded, and full responses were received from the students in the class. The following summarizes their feedback:

- Regarding design time: The majority of students indicated that using mind maps optimized design time. They found inspiration more quickly and implemented ideas more efficiently, as the logical arrangement of ideas in the mind map facilitated faster progression. The design process was less fragmented, avoiding disconnected samples.

- **Regarding design skills:** Students Tran Tuyet Ngan, Nguyen Ngoc Quynh, and Nguyen Xuan Phu reported that the mind map method allowed them to easily transform ideas into cohesive, rhythmic, and visually appealing collections. Their designs closely aligned with the initial concept and its symbolic representation.

- **Regarding the quality of each costume model:** Most students indicated that using mind maps facilitated the creation of synchronized sketches, while also promoting creativity. The method allowed for innovation without straying too far from the original concept.

- **Overall feedback:** Many students expressed that this new method is logical and efficient, significantly reducing design time while maximizing creativity. They also stated their intention to apply this method in future design courses and their graduation projects.

To further clarify learners' evaluations of this new teaching method, the author conducted a survey based on the aforementioned interview questions. The results revealed that the criterion "the new design method creates a collection with uniformity in designs" was rated at 4.83 points. Overall, the criteria ranged from 4 to 4.83 points.

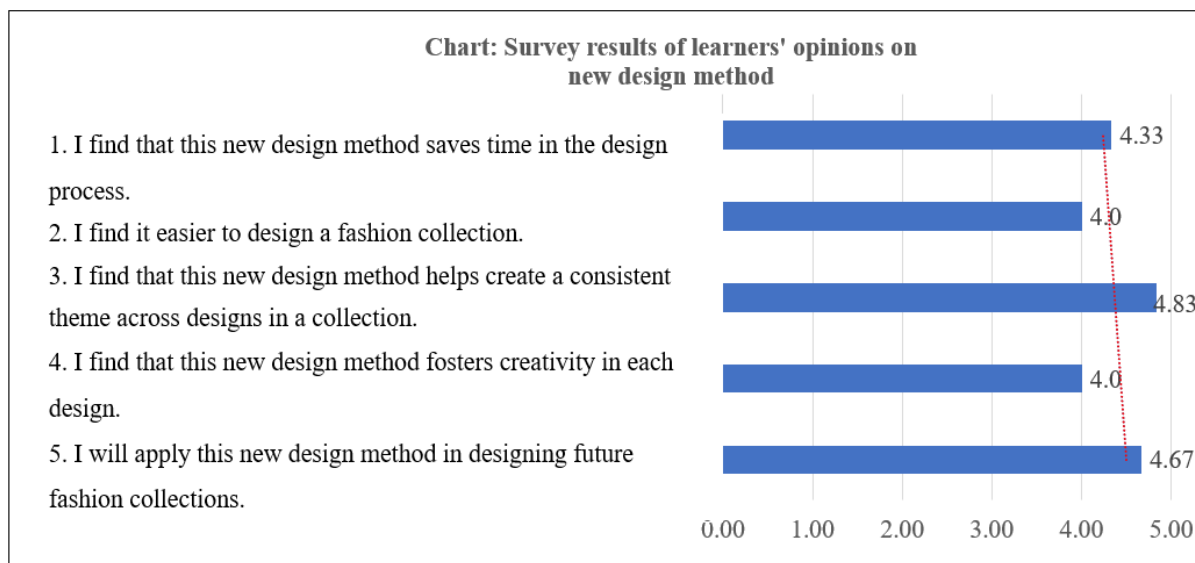


Figure 2. Chart of evaluation results for the new teaching method

Thus, the outcomes of learning with the new method can be compared to students' previous collections, where they researched the same topics and ideas. To better illustrate the differences, a specific student's assignment was selected for comparison.

Using traditional methods, students were still able to design consistent collections. However, the uniformity in creativity varied—some designs were strong, while others were less satisfactory due to certain form-related issues. Notably, when using traditional methods, students reported that

they spent a significant amount of time in the creative process and frequently required feedback from instructors to review and refine their samples.



Figure 3. The collection was designed by Nguyen Ngoc Quynh using traditional methods in the classroom.

4. CONCLUSION

Designing a fashion collection is a critical objective in the creative process. The application of mind maps, along with the principles of repetition and variation, has significantly improved the efficiency of the design process. When comparing this new design method to traditional methods, the results indicate that its effectiveness lies not only in the creative quality of the designs but also in the reduction of research and analysis time for moodboard data and conceptual icons.

Moreover, this method enhances design skills by enabling learners to creatively develop synchronized fashion models with greater ease. Fashion design is a challenging discipline that requires a comprehensive understanding of culture, market research, design thinking, pattern-making, sewing techniques, and decoration. Therefore, exposing learners to innovative methods accelerates the creative process in sketching fashion collections, freeing up time for further research and exploration.

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IMPROVING QUALITY OF TRAINING TOURISM HUMAN RESOURCES IN THE CONTEXT OF THE INDUSTRIAL REVOLUTION 4.0

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ABSTRACT

The Industrial Revolution 4.0 not only brings opportunities but also creates great challenges for Vietnam's tourism industry, especially in training tourism human resources to meet various market needs. However, it is the fact that the quality of training human resources in tourism is still limited and inadequate in response to the requirements of innovation and integration, which has significantly affected the development of the tourism industry in Vietnam. The article employs a theoretical research method combined with analysis and experience summarization to present general theoretical foundations on the issue of tourism human resource training in the context of the Industrial Revolution 4.0 in Vietnam. The article analyzes the impact of the Industrial Revolution 4.0 on tourism human resources and indicates the current situation of training human resources for tourism in Vietnam. As a result, this article proposes five measures to train high-quality tourism human resources to meet the requirements of educational innovation in the context of international integration.

Keywords: Industrial Revolution 4.0, training quality, tourism human resource, current situation.

1. INTRODUCTION

In the period of time before the emergence of the Covid 19 pandemic, the tourism industry had a remarkable growth rate, and tourism demonstrated its role as a "spearhead" of the country's economy. According to statistics from the Tourism Information Center, Vietnam National Authority of Tourism, from 2015 to 2019, the number of tourists was growing up every year - international visitors increased 8.4 times, reaching over 18 million; Domestic tourists raised 3 times, reaching 85 million in 2019. Total revenue from tourists peaked at 32.8 billion USD in 2019, an increase of 7.9 times compared to 2015, directly contributing 9.2% to GDP. Also in 2019, Vietnam ranked in the top 10 countries with the highest tourism growth rate in the world [2]. However, at the end of 2019, the whole world was shaken when the novel Covid-19 virus appeared, which seriously affected economic development, with the tourism industry being the most strongly affected. Vietnam is also one of the countries heavily affected by this chimneyless industry. Having gone through many difficulties, as the pandemic gradually comes under control, Vietnam is gradually restoring its tourism industry.

According to the 2022 Economic Report of the General Statistics Office, the number of international visitors to Vietnam in 2022 reached more than 3.66 million people. The number of international visitors to Vietnam in 2022 was 23.3 times higher than in 2021. Vietnam has now opened to welcome tourists, and international flights have been restored.

In December 2022, Vietnam welcomed more than 707 thousand international visitors, an increase of 18.5% compared to the previous month. In 2022, international visitors to Vietnam will reach

more than 3.66 million people. Of the total of more than 3.66 million international visitors to Vietnam in 2022, visitors arriving by air will reach 3.277 million, accounting for 89.5% of international visitors to Vietnam and 29.5 times higher than the number of international visitors to Vietnam. last year. International visitors arriving by road reached 380.9 thousand people, accounting for 10.4% and 8.4 times higher; by sea reached 3.1 thousand people, accounting for 0.1% and 5.1 times higher.

According to Vietnam National Authority of Tourism, Ministry of Culture, Sports and Tourism: In 2023, Vietnam's tourism industry sets a goal of welcoming 110 million tourists, including about 8 million international visitors and tourists. domestic calendar about 102 million visits. Total revenue from tourists reached about 650 trillion VND. The return of the tourism industry is also a good sign, on the other hand it is a disturbing sign because management methods and workers in the tourism sector will have to change rapidly in the context of the revolution. industrial network 4.0, while the training of Vietnamese human resources is still limited in quantity and quality. According to statistics from the Institute for Tourism Development Research, the number of places involved in tourism training, including universities, colleges, vocational schools, training centers, training companies, and vocational training centers, has significantly increased recently. However, there remains a gap between supply and demand in tourism human resource training, and training efforts are still heavily concentrated in major cities, lacking uniformity across the country. Furthermore, there have been many shortcomings in tourism human resource training, particularly in the context of the Fourth Industrial Revolution [5]. Based on these influencing factors, the article analyzes the current situation of human resource training in Industrial Revolution 4.0 and proposes solutions to address these issues.

2. LITERATURE REVIEW

Currently, the whole world is very excited with the 4.0 industrial revolution, this is a revolution in smart manufacturing based on breakthrough achievements in Fields: artificial intelligence, virtual reality, mobile network, Internet of Things, cloud computing, automatic machinery and etc with the foundation of breakthroughs in digital technology. This is an unprecedented revolution in human history, it will happen very quickly, it is a combination of technology in the fields of physics, digitalization and biology, creating completely new and exciting possibilities, has a profound impact on the world's political, social and economic systems.

Industrial Revolution 4.0 in the field of tourism is the application of smart technologies based on digital technology to optimize the process and activities of sightseeing, relaxation, entertainment, etc. of tourists, enhance service capabilities and attractiveness of tourist destinations. Applying 4.0 technology helps businesses expand space, time and tourism market. In addition, technology also helps reduce labor costs, production costs, reduce the cost of tourism services, and improve the quality of customer service. Besides, customers also save more time and money in booking and paying through online applications.

In the context of globalization with strong competition from countries in the region and around the world, the application of 4.0 technology in the field of tourism will contribute to

creating unique tourism products that satisfy the taste of tourists. In addition, the 4.0 industrial revolution also helps locate and assert the Vietnamese tourism brand with international tourist friends.

Thus, it can be seen that new technologies in the 4.0 industrial revolution applied in the field of tourism will create many changes in management, business, and consumption methods and are associated with new requirements for education qualifications, skills and qualities of human resources in the tourism industry. Industrial Revolution 4.0 will change the customer market's needs and approach to tourism, change some job positions in the tourism industry and change professional standards in the tourism industry.

As Industrial Revolution 4.0 continues to develop, impacting all aspects and fields of social life, education is no exception. The effects of Industry 4.0 have significantly transformed the approaches and methods used in training tourism human resources. All aspects of human resource training must adapt to meet societal demands. There will be new challenges for the current workforce and the labor market, as the requirements have become more complex. Those working in the tourism industry not only need to possess solid professional knowledge but also require soft skills. Moreover, society demands from them the ability to adapt quickly, be agile in response to the era, technology, and machinery, and have the capacity to connect with the world around them.

3. RESEARCH METHODOLOGY

The article employs a theoretical research method by examining various sources such as journals, scientific papers, academic works, decrees, and statistical data from Vietnam National Authority of Tourism as the theoretical foundation for the study. Additionally, it uses analysis and experience summarization methods to identify the impacts of the Fourth Industrial Revolution on the tourism industry in general and on tourism human resource training in particular, as well as to assess the current state of tourism human resources in the context of Industry 4.0. Based on these findings, the article proposes solutions to address the identified issues

4. RESEARCH RESULT

4.1. Current status of tourism human resources in Vietnam

Vietnam tourism has many advantages in nature, culture, history, etc. Besides the achieved results, the tourism industry still has weaknesses, there is no commensurate with the development potential and strengths. Central Resolution 8 of the Politburo signed on January 19, 2017 clearly states "The tourism industry's development has not been commensurate with the potential, strengths and expectations of society. Tourism products are not really attractive and differentiated, and their competitiveness is not high. Service quality does not meet requirements. Management effectiveness and efficiency are not high. The tourism environment, food safety and traffic safety still have many shortcomings. Management promotion work still has many limitations in terms of human resources, coordination and professionalism, and the efficiency is not high. Human resources are both lacking and weak..." [1].

According to the Vietnam National Authority of Tourism, our country's staff is not really complete. Each year the tourism industry needs 40,000 workers, but the number of graduates from tourism training establishments is about 15,000 people, of which more than 12% have college or university degrees... The labor source in The tourism sector is not only lacking in quantity but also weak in expertise. The quality of human resources provided by training facilities to the tourism labor market has not met the requirements of businesses. The whole country currently has about 425 thousand direct workers and more than 750 thousand indirect workers, most of whom are under 30 years old (60%); distributed in the Northern region 40%, the Central region 10% and the Southern region 50%. State management and business administration workers account for 25%; Direct service workers account for 75%. Only 42.5% of workers have been trained in tourism professions; 3.5% of staff have university and postgraduate degrees. 57.7% of workers can use foreign languages, the largest being English, 40% [2].

Tourism training and vocational training establishments at all levels have been formed and expanded, with a variety of ownership types, training levels, and vocational training levels. According to data from the Institute for Tourism Development Research, there are currently 284 establishments participating in tourism training, including 62 universities, 80 colleges, 117 secondary schools, 2 training companies and 23 vocational training center. This shows that the workforce in the tourism sector is gradually being standardized and equipped with knowledge and skills for the integration and development process [5]. The distribution of tourism training facilities is concentrated mainly in big cities, such as Hanoi and City. Ho Chi Minh, Da Nang, Nha Trang,... Besides, the quality of training between vocational training institutions also has differences in lecturer qualifications, technical facilities, and practical practice conditions. vocational training, etc. This is one of the reasons why the quality of tourism human resources is uneven among localities.

The 4.0 industrial revolution is being widely use in all areas of social life, including tourism. However, current tourism training facilities have not made strong changes to adapt to the development of technology, and there are still weaknesses (1) Training programs and curricula do not have the innovation, the amount of time for practice and internship at the enterprise is limited; (2) The teaching staff at training institutions is lacking and weak; (3) The application of new technology in theoretical and practical teaching has not been promoted; (4) Students need to be trained in soft skills, new technology application skills, communication skills, and foreign language skills in business activities; (5) The connection between schools and businesses, training according to the needs of businesses and society still has many shortcomings,...[4]

4.2. Several measures to improve the quality of human resource training in the tourism industry in the context of the 4.0 industrial revolution in Vietnam

- First: Raising awareness among teaching staff and students about the 4.0 industrial revolution and highlighting new requirements for the capacity of human resources in the field of tourism to learn and innovate actively. Human resources throughout the industry must be aware properly of the 4.0 industrial revolution and the impact of the new wave of technology on the tourism industry and each job position. From there, every human resource in the industry is

expected to be proactive and attempt to learn and innovate, improving knowledge and proficiency in using new technology.

- Second: Complete mechanisms, and policies, and adjust tourism human resource development planning to suit the new situation: The Government needs to review, adjust, and promulgate documents directing and guiding specific tasks. Tourism human resource development services in the context of the 4.0 industrial revolution such as policies on training, reunions, rewards... to create favorable legal frameworks for human resource development. Tourism human resource development planning needs to be updated and adjusted based on forecast results and calculate the impacts of the 4.0 industrial revolution on the customer market, on competitors and on the labor market. Determine specific requirements for quantity and quality of human resources in the new context.

- Third: Improving the quality of lecturers is an important requirement to improve training quality. Training and fostering the development of lecturers and teachers of tourism vocational training establishments can be carried out in many forms, especially visiting and studying to improve teaching qualifications abroad. Focus on improving computer skills, foreign languages and application of information technology so that lecturers are capable of teaching, self-research, cultivating expertise directly with foreign experts, and attending conferences and seminars, international forum for studying and training abroad.

- Fourth: Innovate the Tourism training program and teaching and learning methods. Tourism is an integrated economic sector, so the development of training program frameworks needs to take into account integration factors to ensure training framework programs are consistent with regional and international training standards. Therefore, it is necessary to consult and learn from international experiences in developing training programs and textbooks. Innovate goals, content, and tourism training programs towards standardization and modernization; Gradually approach working capacity requirements in the fields of the industry, advanced levels of the region and the world, with Vietnamese characteristics, ensuring continuity between training levels. Change lecturers' teaching methods and students' learning in a positive and proactive direction. The content of the lecturer's lectures must be designed to be intuitive, vivid and specific with templates, forms, images, films... associated with professional reality and with businesses. Change testing and assessment methods based on capacity assessment, including 3 requirements: knowledge, skills, and attitudes.

-Fifth: Linking training/vocational training establishments with tourism businesses in the training, practice, and internship process of students to facilitate narrowing the gap between training and future employment graduates.

5. CONCLUSION

Thus, it can be seen that as society continues to change and the Fourth Industrial Revolution advances, it has impacted many aspects of the tourism sector, particularly the workforce in the tourism industry and the system responsible for training tourism human resources. The 4.0 industrial revolution is both an opportunity and a new challenge for the tourism industry. The

above article has outlined the theoretical and practical basis for the 4.0 Industrial Revolution, analyzing the impact of the 4.0 Industrial Revolution on human resource training in Vietnam in the context of the revolution. Industry 4.0 is increasing rapidly in Vietnam. The article also points out the current situation of the impact of the 4.0 industrial revolution on the tourism industry, and on that basis also proposes corrective measures in training tourism human resources in the context of Revolution Industry 4.0. The focus is on innovating the tourism training curriculum and teaching and learning methods. If the stated solutions are implemented, they will contribute to improving the quality of tourism human resource training and meeting societal demands in the current era of Industry 4.0.

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INTERNATIONAL EXPERIENCES IN PRIVATE SECONDARY SCHOOL GOVERNANCE

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ABSTRACT

This article offers an in-depth analysis of international best practices in governing private secondary schools, focusing on countries with advanced educational systems. The study aims to identify the critical factors that contribute to the success of private secondary school governance and explore how these lessons can be effectively applied within the context of Vietnam's education system. By employing a comprehensive literature review and conducting a comparative analysis of various governance models, this research uncovers strategies that have proven effective across different educational environments. Key findings highlight that financial autonomy, high-quality teacher recruitment and development, leadership effectiveness, and well-defined long-term strategic planning are essential components of a successful private secondary school governance framework. Additionally, the research emphasizes the importance of stakeholder engagement, including active relationships with parents and local communities, in ensuring the sustainability of these institutions. The implications for Vietnam suggest that by adapting and implementing these strategies, private secondary schools can enhance their operational efficiency and educational outcomes. Ultimately, this study offers valuable insights for policymakers and school leaders seeking to strengthen the private school sector, providing a roadmap for achieving sustainable growth and improved quality of education in a competitive global landscape.

Keywords: private school governance, educational leadership, financial autonomy, teacher quality, international best practices

1. INTRODUCTION

In recent decades, the private secondary school system has experienced rapid growth globally, especially in countries with advanced education systems such as the United States, the United Kingdom, Australia. These schools not only meet diverse learning needs but also contribute to innovations in educational governance. According to research by Barber and Mourshed (2007), high-performing education systems demonstrate flexibility and creativity in management, particularly within private schools. The development of these schools is driven by factors such as financial autonomy, effective human resource management, and teacher quality. These are areas where public education systems, despite their many advantages, often face limitations in implementation and execution (Alavi & Gill, 2017).

Managing private secondary schools involves more than ensuring stable financial resources; it also includes sustainable development in terms of organizational structure, personnel management, and maintaining educational quality. This requires schools to have a comprehensive and long-term management strategy. Research by Bass and Avolio (1994) shows that transformational leadership in schools can play a crucial role in improving organizational

structures, thereby enhancing teaching and learning quality. However, the biggest challenge for private secondary schools, particularly in developing countries like Vietnam, lies in the lack of financial resources and the ability to maintain quality over the long term (Becker & Lee, 2019).

One of the most prominent issues in managing private secondary schools is financial autonomy. Research by Brown and Davis (2017) indicates that the financial sustainability of private schools depends on efficient financial management, which includes the rational use of resources, attracting investment from the community, and building partnerships with external organizations. However, financial autonomy also comes with challenges, especially when schools face competitive pressure from public institutions and the high expectations of parents regarding educational quality. This is particularly true in the context of globalization, where international standards increasingly influence the management and operation of schools (Feng, 2023).

Furthermore, ensuring the quality of teaching is an indispensable aspect of private secondary school management. According to research by Hargreaves and Fullan (2012), teacher quality plays a key role in improving educational outcomes. Schools must make significant investments in developing their teaching staff through continuous training, professional development support, and creating opportunities for teachers to update modern teaching methods. One successful model of human resource management is Epstein's (2018), which emphasizes collaboration between teachers, schools, and parents to improve educational quality.

In Vietnam, the private secondary school system is rapidly expanding, especially as the demand for high-quality education grows. However, this development also presents many challenges in management, as private schools face not only financial issues but also the need to ensure educational quality in an increasingly competitive environment. Therefore, studying and learning from international experiences in private secondary school management is essential. According to an OECD (2019) report, countries with successful private school systems have well-defined strategies for management and development, ranging from financial management and teacher development to building relationships with the community. The main research question of this paper is: "What lessons can international experiences in private secondary school management provide for the educational context in Vietnam?" This paper will analyze successful management models from countries with developed education systems and assess the key factors influencing the sustainable development of private secondary schools. These factors include financial autonomy, staff quality, and long-term development strategies. Based on these findings, the paper will provide specific recommendations for applying these experiences to Vietnam's education system.

The structure of this paper will include the following sections: the introduction will provide the background and main research question; the literature review will assess previous research on private secondary school management worldwide; the methodology section will present data collection and analysis methods; the results section will provide the main findings on management experiences; the discussion section will draw lessons applicable to the Vietnamese context; and finally, the conclusion will offer policy recommendations based on the research findings.

2. LITERATURE REVIEW

Private secondary school management has become a significant research topic in the field of education worldwide, particularly in countries with advanced education systems. Countries such as the United States, the United Kingdom, Australia have pioneered the development and implementation of successful private education management models, contributing to improved educational quality and fostering competition in the sector. Previous studies on private secondary school management have focused on various aspects, including financial management, leadership, human resource management, and how these schools face challenges and opportunities in the context of globalization. This section will analyze key studies on private school management, emphasizing the critical factors that have been proven to contribute to the success of these educational institutions.

Developed countries have established advanced private education management models, enabling private schools to compete not only in terms of educational quality but also organizational management. Research by Barber and Mourshed (2007) shows that private secondary schools in the United States and the United Kingdom succeed by adopting flexible management strategies, which include enhancing autonomy in financial and academic management. In these countries, private schools typically have greater decision-making power over curriculum adjustments and human resource management, allowing them to quickly adapt to changes in the global educational environment (Becker & Lee, 2019).

In Singapore, the development of private schools has become a success model thanks to strong governmental support policies. These schools benefit from flexible financial mechanisms and receive support in implementing innovative educational strategies, including the integration of technology into teaching and management (Feng, 2023). Australia is another example, where private schools have thrived through a combination of financial autonomy and long-term development strategies (Epstein, 2018).

Financial management is a key factor that helps private secondary schools maintain quality and stable operations. According to research by Brown and Davis (2017), private schools often apply effective financial management strategies, including resource optimization and revenue diversification. Financial autonomy not only helps private schools avoid over-dependence on tuition fees but also enables them to invest in modern curricula, upgrade facilities, and develop high-quality teaching staff. In the United States, private schools not only rely on tuition but also actively seek funding from the community and corporate organizations (Becker & Lee, 2019). This provides them with flexibility in financial management and ensures long-term stability in maintaining educational quality.

In developed countries, private secondary schools have significant autonomy in deciding financial strategies. Epstein's (2018) research indicates that this autonomy allows schools to be more flexible in adjusting costs and allocating budgets to essential areas such as technology, infrastructure, and teacher training programs. This is particularly important in the context of globalization, where private schools must continuously improve quality to meet the increasingly stringent demands of parents and students.

Leadership and human resource management are crucial elements in the development and success of private secondary schools. Advanced leadership models, such as transformational leadership introduced by Bass and Avolio (1994), have proven to be highly effective in the educational environment. Transformational leadership focuses not only on supervision but also on motivating staff, helping to develop faculty with the necessary skills to respond to changes in education. According to Fullan (2019), the success of private secondary schools is often tied to the quality of leadership, particularly the ability of managers to build vision and develop human resources.

Private schools in Australia and the United States regularly organize continuous professional development programs for teachers, aimed at improving teaching capacity and ensuring they are always up-to-date with the latest educational methods (Guskey, 2018). This enables private schools not only to retain excellent teachers but also to promote the sustainable development of the education system.

Despite many opportunities for growth, private secondary schools also face numerous challenges. One of the biggest challenges is fierce competition from public schools, which often receive strong financial support from the government (Henderson et al., 2020). This is particularly evident in the United Kingdom, where private schools must continuously improve quality to attract and retain students.

Moreover, maintaining and developing private school systems also presents challenges in financial and human resource management. However, these challenges also create opportunities for schools to be innovative in their management and operations. Research by Clark and Laidler (2020) emphasizes that ensuring transparency and efficiency in financial management is key to sustaining the long-term viability of private secondary schools in today's context.

The literature review reveals that factors such as financial autonomy, effective educational leadership, and human resource management are core elements of the success of private secondary schools in developed countries. However, to sustain and develop, these schools must also face many challenges, including competitive pressure and high demands for educational quality. Private secondary schools in Vietnam can learn from international experiences to apply effective management strategies, thereby improving educational quality and meeting the demands of modern society.

3. METHODOLOGY

This study applies a literature review and international comparative analysis to clarify the factors of private secondary school management in developed countries. First, the document analysis method is used to synthesize and analyze academic sources and government reports related to private school management from countries such as the United States, the United Kingdom, Australia, and Singapore. These materials include studies from reputable educational journals and official reports from international organizations such as the OECD and UNESCO. These documents provide a theoretical and practical basis for school management models, covering issues such as finance, leadership, and human resource management.

In addition, the international comparative method is applied to analyze the similarities and differences in private secondary school management between countries. This method helps to identify the key factors leading to the success or failure of private school management and offers valuable lessons that can be applied to the context of Vietnam. The study carefully examines management strategies from countries with developed education systems, evaluating the models that are most suitable for the domestic education system.

Data for the study were collected from official reports by the OECD, UNESCO, and specialized academic journals such as *Educational Review*, *International Journal of Educational Management*, and *Educational Leadership*. These data sources ensure the comprehensiveness and reliability of the analysis results.

3.1. Findings

3.1.1. Financial autonomy

Financial autonomy is a crucial factor for the sustainable development and success of private secondary schools, especially in developed countries such as the United States, the United Kingdom, and Australia. Private schools in these countries do not rely solely on tuition fees to maintain operations but leverage various financial sources, including grants, community contributions, support funds, and partnerships with economic entities. This enables them to be flexible in managing financial resources, allowing for strategic investments in areas such as improving facilities, enhancing teacher quality, and developing modern curricula.

In the United States, private secondary schools often do not receive government financial support; instead, they are financially autonomous through tuition fees, community grants, and nonprofit organizations. Research by Becker and Lee (2019) indicates that private schools in the United States can mobilize funding from alumni, corporate entities, and educational investment funds. Good financial management allows these schools to focus on investing in high-quality educational programs, modern infrastructure, and excellent faculty development. This helps schools maintain competitiveness and attract talented students (Barber & Mourshed, 2007).

In the United Kingdom, private secondary schools operate on a similar financial autonomy model, but they also benefit from tax incentives and grants from both government and private organizations. Clark and Laidler (2020) emphasize that flexibility in financial management allows private schools in the UK to freely adjust tuition fees while increasing investments in infrastructure and faculty development. This not only helps schools maintain high educational quality but also enhances their competitiveness with public schools.

In Australia, the financial model of private schools is based on a combination of tuition fees and government support. This helps schools reduce financial pressure from tuition fees while also having additional resources to invest in developing academic programs and infrastructure. Brown and Davis (2017) pointed out that private secondary schools in Australia are not only financially autonomous but also manage their resources effectively, creating conditions for sustainable development. Feng (2023) suggests that financial autonomy has enabled schools in Australia to thrive, particularly in improving teaching quality and maintaining modern infrastructure.

3.1.2. Educational leadership

Educational leadership is a core factor that helps private secondary schools maintain and improve the quality of education. School leaders play a strategic role in building faculty teams, developing curricula, and creating a positive learning environment. Bass and Avolio (1994) emphasized that transformational leadership, where leaders inspire and foster the development of staff, can enhance performance and bring about positive changes in the school environment.

In the United States, educational leaders at private secondary schools have significant autonomy in recruiting and training teachers. Guskey (2018) demonstrated that investing in professional development for teachers is a key factor in improving teaching quality. Private secondary schools in the U.S. regularly organize professional development programs and encourage teachers to participate in courses that enhance their pedagogical skills. This not only helps teachers stay updated with the latest teaching methods but also improves their performance and better meets the learning needs of students (Anderson & Dexter, 2005).

In the United Kingdom, school leaders are responsible not only for personnel management but also for shaping the school's strategic development. Henderson et al. (2020) pointed out that leaders at private schools in the UK focus on developing curricula that meet the diverse needs of students and the demands of the international labor market. They also play an important role in building relationships with parents and the community, helping schools gain support and contributions from various sources. This contributes to enhancing the reputation and quality of private schools (Council for American Private Education, 2018).

In Australia, educational leadership plays a decisive role in ensuring the success of private secondary schools. Leaders focus not only on administrative management but also on building and developing long-term strategies to improve the quality of education. Fullan (2019) suggests that educational leaders in Australia often focus on creating a flexible learning environment where students not only develop academically but are also equipped with essential soft skills such as critical thinking and teamwork. They also encourage innovation in teaching, providing students with opportunities to engage with advanced learning methods and international curricula.

Fullan and Scott (2014) emphasized that the ability to manage change is a crucial factor that helps educational leaders adjust school strategies to align with new educational trends. Effective leadership enables private schools to meet the demands of modern society while fostering comprehensive development for both teachers and students. Hargreaves and Fullan (2012) also argued that educational leaders need to cultivate a positive learning culture, where teachers and students grow together and contribute to the success of the school.

3.1.3. Educational technology

Educational technology has become an integral part of modern education systems, especially in private secondary schools. The application of technology in teaching and management not only improves the quality of education but also creates a flexible learning environment that helps students develop comprehensively. Private secondary schools in the United States, the United Kingdom, and Australia have pioneered the use of educational technology, which has enhanced teaching and management efficiency while also providing significant competitive advantages.

In the United States, private secondary schools have widely adopted Learning Management Systems (LMS) and other digital tools to optimize the learning process. Anderson and Dexter (2005) pointed out that the application of technology in school management enables teachers to accurately and effectively track student progress. Technology not only helps personalize learning but also allows teachers to easily adjust teaching methods to meet the needs of individual students. Becker and Lee (2019) also highlighted the role of technology in enhancing teacher-student interaction, improving student engagement in learning, and helping them develop essential technological skills for the future.

In the United Kingdom, educational technology is used not only to improve teaching quality but also to manage school administration more effectively. Clark and Laidler (2020) analyzed that the use of School Information Management Systems (SIMS) in private schools has optimized management processes and supported schools in making accurate and timely decisions. Private schools in the UK have also invested in teaching technologies, such as interactive whiteboards and online learning platforms, allowing students to access knowledge anytime, anywhere. This not only improves teaching quality but also helps students develop self-learning skills and time management abilities effectively.

In Australia, the integration of technology into the education system has become a common trend in private secondary schools. Feng (2023) emphasized that the use of technology has significantly improved teaching and learning management capabilities in private schools. Online learning platforms and automated assessment tools have reduced teachers' workloads while providing students with modern learning aids. Technology also enables Australian private schools to build flexible learning programs that meet the demands of the global labor market and help students develop critical skills such as critical thinking, problem-solving, and teamwork (Fullan & Scott, 2014).

The application of educational technology is not limited to classrooms but also significantly supports school management processes. Guskey (2018) pointed out that technology has improved transparency in financial management, organization, and student administration. Information management systems not only reduce errors in management processes but also allow schools to use resources more efficiently. This enhances the competitiveness of private schools in an increasingly globalized education context, meeting the growing demands of parents and students.

3.1.4. Community relations

Community relations play a crucial role in building the reputation and sustainable development of private secondary schools. Maintaining strong relationships with parents and the community not only improves the quality of education but also creates a comprehensive learning environment for students. Private schools in the United States, the United Kingdom, and Australia all focus on collaborating with the community and parents to ensure that students receive well-rounded support in their learning process.

In the United States, private schools often build strong relationships with parents through interactive programs and regular parent-teacher meetings. Epstein (2018) emphasized that parental involvement in the educational process not only helps students develop better but also provides schools with financial and moral support from families. Private schools in the U.S. often organize

extracurricular activities, community events, and charity programs to strengthen the bond between students and the community. This helps students better understand social responsibility and develop the soft skills necessary for life beyond school (Barber & Mourshed, 2007).

In the United Kingdom, private schools frequently establish close relationships with the local community by organizing cultural, sports, and charity events. Henderson et al. (2020) argued that cooperation between schools and the community not only enhances the school's reputation but also creates valuable learning opportunities for students. Private schools in the UK often collaborate with corporate organizations to provide students with internship opportunities and real-world career experiences, helping them prepare better for the future (Knight, 2017). Community support also provides schools with additional financial and human resources to invest in high-quality educational programs.

In Australia, collaboration with the community is considered one of the long-term development strategies of private schools. Brown and Davis (2017) analyzed that private schools in Australia often partner with corporate organizations to provide students with internships and career development opportunities. Building strong relationships with the community also helps private schools in Australia strengthen their ties with parents and local communities, creating a friendly and supportive learning environment for students. Fullan (2019) emphasized that school-community collaboration helps students not only develop academically but also cultivate social skills and an awareness of social responsibility.

Furthermore, community involvement in the educational process enhances the transparency and accountability of schools. Hargreaves and Fullan (2012) argued that cooperation with the community helps private schools build a strong support network, thereby improving educational quality and enabling sustainable development. Maintaining good relationships with the community not only elevates the school's reputation but also creates learning and career development opportunities for students, helping them better prepare for their future lives and careers.

3.2. Discussion

3.2.1. Application to the Vietnamese context

Studying private secondary school management models in the United States, the United Kingdom, and Australia provides valuable lessons that can be applied to Vietnam's education system. Although there are significant differences in educational structure, policy, and culture, some core elements from these models can be effectively adapted to Vietnam.

First, financial autonomy, which has been successfully implemented in private schools in the U.S., UK, and Australia, could bring substantial improvements to Vietnam's private school system. Private schools in Vietnam currently rely largely on student tuition fees and do not receive government support. This limits their financial resources and creates challenges in maintaining and improving the quality of education (Clark & Laidler, 2020). However, the financial autonomy model in the U.S., where schools actively seek funding from nonprofit organizations, communities, and businesses, could be a viable solution for Vietnam's private schools (Becker & Lee, 2019). Establishing relationships with the community and creating financial support networks

would not only enhance schools' competitiveness but also alleviate the financial burden on parents (Henderson et al., 2020).

Second, the application of technology in management and teaching is a trend that should be promoted in private secondary schools in Vietnam. Technology not only optimizes teaching processes but also creates a more flexible learning environment where students can learn anytime, anywhere (Anderson & Dexter, 2005). In Vietnam, investment in educational technology remains limited, especially in private schools. The adoption of technologies such as online Learning Management Systems (LMS) and interactive online teaching tools would help schools optimize management processes and enhance the learning experience for students (Feng, 2023).

Finally, educational leadership plays a crucial role in improving teaching quality and management in private schools. Private schools in Vietnam can learn from the transformational leadership models in the U.S. and UK, where educational leaders focus not only on management but also on inspiring and motivating the development of both teachers and students (Bass & Avolio, 1994). This would help create a positive learning environment that supports the comprehensive development of students (Hargreaves & Fullan, 2012).

3.2.2. Potential challenges

While there is great potential, applying school management models from developed countries to Vietnam is not without challenges. First, cultural differences and the education system are significant barriers. Vietnam has a very different educational culture, where parents and students often have high expectations of government support. Transitioning to a model of financial autonomy, where private schools must seek funding and collaborate with the community, may face opposition from some parents (Knight, 2017). They may fear that this could lead to increased tuition fees and a decline in educational quality if schools are unable to secure stable funding.

Second, Vietnam's management systems and policies could create obstacles in implementing financial autonomy and educational leadership models. Education policies in Vietnam still impose many limitations on financial and personnel management, particularly in private schools (Levin, 2018). The lack of mechanisms that encourage financial autonomy or the adoption of modern technologies in management may slow the process of innovation and improvement.

Third, another key challenge is the capacity of the teaching and leadership staff. To effectively apply the management models from developed countries, Vietnam needs to invest more in professional development for teachers and educational leaders (Guskey, 2018). Developing visionary leaders capable of adapting to new trends in education is essential to ensure that governance changes are implemented efficiently and sustainably (Fullan & Scott, 2014).

3.2.3. Contributions of the research

This research contributes to expanding the understanding of private secondary school management models in developed countries while offering specific suggestions for their application in the Vietnamese context. Compared to previous studies, this research not only focuses on analyzing school management factors but also proposes ways to apply them to a developing education system like Vietnam (Brown & Davis, 2017). The novelty of this research

lies in providing a comprehensive view of the factors influencing the success of private schools, including finance, technology, and educational leadership. Furthermore, the study emphasizes the potential challenges Vietnam may face when applying these models, particularly in the context of cultural and management system differences.

The research findings not only provide lessons for the private education system in Vietnam but also open new directions for improving the quality of education in public schools. Further studies on successful educational management models worldwide will help Vietnam find suitable solutions to improve educational quality, meeting the growing demands of society and the global labor market.

4. CONCLUSION

This study has analyzed successful management models in private secondary schools in the United States, the United Kingdom, and Australia, focusing on three key factors: financial autonomy, educational leadership, and community relations. The results show that financial autonomy not only helps schools maintain sustainability but also enhances their competitiveness and ability to invest in educational quality. Educational leadership plays a crucial role in creating a positive learning environment, inspiring staff, and improving teaching quality. Strong relationships with the community and parents have fostered engagement and supported students' holistic development. In the context of Vietnam, educational administrators should encourage private schools to enhance financial autonomy by expanding funding sources from the community and businesses, thereby reducing reliance on tuition fees. At the same time, developing a leadership team with strategic vision and high adaptability is essential to ensure success in the context of globalization. Lastly, building strong relationships with parents and the community will help Vietnam's private schools not only improve educational quality but also achieve sustainable development.

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SETTING GOALS MAKES LEARNING BETTER: A SUMMARY OF TIPS TO SET EFFECTIVE LANGUAGE LEARNING GOALS

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ABSTRACT

This report highlights the importance of setting effective language learning goals and the benefits they bring in terms of enhanced learning outcomes. The search for specialized materials about setting effective goals was conducted to have a general background related to goal setting and language learning. An interview with the successful students who had an average score of over 7.0 during their three academic years at university was also carried out to investigate the benefits of effective goals. They found that having well-defined language learning goals enhances learning outcomes and progress. Effective strategies for goal setting and self-monitoring were provided, with the majority of participants favouring setting clear and specific goals. Significantly, the findings provide valuable insights and recommendations for language learners seeking guidance in setting and achieving their language learning goals.

Keywords: Setting goals; tips; effective language learning goals.

1. INTRODUCTION

Setting goals encourages and shapes learners' practice in gaining outcomes in a variety of aspects, including language learning. Good, practical goals actually boost learners' motivation, guide their efforts, and shape their educational experiences. In terms of language proficiency acquisition, Locke and Latham (2002) discovered that those who have well-defined goals outperform those who have no goals at all.

The impacts of goal-setting in language learning have been discussed and reported for a long time. Goals are first believed to make learners focus and tailor their efforts towards particular language skills or aspects requiring improvement, which leads to the efficient allocation of time and resources and then enhances the learning consequence (Locke & Latham, 2002). Secondly, effective goals in language learning do not only promote self-regulation but also foster self-monitoring. With the hope of attaining the goals, learners tend to assess their progress regularly, identify deficiencies, and adapt their learning strategies accordingly (Zimmerman, 2008). Furthermore, setting well-defined goals develops a sense of accomplishment and motivation among learners. Approaching their targets actually creates the typical feelings of functioning, like intrinsic motivation, helping learners maintain their continual progress (Cheng, 2023).

With the purpose of examining the typical influences of effective goals on successful language learners at a university in Binh Duong, this study investigates the impact of goal-setting on language learning outcomes, offers valuable insights, and summarizes tips for learners on establishing effective language learning targets.

2. LITERATURE REVIEW

2.1. Definitions of Goal-Setting

Locke & Latham (2002) defined goal-setting theory as a plan that drives people's behavior toward specific objectives within a set timeframe. People with practical goals are supposed to develop intrinsic motivation. Moeller *et al.* (2012) expanded on the concept; goal-setting was described as the process of issuing clear, effective targets for task performance. Along with developing a strategic action plan, goal-setters find it a guide to tailoring efforts toward these targets. And studies by Locke & Latham (2015) support the positive influence of goal planning on task performance, highlighting its role in helping individuals prioritize efforts and make progress toward achieving their desired outcomes.

Locke & Latham (2002) generalize the goal-related concepts into two main theories: goal-setting theory and goal orientation theory. Goal-setting theory, which emerges from industrial and organizational psychology, emphasizes workplace motivation. It suggests that setting goals is essential, as goal-directed behavior drives human action; hence, goals act as a source of motivation for tasks and behaviors. In contrast, goal orientation theory originates in educational settings and is particularly relevant to understanding students' learning and performance (Dörnyei, 2005 cited in Cheng, 2023). This theory highlights the connection between an individual's performance and the goals they establish. In the context of second language learning, Dörnyei (2005) also points out that goals are commonly referred to as orientations. Adding to this, when goals are paired with timely and specific feedback, they lead to better performance, higher achievement, increased confidence, and improved self-regulation (Moeller *et al.*, 2012).

Schunk (2003) (cited in Moeller *et al.*, 2012), however, clarified that simply setting personal goals doesn't automatically lead to improved achievement. Several key factors need to be considered, including the properties of effective goals. There has been a lot of research that presents different models for defining quality goals. In a study, Moeller *et al.* (2012) summarize that some experts point to difficulty, specificity, and proximity as essential characteristics (Schunk, 2003; West & Thorn, 2001), while others advocate for SMART goals—those that are specific, measurable, attainable, relevant, and time-bound (Doran, 1981; Miller & Cunningham, 1981). Studies consistently show that the best outcomes are achieved when goals are specific, measurable, and challenging (Dörnyei, 2001; Locke *et al.*, 1981; Pintrich & Schunk, 1996), but not so unrealistic that they exceed the student's abilities.

2.2. Goal-Setting benefits

Goal-setting theory involves two key components: the specificity and difficulty of the goal and the effort required to achieve it (Locke & Latham, 2006). Locke and Latham (2002) emphasize that goal-setting theory establishes a clear connection between written goals and performance. Goals serve as benchmarks for evaluating work, providing individuals with feedback on their competence, which helps sustain motivation for continued learning. According to the theory, individuals tend to exert the most effort when faced with moderately challenging tasks, as these goals push them to perform at their best (Locke & Latham, 2002). Additionally, goal setting

enhances motivation by promoting self-regulation (Locke & Latham, 2006), which fosters a deeper commitment to learning. Researchers have found that goal setting is an effective motivational tool, leading to positive outcomes such as increased intrinsic motivation, a stronger self-image, and improved academic performance (e.g., Latham & Locke, 2006; Schunk, 2009).

2.3. Goal-Setting Strategies

There are several goal-setting strategies designed to boost performance and motivation by adapting goals to an individual's specific needs and situation. One widely used framework is the SMART approach, where goals are Specific, Measurable, Achievable, Relevant, and Time-bound (Doran, 1981). This method helps individuals set clear, actionable objectives that can be tracked over time, ensuring the goals are realistic and aligned with larger goals. Another common strategy involves distinguishing between process-oriented and outcome-oriented goals. Process-oriented goals focus on the behaviors and actions needed to achieve a result, such as committing to study for a certain number of hours each day. In contrast, outcome-oriented goals center on the desired result, like earning a specific grade or completing a project by a set deadline (Locke & Latham, 2002). Process-oriented goals are often more effective in promoting lasting behavior change because they emphasize consistent effort rather than solely focusing on the outcome.

In addition, long-term and short-term goal-setting is a key strategy that allows individuals to break down larger, overarching goals into more manageable, immediate tasks. This strategy can help prevent overwhelm and promote sustained motivation, as individuals experience incremental successes that lead toward the larger objective (Zimmerman, 2008). Research suggests that short-term goals provide the necessary momentum to achieve long-term goals by creating a clear roadmap for progress (Schunk, 2009). Furthermore, learning goals and performance goals are another significant distinction in goal-setting strategies. Learning goals emphasize developing new skills and acquiring knowledge, while performance goals focus on demonstrating competence relative to others (Elliot & Dweck, 2005). Learning goals are particularly effective in fostering a growth mindset, where individuals view challenges as opportunities for growth rather than threats to their ability.

Additionally, it is beneficial to set process-oriented goals alongside outcome-oriented goals. While outcome-oriented goals might focus on achieving a specific level of language proficiency, process-oriented goals emphasize the actions needed to achieve these outcomes, such as dedicating a certain amount of time each day to language practice or consistently engaging in listening and speaking exercises (Locke & Latham, 2006). Research indicates that process-oriented goals are often more effective in promoting sustained effort and long-term success in language learning because they encourage a focus on consistent practice and gradual improvement (Elliot & Dweck, 2005).

2.4. Tips for Setting Effective Goals in Learning languages

It is important to align language learning goals with personal interests and motivations. When language learners set goals that resonate with their personal values or future aspirations,

they are more likely to stay motivated and committed to their goals (Schunk, 2009). Therefore, tailoring goals to fit personal motivations fosters intrinsic motivation, which has been shown to enhance both persistence and long-term success in learning new skills, including language acquisition (Deci & Ryan, 2000). Generally, Abu Bakar *et al.* (2014) summarized five principles for setting effective goals: (1) *Clarity*: The defined goals should qualify the quality of productivity, measurement, and unambiguity. There should be detailed plans outlining what goal-setters need to do and obey; (2) *Challenge*: A sufficient level of difficulties and challenges should be included so that goals can function like motivational factors pushing goal-setters towards their destinations. However, out-of-reach targets should be excluded to avoid boredom and failure; (3) *Commitment*: Goals should be set by involved participants, which helps them feel like achievers when some sections of defined goals are fulfilled; (4) *Feedback*: Progress checking should be carefully planned and carried out. On-going obstacles solved in time would maintain, ensure, and motivate the completion of the goal journey; (5) *Task complexity*: If goals have a high level of complexity, training, guidance, and sufficient time should be seriously calculated to avoid overwhelming.

3. MATERIALS AND METHODS

3.1. Methodology

Table 1. Participants' demographic information

Students	Genders	Age	Average Score bands	Description
1	male	22	7.5	Students of English Language program
2	male	22	7.8	Students of English Language program.
3	female	21	8.0	Students of English Language program
4	female	22	8.2	Students of English Language program.
5	female	21	7.9	Students of English Language program
6	male	22	8.1	Students of English Language program
7	female	21	7.8	Students of English Language program
8	female	22	8.1	Students of English Language program
9	female	21	7.6	Students of English Language program.
10	male	22	7.7	Students of English Language program

The qualitative method was applied for this research due to the particular features of helpful tips for setting goals. Besides searching materials for recommendations for producing effective targets for language study, the authors of the paper interviewed 10 students of English major who gained average scores greater than 7.0 from their latest academic year at a university in Binh Duong to exploit the benefits of setting effective goals in the language learning process. The students were randomly chosen because of their success in studies, and they were successfully contacted after a short survey to make sure these selected participants had set their goals during the learning journey. Then, semi-structured interviews were utilized, as they offered a systematic questioning approach while also permitting the flexibility to delve deeper and obtain further information (Mackey and Gass, 2005). The interview questions were built based on the characteristics of the issues and the need to exploit the information. Four sections were formed in

the questionnaire with 12 entries, including the background information, the impact of clear goals on language learning, characteristics of effective goal-setting strategies, and reflection-recommendations. Each interviewee was asked in around 10 minutes, and then the information was transcribed and analyzed.

3.2. Research questions

For the above purposes, the research questions for the current study are as follows:

How do clear goals help students learn a new language more effectively?

What are the common characteristics of effective goal-setting strategies used by successful language learners?

3.3. Results and discussions

3.3.1. Impact of Clear Goals on Language Learning.

Making a specific plan in the study process proves its great function in pushing students' learning practice and forming constructive habits. 100% of the students confirmed that clear goals help them stay motivated and positively affect their study habits. Participants accepted that frequently obeying a detailed plan encouraged them to stay focused on the learning track. This also helps them maintain their self-regulation, be proactive in their learning plans, and appear to be persistent with their final purposes. They also admitted that by aligning with a particular plan, they improved in their study. In general, the results of how effective goals impact students' learning processes signify the consistent findings of other researchers, like Latham and Locke (2006) and Schunk (2009).

“Setting goals is more important than any other preparation. Specific goals give me motivation to move forward and direct me on my way.” (Student 1); *“Building a detailed plan for study helps me to be persistent about my goals and patient to overcome obstacles on my learning trip.”* (Student 2); *“Setting clear goals is crucial in learning a new language because it provides direction and motivation. When I have specific goals, I know what I am working towards, which helps me to stay focused and measure my progress.”* (Student 4); *“Yes, I’ve definitely noticed a difference in my language learning progress when I have clear goals versus when I don’t. When I don’t have specific goals, my learning tends to be more scattered and less focused.”* (Student 5); *“One situation having a goal significantly impacted my progress was when I set the goal to pass an English proficiency exam. This goal was very specific and had a clear deadline, so it required a disciplined approach to studying. I created a study schedule that included regular practice tests, focused on areas where I needed improvement, and tracked my progress over time.”* (Student 9); *“I felt that there were differences, but it wasn’t a really significant difference in my language learning process when I’ve clear goals versus when I don’t.”* (Student 10)

3.3.2. Characteristics of Effective Goal-Setting Strategies

The collected data points out that there are several common strategies applied by the students, which are shown in Table 2.

Table 2. Characteristics of Effective Goals and Goal Strategies

Characteristics of students' goals and goal strategies for language learning	Percentages
Goals should be specific, clear, and achievable.	100%
Goals should be broken down into small stages.	80%
Goals should be aligned with interests.	60%
Progress toward fulfilling goals should be tracked constantly	70%
Goals should be adjusted in case	80%

Table 2 shows that goals should be specific, clear, and achievable. All of the students stated the necessity of building possible goals with detailed features and descriptions within reach. This would form a constant motive for the students to pursue their target. Students 3, 4, and 6 stated, *"The goal must be specific, measurable, achievable, relevant, and time-bound,"* while students 1, 2, and 5 exposed, *"I use several strategies to ensure they are clear, achievable, and aligned with my overall objectives."* The others confided, *"I will set a goal that is appropriate for me. That means the goal isn't too easy as well as too difficult for me to get the goal,"* and *"these goals are achievable, meaning they are realistic and attainable given my current skill level and resources."*

Goals would be effective when they were broken into smaller stages, or they should not be too ambitious. Eight out of the ten students admitted that effective goals included specific phases with a particular time frame, resulting in feasible plans for the students to follow.

"If the goal is too ambitious, it can be discouraging, so I choose goals that are challenging but still within reach. For example, if I am very busy, I might set a smaller goal, like learning 10 new words a week, instead of something too difficult." (Students 5); *"These goals are time-bound; they have a clear deadline or time frame for completion. An example would be "complete a grammar workbook by the end of the month," which sets a specific deadline that helps me stay focused and motivated."* (Students 6)

It is also crucial to set goals aligned with interests to make the will last. 60% of the students confirmed that they set goals relating to their hobbies with the hope that intrinsic motivation helps lengthen their patience to reach the final destination.

"I choose goals that align with my personal interests, which makes the learning process more enjoyable and meaningful." (Students 3); *"My goal is to find something that interests me and keeps motivating me in any way, because I can only be consistent when I do something I love."* (Student 9); *"My goals are based on my ideal career..."* (Student 10)

Tracking progress towards the goals was also claimed to maintain success. Seven of the students stated that they tracked the progress of their goals timely; even some of them used electronic tools to measure and witnessed the positive results.

"Based on my progress reviews, I adjust my goals as needed." (Student 1); *"I use language learning apps and tools that track progress and offer insights."* (Student 4); *"I also assess my skills periodically through self-tests or by seeking feedback from teachers or language partners."* (Student 3); *"I track my progress by using tools like language apps, journals, or checklists to monitor daily and weekly achievements."* (Student 10)

Another significant strategy in setting effective goals was adjusting goals accordingly. Eight out of ten accepted that they modified their goals to suit specific circumstances; evidently, *“Based on my progress reviews, I adjust my goals as needed. If I find a goal too ambitious or not challenging enough, I modify it to better fit my current level and needs,”* although the two others reported, *“I try to limit my goal. adjustments because if I adjust regularly, I can be affected easily when something comes up accidentally. I will keep my goal, but I can adjust the plan that is appropriate for my relevant status to achieve it.”* (Students 9 and 10)

Generally, the students’ responses illustrate their current strategies, which are consistent with the common ones found by previous authors. Effective goal setting should be aligned with SMART criteria (Doran, 1981); breaking goals into smaller targets gives planners the feeling of achievements in short-term plans, and then long-term ones would be gained thanks to long-lasting motivation (Schunk, 2009). Building goals based on interests, frequently tracking the goals, and adjusting goals as needed are identified as other strategies for setting specific aims for the language learning process (Deci & Ryan, 2000; Zimmerman, 2008). The collected results also align with the five principles of setting goals, like clarity, checking, commitment, feedback, and task complexity (Mind Tools, n.d.).

3.3.3. Reflection and Suggestions

Responses showed that setting effective goals might need some other factors, as illustrated in Table 3.

Table 3. Extra factors for designing effective goals

If you could change the way you set goals, what would you do differently?	Percentages
Maybe the way I have done it is my best way.	20%
Find ways to maintain interests and keep tracking the goals.	80%

Table 3 depicts the striking information from the current study. Although two of the students were proud of their goals, the other sounded the same about seeking ways to stay interested in regularly tracking progress towards goals, including flexibility in fulfilling the target. This manifests that demonstrating patience and persistence in fully realizing established goals proves to be more challenging than merely formulating the desired objectives.

“I would set it depending on the contextual goal. This could make me aware of my benefits when completing the goal.” (Student 2); *“I would incorporate more flexibility and iterative planning into my approach.”* (Student 4); *“This alignment not only keeps me motivated but also provides a sense of purpose and immediate utility for my learning efforts.”* (Student 5); *“If I could change the way I set goals... boosting motivation and maintaining momentum in my language learning journey.”* (Student 8); *“One additional point is that incorporating flexibility into goal-setting is crucial.”* (Student 9)

4. CONCLUSIONS

The findings of the current study satisfy the two research questions mentioned. The collected data proves the positive impacts of effective goals on the language learning process, which aligns with previous papers by Latham and Locke (2006) and Schunk (2009), which indicated a relationship between practical goals and motivation and self-regulation. This paper also found similarities between the common strategies for designing goals among the student participants and the theories in other journals. The SMART criteria for designing effective goals have proven its constructive values in goal settings (Deci & Ryan, 2000; Zimmerman, 2008). Strikingly, this paper found that effective goal designers raised awareness of the flexibility and persistence in tracking the goals, contributing to the success of the goals designed.

The summary of goal-setting strategies in this paper implies that students should be encouraged and guided to set effective goals. From the impacts of well-defined goals on the goal-setters in the paper, the authors recommend that features of common strategies, like the SMART criteria, long-term, short-term goals should be popularized to students since they enter university. They should be also reminded about the flexibility and ways to maintain interests during the journey to reaching the target.

Educators, in particular, play a pivotal role in shaping the study habits of newly enrolled university students. It is essential that this responsibility be emphasized during orientation programs, where academic advisors and mentors should provide explicit guidance on setting both long-term and short-term academic goals. Orientation leaders should integrate this aspect into their curriculum, ensuring that new students understand the significance of structured goal-setting in their academic journey. Furthermore, student consultants should actively engage with new students, providing hands-on assistance in developing these goals, thereby fostering an environment where students can effectively plan for their academic success.

In addition to initial goal-setting, regular and frequent assessments of students' progress toward these goals should be institutionalized as part of the ongoing advisor-student relationship. These check-ins, facilitated through regular meetings, will not only monitor progress but also ensure that goals remain relevant and achievable, given the dynamic nature of university education and the evolving demands of the job market.

For students, understanding the importance of goal-setting and how it directly impacts their academic success is crucial. Proactively learning to plan their studies with clearly defined, realistic objectives is key to navigating the university experience effectively. These plans should be flexible, regularly reviewed, and adapted to reflect changes in the educational environment and the labor market, ensuring that students are prepared for both academic and professional challenges.

Finally, the paper has its own limitations, which should be solved in further studies. More student participants should be employed to ensure the results of study, and a study focusing on finding ways to sustain students' interest in their goals during the academic journey should be the next one to be considered.

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COLLECTIVISM AND INDIVIDUALISM IN AMERICAN AND VIETNAMESE COMPANIES' SLOGANS - A LOOK FROM LEXICOLOGY

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ABSTRACT

This paper discusses collectivism and individualism - two major cultural traits - manifested in commercial slogans of American and Vietnamese companies. The descriptive, contrastive and comparative methods are employed in order to find out how these two cultural traits are displayed in lexicological items and the frequencies of these items in the company slogans. By analyzing advertising slogans of 147 American companies and 120 Vietnamese companies, the results show that American people with typical cultural trait of collectivism use more singular pronouns, proper nouns and literal words in their companies' slogans while Vietnamese companies with their prominent trait of collectivism utilizing second person pronouns, collective nouns, and figurative words more frequently. The study shows the integral relationship between culture and advertising and the impact of culture traits on the lexical items used in advertisements. Hopefully, the results will be beneficial for advertising students and professionals in international companies to be aware of how the difference in culture influences the word usage in their slogans, avoiding culture shocks and controversial issues in advertisements.

Keywords: Cultural trait, individualism, collectivism, slogans, company slogans.

1. INTRODUCTION

Culture plays a vital role in every corner of human life, affecting people's behaviors and language. Advertising is of course inevitably impacted by culture. Companies' advertising slogans which express the company's core values also embody the cultural characteristics that a company wants to aim for and bring to its community.

Collectivism and individualism are two prominent traits in Vietnamese and American cultures. This research aimed to analyze how these two cultural traits impact kind of words in Vietnamese and American companies' slogans, and if there are any similarities or difference in their ways of using words. To achieve this aim, the research was targeted: (i) Identify lexical features in advertising slogans of these Vietnamese and American companies under the influence of cultural traits of individualism and collectivism and (ii) Compare and contrast the similarities and differences in words usage in these two kinds of advertising slogans.

With this research, the author hopes to help marketing students and professionals understand more about the influence of culture on language and avoid cultural shocks.

2. METHODOLOGY

The research targeted the advertising slogans of companies in three prominent social sectors: restaurants, beverages, and financial institutions. The study did not focus on slogans which are specific to a particular product/service of the company because these slogans often have a short lifecycle. Rather, it concentrated on the company's advertising slogans, reflecting the identity and characteristics of the company, and aligning with the company's development for at least 10 years. These advertising slogans were taken from the company's website. Furthermore, in order to clearly see how the cultural identity of the nation influence advertising language, the study got involved in domestic businesses - meaning that slogans of businesses with foreign counterparts were not considered. Based on these two criteria, 147 English slogans from American companies and 120 Vietnamese advertising slogans have been selected for analysis.

The comparison and contrast were mainly used in this study. After analyzing these advertising slogans, the author identified and pointed out what lexical items are used in American companies' advertising slogans with their prominent feature of individualism and in Vietnamese companies with their typical collectivism. Then, the frequencies of these lexical items were calculated, followed by comparative and contrastive methods being employed to figure out which ones are more popular in each type of slogans.

Theoretical background

What is culture?

Culture has received attention from scholars for many years. Culture is considered a key factor in the fields of anthropology, psychology and international business (Singh & Pereira, 2005). According to Kroeber and Kluckhohn (1952, p.181), culture is the shaped ways of thinking, feeling and reacting, received and transmitted mainly by symbols, formed from individual achievements. distinct from a group of people and can be preserved in relics. The core nature of culture is the traditional ideas that are historically derived and selected and the values that are attached to them.

Hofstede (1980, p25) also defines culture as the collective programming of the mind that distinguishes members of one human group from members of another. In Hofstede's (1980) view, culture is often thought of as the things that members of a particular society have in common.

What are cultural characteristics?

There are hundreds, even thousands, of cultural characteristics against which societies can be compared. Some characteristics are present in all societies, but there are also characteristics that are unique to a particular society.

Among authors studying cultural characteristics, Hofstede is a pioneer. He (Hofstede,1980) has proposed a model of cultural dimension according to 5 characteristics including power distance, gender (masculinity/femininity), uncertainty avoidance, long/short-term orientation, and individualism/collectivism. His model is widely used in research on sociology, psychology and behavioral economics, for example in research on the impact of individualism and collectivism that affect consumers' behaviors (Alber- Miller and Gelb, 1996; de Mooij, 1998).

Individualism and collectivism in American and Vietnamese culture

Among the cultural characteristics that Hofstede (2010) proposed, individualism/collectivism is the most prominent in American and Vietnamese culture. In his study about national culture, concerning 51 countries and territories, America with the score of 91/100 is considered a country with typical individualism, on the other hand, China representing for other South East Asia, including Vietnam with the score of 20 is a country with prominent collectivism.

At the same time, to reinforce the prevalence of individualism in American culture, many studies have been conducted on assessing the level of individuality in American society. Triandis (1998) points out that Americans focus on individual goals, less on collective interests. Also, Americans value success, personal success and individuality, thereby forming the individual ego. They do not pay attention to how this personal ego affects the community and social and political foundations (Hui & Triandis, 1986; Kalliny & Gentry, 2007; Spence, 1985).

In contrast to American culture, collectivism is a prominent cultural characteristic of Vietnamese people. Collectivism is formed and developed along with the development of culture, history, and economy and are consolidated in the soul of Vietnamese people (Dao Thi Phuong, 2015). This is also shared by author Tran Ngoc Them (2001) by pointing out 5 basic values that create Vietnamese cultural identity, which are collectivity, harmony, prejudice, cohesion and sociability. The most common variations of collectivity are collective spirit, solidarity, village love, neighborliness, fear of losing face and gratitude. Collectivism represents the level of cohesion between individuals and groups through such forms as collective responsibilities, collective leadership and collective activities.

The relationship between culture and language

The relationship between language and culture has been researched since the late 20th century. Sapir (1970) and Whorf (1956) argued that language influences, and even determines, how humans perceive the world.

Semin and Rubini (1990) examined the relationship between individualism and collectivism in verbal abuses. They posited that these two cultural traits create cultural differences in human perception. In societies with prominent individual cultures, individuals are viewed as independent entities, only responsible for their own actions. On the contrary, in collective cultures, individuals are connected to the group and constrained within a social network with other individuals. Therefore, they suggested that linguistic usage in individualism cultures is directed towards the individual, whereas in collectivism cultures, words may target individuals or those important to them.

In researching the relationship between culture and language, Kashima (1998) suggested that this relationship is manifested through the use of pronouns and the quantity of personal pronouns corresponding to cultural traits. Additionally, pronouns that specifically index a person can reflect cultural characteristics. In societies with prominent individual cultures, first-person pronouns (I) and singular second-person pronouns (you) are frequently used. Conversely, societies with prominent collectivism often eliminate pronouns. Also, Triandis (2001) argued that individualism and collectivism are often expressed through pronouns of address. At the same time, Goddard

(2002) highlighted the important role of personal pronouns in conveying messages in advertising. She noted that using first-person singular pronouns (I) when an individual image is portrayed in advertising, while using third-person pronouns (he, she, it) often associates with the collective or community, and first-person plural pronouns (we) connect both the writer and the reader with the implication of complying with community norms and general suggestions.

Moreover, Goddard (2002) stated that advertisements use sensory-evocative adjectives like “lovely”, “delicious” to convey personal messages, while employing precise and scientific-sounding language to focus on product information for the general audience. In addition, Singh and Bartikowski (2006) said that in slogans with individualism, fewer figurative words are used whereas slogans with collectivism see an opposite trend. Meanwhile, they posited that slogans of the individualism use more scientific and objective words, and in slogans with collectivism, there is a prevalence of words that indicate feelings and emotions and are more subjective.

3. RESEARCH FINDINGS

3.1. Pronouns

The 1st person singular and plural pronouns

The research showed that in English advertising slogans, first-person singular pronouns (I) and first-person plural pronouns (without the reader - we) are commonly used, such as “I want my MTV!” (MTV ad), “I’m Lovin’ It” (McDonald's ad), and “I ♥ NY”; or We gave NESCAFE Taster’s. (NESCAFE ad), We Built This Bank for You (1st Mariner Bank ad), We know (Alliant Bank ad). We’re good for you (Apple Bank ad).

Similarly, Vietnamese advertising slogans utilize first-person plural pronouns (excluding readers), like “vì chúng tôi hiểu bạn” (Because we understand - TP Bank ad), “Hoài bão của quý vị, ưu tiên của chúng tôi” (Your ambition, our priority - State Bank of Vietnam). However, first-person singular pronouns are absent in Vietnamese advertising slogans.

The 2nd person singular pronoun

In these advertising slogans, second-person singular pronouns are frequently used. English slogans like “The strongest paper plate you can buy” (Dixie Ultra dish ad) and “You’ll love the way it lasts. Year after year” (Rubbermaid ad), and Vietnamese slogans like “Dù bạn không cao người khác cũng phải nhìn” (though you’re not tall, others admire - Casberge beer ad) and “Hãy nói theo cách của bạn” (Tell in your way - Viettel telecommunication ad) exemplify this usage.

Moreover, some slogans in both English and Vietnamese combine first-person and second-person pronouns, like “We’re good for you” (Apple Bank ad), “Hoài bão của quý vị, ưu tiên của chúng tôi” (Your ambition, our priority - State Bank of Vietnam), “Our Solutions, Your Success” (Commercial Bank of California), and “Our Prime Interest Is You!”. This direct communication style in advertising slogans makes customers feel cared for, prioritized, and reveals cultural traits of individualism prominently.

The Frequency of Pronoun Usage in American and Vietnamese Advertising Companies' Slogans

Analysis of the data revealed that while first-person singular pronouns sometimes appear in English advertising slogans, they are absent in Vietnamese ones. However, both types of slogans include proper nouns, naming the company or product. These nouns constitute 4.3% of English slogans, nearly double the rate in Vietnamese slogans (2.4%).

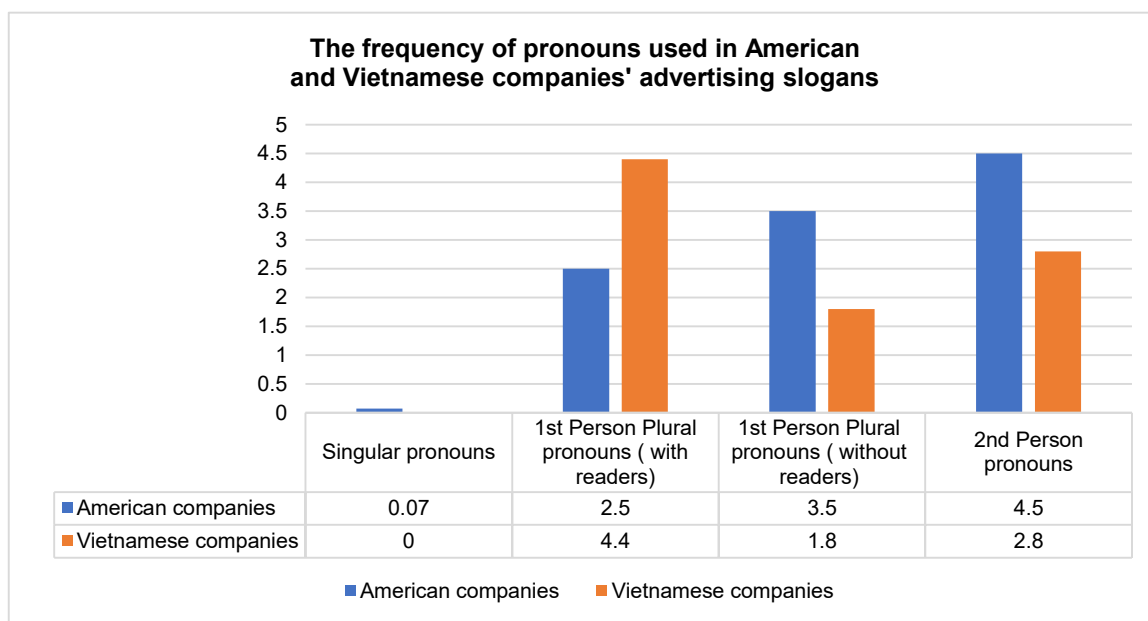


Chart 1. The frequency of pronouns used in American and Vietnamese companies' advertising slogans

Similarly, first - person plural pronouns (we - excluding readers) in English advertising slogans (3.5%) doubled those in Vietnamese slogans (1.8%). At the same time, second-person pronouns account for 4.5% in English slogans but 2.8% in Vietnamese slogans.

Conversely, first-person plural pronouns (we - including readers) are more prevalent in Vietnamese advertising slogans than in English ones.

It is evident that individualism and collectivism create disparity in human perception. In societies with a dominant individual culture, American for example, individuals are considered as independent entities, taking responsibility for their actions. On the other hand, in collective cultures like Vietnam, individuals are closely tied to the group and interwoven into a social network with other individuals. Therefore, Americans tend to use language directed towards the individual, while Vietnamese culture emphasizes language that can address individuals or those significant to them, who, in this case, are customers using their products or services.

3.2. Nouns

Proper nouns

In English advertising slogans, companies' names are also incorporated into the slogan, such as "When EF Hutton talks, people listen" (EF Hutton brokerage firm), "It's from Clorox so it's

more than clean” (Clorox ad), “Hey, Culligan Man!” (ad for Culligan beverage company), “Life needs Ziploc” (ad for Ziploc food storage bags), “The best part of waking up is Folgers in your cup!” (ad for Folgers beverage company). This phenomenon is also present in Vietnamese advertising slogans like “Nhà là bếp. Bếp là Sunhouse” (Sunhouse ad). This is an alternative way of identification: instead of using the first - person singular pronoun, the slogan has proper noun indicating the brand name. However, there is a big difference in the number of proper nouns in these two kinds of slogans, 18 out of 147 American companies’ slogans and 7 out of 120 Vietnamese ones, 12% and 5,8%, respectively.

Collective nouns

Collective nouns are nouns denoting a group of individuals. Some of the collective nouns are used in both of these advertising slogans as displayed in the following table

Table 2. Collective nouns in American and Vietnamese companies' advertising slogans

Collective nouns in American companies' advertising slogans	Collective nouns in Vietnamese companies' advertising slogans
A man (The Best a Man Can Get), America (America Runs on Dunkin'), friend (Friend don't let friend drink and drive), people (When EF Hutton talks, people listen), millions (Loved by millions)	Việt Nam (Vươn cao Việt Nam - Flying high, Vietnam), đàn ông (Bản lĩnh đàn ông - the strength of men), bàn chân Việt (Nâng niu bàn chân Việt - Foster Vietnamese foot), Đàn ông (Đàn ông đích thực - True man), Khách hàng (Khách hàng là thượng đế - Customers are King), Hoàn thiện vì khách hàng (Perfect for Customers- ngân hàng SCB) người bán - người mua (Trăm người bán - Vạn người mua - Hundreds of Sellers, Thousands of Buyers), mọi nhà (Niềm tin của mọi nhà - Belief of all families - Ngân hàng Việt Nam tín nghĩa)

The number of collective nouns in Vietnamese slogans accounts for 20%, twice as many as that of American slogans.

Figurative words and literary words

According to Wikipedia, literal language uses words exactly according to their direct, straightforward, or conventionally accepted meanings: their denotation. On the other hand, figurative (or non-literal) language uses words in a way that deviates from their conventionally accepted definitions in order to convey a more complex meaning or a heightened effect. The study showed some of the most frequently used figurative and literal words in Vietnamese and American companies’ slogans as illustrated in the following table.

Table 3. Figurative and literal words in American and Vietnamese companies' advertising slogans

Figurative words in American companies' slogans	Figurative words in Vietnamese companies' slogans	Literal words in American companies' slogans	Literal words in Vietnamese companies' slogans
Excellence (A heritage of excellence from Paul Revere-Reverse ware ad) Great (A great American tradition - Reverse ware ad) Clean (It's from Clorox so it's more than clean - The Clorox Company)	Phồn vinh (Phồn vinh cuộc sống Việt - Thriving Vietnamese life- Tân Á Đại Thành) Tiện nghi, sang trọng (Convenience and Luxury - Tiện nghi và sang trọng - Selta)	Pocket (The pocket survival tool - Leatherman ad) Clean (The good, clean, fun cup (Dixie ad) Sharpeners for life. (ad for Lansky knife) It might be too strong. (ad for Brawny paper)	Chất lượng - Chuyên nghiệp - Hiệu quả (Quality - Professional - Effective - Inox Butraco)

The frequency of figurative and literal words in American and Vietnamese companies' slogans is as follows:

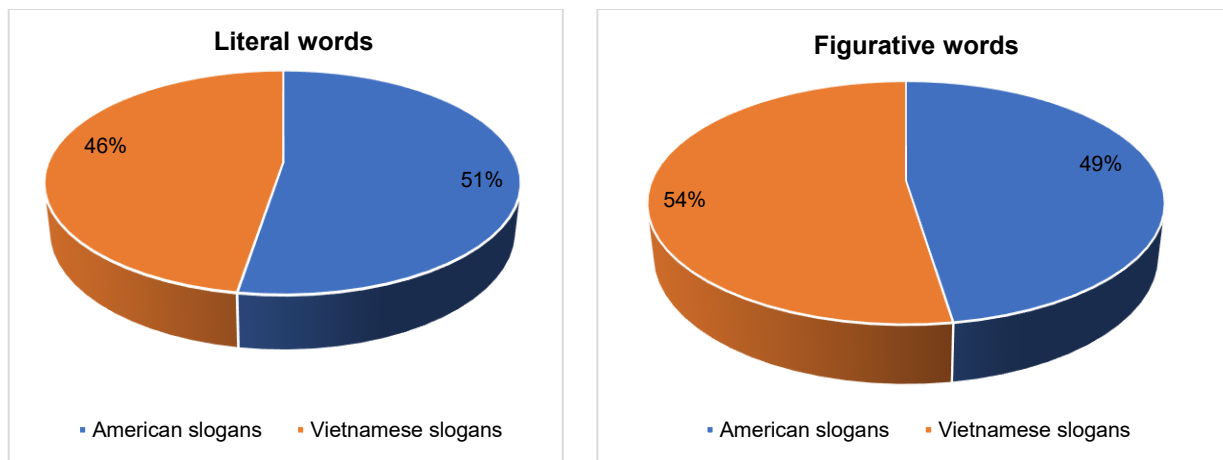


Chart 4. The frequency of figurative and literal words in American and Vietnamese companies' advertising slogans

The pie charts display the clear contrast between the word frequency in two kinds of slogans. The literal words account for higher percentage in American companies' slogans while figurative words take up a smaller portion, and the opposite pattern is seen in Vietnamese companies' slogans.

4. CONCLUSION

In conclusion, individualism and collectivism have a big influence on the language used in advertising slogans of American and Vietnamese companies. Through vocabulary analysis as well as comparison and contrasting the lexical units in advertising slogans in English and Vietnamese, the study has drawn three conclusions about vocabulary utilized in these advertising slogans. Firstly, all of these advertising slogans use first-person plural pronouns, second-person pronouns, but singular first-person pronouns are only found in American advertising slogans. Secondly, the frequency of proper nouns in American is as twice as in Vietnamese slogans, but this ratio is reversed when considering collective nouns in both types of advertising slogans. Thirdly, both figurative words and literal words appear in both types of advertising, and the difference in usage is not significant.

Hopefully, this research will help students and marketing professionals understand the role of culture in their profession and apply cultural knowledge when designing advertising slogans for companies in multicultural working environments.

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SOME TECHNIQUES TO ENHANCE COOPERATIVE TEACHING AND LEARNING FOR STUDENTS AT TAN TRAO UNIVERSITY, VIETNAM

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ABSTRACT

Nowadays, foreign language has become one of the compulsory subjects in colleges and universities. Foreign language is also a challenge with many students. This sets the requirement for foreign teachers that how to make their teaching lessons more effective and motivate learners. This also requires the teachers to be competent not only in the professional level but also in teaching methods. In current, cooperative teaching and learning is a very popular teaching method in developing countries and brings high educational effectiveness. Cooperative teaching and learning is an educational orientation in which students work together in small groups of many different people and is created by students' direct participation and contribution in the learning process to achieve general learning results. Cooperative teaching and learning promotes positive mutual influence among students because in the process of cooperation, each student finds benefits for himself and for all members of the class. With the current requirements and goals of credit training in colleges and universities, cooperative teaching and learning is an effective method to promote positivity, creativity, and communication skills and the spirit of cooperation in collective activities of students. Cooperative teaching and learning is one of the new technique with many remarkable advantages. Cooperative teaching and learning not only helps learners improve their language skills but also develops their creative thinking, interpersonal skills and cooperation in doing group work. This article mentions the features as well as the importance of cooperative learning. It also gives some techniques to help teachers organize cooperative learning activities effectively in language classes.

Keywords: Cooperative teaching, cooperative learning activities, group work, teacher, student, language classes...

1. INTRODUCTION

When talking about cooperative teaching methods, it is difficult to find a word that better and more accurately describes the view of the famous British playwright, George Bernard: "If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas."

Cooperative Teaching is a very popular teaching method in developing countries and brings high educational efficiency. Cooperative Teaching is an educational orientation in which students work together in small groups of many different groups and are formed by the participation and direct contribution of students to the learning process to achieve common learning outcomes. Cooperative Teaching promotes positive mutual influence in students because in the process of cooperation, each student finds benefits for himself and for all members of the class. With the requirements and training objectives according to the credit training method in colleges and

universities today, cooperative teaching is an effective method to promote students' positivity, creativity, communication skills and cooperative spirit in collective activities.

2. LITERATURE REVIEW

2.1. Definition of cooperative learning and teaching

Cooperation is working together, supporting and helping each other in work or a certain field for a common purpose.

In 1987, Slavin gave an early definition. He stated that cooperative learning comprised of "a set of instructional methods in which students work in small, mixed-ability groups ... to achieve some sort of group goal"

According to Jacobs & Hall in language teaching methods, cooperative learning is defined as a teaching strategy in which teachers will organize learners into small groups to carry out activities such as discussions, role-playing, problem solving, etc. Each member is not only responsible for carrying out group activities but also has the responsibility to cooperate and help group members complete assigned activities.

According to Fohlin and Gillies, 2007, Cooperative learning and teaching is a pedagogical approach, method of working and sense of interdependence that begins with the interaction between participants in pairs and groups. Specifically to negotiate, share and discuss new understandings, appropriate ways of thinking and creativity when discussing. It enhances students' willingness to work cooperatively with others with diverse learning and adjustment. Hertz-Lazarowitz and Shachar (1990) also stated that the role of teachers changes when they use cooperative learning as a teaching method, as they engage in a complex process of language change that affects the way they interact with their students. In addition, Gillies (2004) emphasized the facilitating role of teachers in the cooperative learning process, from knowledge brokers to guides who support students in exchanging knowledge with each other. Cooperative learning and teaching are designed to promote thinking and nurture learning. Mercer, Wegerif & Dawes defined cooperative learning as follows: "Cooperative learning and teaching provide students with ways to interact with each other so that they learn to listen to what others say and how they say it, to challenge their own views, and to develop the ability to use language as a tool for reasoning and thinking." Such statements are consistent with Johnson, Johnson & Holubec (1994), who argued that "cooperative learning is the use of small group instruction that allows students to work together to maximize their own and each other's learning." By stimulating children's curiosity and desire to learn in a social community, we, as adults and teachers, can see how children take steps to understand and make meaning in the world in which we live (Fohlin & Wilson, 2020). Enhanced by the contributions of others and together representing the overall efforts and goals of the groups (Johnson & Johnson, 1990).

Cooperative learning is based on teaching structured through collaboration, where students act as learning resources for each other and work towards common goals (Fohlin, Moerkerken, Westman & Wilson, 2017). Johnson et. al (2009) deliberates that cooperative learning groups should be imbued with the basic principles such as cooperation skills, positive mutual dependence,

own responsibility, equal participation and simultaneously supportive interaction. Moreover, Gillies & Boyle (2010) highlight cooperative learning as a well-recognized and research-based method that promotes achievement, collaboration and interaction. Author Gillies (2007) notes that cooperative learning as a pedagogical practice, "stimulates student's interest in learning through their involvement with their peers " and " develops new perspectives and ideas in socially appropriate ways " (2007)

2.2. Research related to cooperative learning and teaching

Cooperative learning has received a lot of attention from researchers at different times in both Viet nam and other countries

In the 1930s, American social psychologist Kurt Lewin made a mark in the history of cooperative learning. He emphasized the importance of group behavior, paying special attention to how each person in the group receives and expresses information in new situations. Later, Morton Deutsch developed the theory of cooperation and competition based on Lewin's "Fundamental Theories". In 1940, Morton Deutsch proposed the theory of cooperative and competitive situations. This theory mentioned the skills of expressing and receiving information of group members to solve situations in the process of cooperation and competition with each other.

In a similar study, Puzio and Colby (2013) conducted a meta-analysis of the effectiveness of cooperative learning in supporting students' literacy skills. The review included 18 unique studies conducted in elementary schools with participants from diverse backgrounds, cultures, and backgrounds. Puzio and Colby (2013) used standardized assessments to describe student achievement in reading, vocabulary, and comprehension. The results of the meta-analysis conducted on a sample of 12,286 study participants showed that students achieved significantly better vocabulary achievement when teachers organized student learning using a cooperative group approach. Nearly 90 percent of the group increased their achievement in vocabulary, comprehension, and reading. The authors argue that learning English is central to the development of students' reading and vocabulary skills at higher levels, especially in the lower grades (Puzio & Colby, 2013).

Furthermore, Llorent, González-Gómez, and Farrington et al. (2021) conducted a study in primary education on cooperative and project-based learning methods to bring about desired competencies; academic achievement and social and emotional competencies. The purpose of this study was to analyze the improvement in literacy and social competencies in groups participating in cooperative and project-based learning. Similar to the findings of Jakavonytė-Staškuvienė (2021) and Puzio och Colby (2013), Llorent, González-Gómez & Farrington et.al. (2021) showed that students' vocabulary and reading skills improved significantly when CL was used in teaching. The total reading comprehension score increased significantly after the intervention. Through interaction, different reading comprehension strategies and new word learning methods were clearly demonstrated and applied, which also improved students' writing skills.

In the late 13th and early 14th centuries, Reverend Bebel and Joseph Lancaster (British) organized small group teaching. Through group activities, learners practice exchanging, sharing information, expressing their opinions, and helping each other learn and explore problems in the learning process and achieve good learning results.

In 1987, the first Jigsaw classroom model by Elliot Aronson (American) made great contributions to perfecting cooperative teaching forms. Many of his studies showed that individual and collective achievements are always higher when people cooperate with each other instead of competing.

D. W. Johnson, Roger T. Johnson & Holubec have done a lot of research on cooperative teaching. He pointed out the 5 most important characteristics that each cooperative lesson must ensure, which are: Positive interdependence; sense of responsibility of each individual; mutual influence; Social skills; assessment in groups. In recent years, cooperative learning has been developed into one of the most modern teaching methods today by David W. Johnson and Roger T. Johnson of the University of Minnesota, Robert Slavin of the Johns Hopkins Institute and many other researchers. Scientists S. A. Amonashvily; V. F. Shatalov; M.P Shchetimin; I. P. Ivanov (Russian) believe that: Through cooperative learning, students can exchange, acquire, debate and express their opinions. Therefore, students love to learn, find joy in learning and create a comfortable learning atmosphere.

In Viet nam, Nguyen Thi Phuong Hoa's also gave an opinion on cooperative teaching: " Cooperative teaching can be understood as an active teaching strategy, in which members participate in activities and learn together in small groups (each group includes members with different levels and abilities) with the aim of developing understanding and mastering a certain learning content."

3. RESEARCH METHODS

Scientific observation method

The author conducts research through the application of cooperative teaching methods in groups in classes, observing the performance of each student, the effectiveness of group activities and the feedback of students.

Recording daily events

Every day, teacher works with students, observes students and records a lot of information about students' learning activities. For example, student A mispronounces a few simple words, student B is always inattentive and looks out the window. Student C always finishes his tasks early and helps other students during practice time... Such daily events are important in assessment. They help teacher predicts students' abilities and behaviors in different situations or explains the results obtained from students' written tests.

However, the teacher is not able to observe and record all behaviors, events, and aspects of students' daily situations, even though they can all be valuable information. Therefore, it is necessary to be selective in observation. To make observation and recording feasible, teacher needs to:

- Focus the observation on behaviors that cannot be assessed by other methods.
- Limit the observation to certain types of behaviors depending on the teacher's teaching purpose.

Teacher can use notebooks. Each student should be given a few sheets in the notebook.

Scale

Numerical scale

The teacher marks or circles a number that indicates the level of expression of a quality in the student. Usually, each number indicates a level described in words and this description is consistent across all sentences in the scale. Specifically, the largest number indicates the highest level, the smallest number indicates the lowest level, and the numbers in between indicate average values.

For example: To indicate the level at which students participate in general class discussions, circle the corresponding numbers. Where: 5 - most, 4 - above average, 3 - average, 2 - below average, 1 - did not participate.

To what extent did students participate in the discussion?

1 2 3 4 5

To what extent were the opinions expressed related to the discussion topic?

1 2 3 4 5

Theoretical analysis and synthesis method

The research is based on the research results of previous researchers, analyzing and synthesizing the scientific nature of applying cooperative teaching methods in foreign language teaching.

Experience analysis and synthesis method

Through the semesters of applying cooperative teaching methods in English classes for students, the author has summarized his own practical teaching experience in applying cooperative teaching methods, from which he proposes to apply this method in teaching English courses at universities.

3.1. Advantages and disadvantages of cooperative learning

- Advantages

In terms of learning motivation, cooperative learning has the advantage of interactive relationships with classmates - an opportunity for two-way support and mutual stimulation. In terms of cognition, cooperative learning gives students the opportunity to concretize - turn documents into their own words - as well as the opportunity to start using the subject language.

Through cooperative learning, students can express their own opinions, listen to the opinions of other students in the group, in the class; exchange and discuss different opinions and give optimal solutions for the tasks assigned to the group. Through this way of learning, students' knowledge will be less subjective and one-sided, increasing scientific objectivity, and students' critical thinking will be trained and developed.

At the same time, students can share their own thoughts, concerns, and experiences to build new perceptions and attitudes and learn from each other. This helps knowledge become deeper, more lasting, easier to remember and remember faster due to the exchange and learning between group members, participation in discussions and presentation of issues raised. Students are excited when they contribute to the overall success of the class. Thanks to the friendly and comfortable discussion atmosphere, students, especially shy ones, become bolder; they learn to present their opinions, know how to listen and criticize the opinions of their friends; thereby, helping students easily integrate into the group community, creating confidence and interest in learning and living.

In fact, during the teaching process in the College and University classes of Tan Trao University, the author found that the learning atmosphere in these classes was quite lively and positive, with a spirit of cooperation. In general, students in the groups had a serious learning attitude, were self-aware and actively participated in discussion activities.

To confirm the advantages of the cooperative learning method, the author also studied the learning interest of 126 students of Preschool Education Faculty, Tan Trao University. Through a survey of students' opinions after the experimental hours. The result was that no student did not like cooperative learning. Most of them said that cooperative learning hours were lively, up to 95.2% of students agreed that cooperative learning hours were comfortable, friendly and they wanted to learn cooperatively regularly. That proves that cooperative learning is suitable for the needs of the majority of students.

Through discussion and survey of opinions of English lecturers participating in class observation (data taken from opinions of 09 lecturers of English department, Tan Trao University, December 2023) : 100% of lecturers rated the experimental teaching hours using the cooperative learning method as quite good. The lecturers all affirmed that the application of the cooperative learning method will promote the students' positivity as well as their cooperation skills. 88.9 % lecturers said that the cooperative learning method is extremely necessary for foreign languages, suitable for the form of credit-based training and needs to be promoted in schools.

So, in general, the cooperative learning method has received very positive feedback from both lecturers and students. The students all showed more confidence when learning cooperatively and had a quite positive learning attitude. Through group activities, the students' cooperation skills are promoted as well as the learning efficiency of the group members is increased.

- Disadvantages

In addition to the great advantages above, cooperative learning also has some limitations that we need to understand in order to have solutions to overcome them. That is:

First, cooperative learning is a collective teaching method, in which there is mutual support and assistance between members, so it is not suitable for simple content lessons, which do not require the mobilization of collective intelligence. At the same time, learning effectiveness depends on the activities of the members. If there is no collective spirit in the group and there are uncooperative students, the effectiveness will be low.

Second, cooperative learning is not suitable for classes with many students because it will be very difficult for teachers to control group activities and monitor the class.

Third, cooperative learning requires teachers to have extensive knowledge and good communication skills. Teachers will encounter many difficulties when their professional knowledge is limited and they have little experience in organizing collective activities because if they do not organize well, there will be a situation where good members always dominate, others rely on others and do not work, and depend on others, at that time the cooperative learning method will not be effective.

3.2. Basic functions of cooperative learning activities

Create a friendly learning atmosphere and comfortable psychology for students

Throughout the cooperative learning process are group activities. When working in groups, students feel comfortable, not pressured or stressed like when working with teachers or alone. Students can easily express themselves, easily speak up about their feelings and thoughts. They are supported and cooperated by people in the group, so they become more confident and therefore, their learning will be more effective.

Developing communication skills

Cooperative learning creates an ideal environment for students to develop communication skills and cooperation skills. Individual teaching methods cannot achieve this important ability. When participating in cooperative learning, students must use many social communication skills, so these skills will be trained, strengthened and developed.

In other words, in cooperative learning activities, each individual is a link in the chain of group activities. They cannot work independently as in competitive learning models. They must cooperate with each other, help each other, discuss and exchange information as well as personal opinions. Students must know how to apply analysis, synthesis and evaluation skills to complete assigned tasks.

Thus, in addition to achieving the learning goal of developing language skills, students participate in cooperative learning activities, they learn how to present and defend their views, know how to persuade and negotiate in problem solving. They become more flexible and adaptable in communication. Their communication skills are therefore significantly improved.

Develop creative thinking, analytical, synthesis and problem-solving skills.

In cooperative learning, members interact directly with each other in a two-way relationship, without intermediaries. Students must participate in role-playing, presentations, discussions, debates, problem-solving, etc. These activities require students to be creative, logical, flexible and perceptive. In addition, students must evaluate the activities their group performs to make appropriate adjustments. The above activities have helped students develop creative thinking as well as analytical, synthesis and problem-solving skills.

3.3. Conditions for organizing effective group activities

Conditions for teachers

Most teachers today have understood and recognized the importance of innovating English teaching methods, and at the same time applying active teaching methods (including cooperative teaching and learning methods) in teaching English.

Innovation in teaching methods is an important factor, deciding the success or failure of the innovation process, contributing to improving the quality and effectiveness of English teaching and learning, and enhancing the role and position of Chinese at universities.

Teachers must be the ones to organize and guide the entire learning process of students, so teachers need to perform well the following tasks:

Come up with ideas and make teaching plans including knowledge objectives, content to be mastered... to then pose situational questions or practice exercises related to the content of the lecture so that students can review and acquire knowledge through interaction and cooperation with other members.

Teachers also need to pay attention to creating interest in learning for learners, so that learners participate in learning voluntarily. - Teachers need to rely on guiding and helping learners to grasp the collaborative learning process of learners.

Conditions for students

University students are all 18 years old and above, they like to express their personal opinions on all issues in life and society. Teachers can rely on this characteristic to apply the group cooperative teaching method in the process of teaching English, creating good conditions for students to participate in group cooperative learning, specifically as follows:

Students must be proactive in learning, exploring and acquiring knowledge, actively participating in activities to achieve high learning efficiency, thereby finding for themselves suitable learning methods and self-study methods.

Students need to cultivate their own interest and passion for learning, this is a very important factor and a great motivation to promote initiative and self-awareness in learning as well as in the process of participating in group cooperation.

Students need to know how to self-evaluate their work and the results of group activities in which they participate in order to better understand themselves as well as the tasks of each group member towards the previously set goals.

3.4. Some notes when applying cooperative learning methods in foreign language classes

Most students in foreign language classes are very familiar with group activities. However, cooperative learning activities will not be successful if students do not participate or participate reluctantly in those activities. Therefore, to ensure the success of cooperative learning activities, the author divides them into three stages to note for colleagues when applying cooperative learning methods.

Stage 1: Before cooperative learning activities take place: Organize the class, divide into groups reasonably.

First, teachers need to help students realize the benefits of cooperation and expand relationships in life. The next step is to transform awareness into the need and motivation to act proactively and actively participate in collective activities.

The number of members in the group needs to be appropriate to the assigned tasks. According to language teachers, the ideal number of members for each group is 4-5 people. However, with the duration of each lesson and the number of students in our foreign language classes today, each group can consist of 6-7 members. This number can be considered beyond the standard for an ideal foreign language class. However, teachers can overcome this limitation by designing activities so that each member has the opportunity to contribute to the work of the group. Therefore, the criterion for group division is the difference in level between members in the group. Teachers must take an active role in group division so that group members can learn from each other.

Assign tasks clearly, specifically and appropriately to each member, creating conditions for all members to have the opportunity to work and develop their own abilities and strengths. Group activities must be designed so that individuals demonstrate their responsibility for the assigned work. The amount of work should be proportional to the number of members in the group. A well-designed activity is one that cannot be completed without the contribution of any member of the group. To ensure that each individual makes a positive contribution to the group activity, the teacher can ask each member of the group to take on different roles such as group leader, secretary, presenter, etc. The teacher can also assign a random person to report on the group's work results. Students will participate more actively in group activities when they realize that they can only succeed when the group is successful and that the group's success cannot be achieved without the contribution of each individual.

More over, members need to respect, support, and help each other; they need to be organized and have a high sense of responsibility.

Stage 2: During the cooperative learning activity: Control the activities.

In addition to professional qualifications, teachers also need to have the ability and experience in group activities, especially the ability to organize and control well.

Teachers need to monitor and follow the groups closely to provide timely support when necessary. When the groups work, teachers must go to each group to observe and support. Teachers must closely monitor the activities of each group to be able to make accurate assessments of the contributions of each individual as well as the overall activities of the group.

Teachers need to pay more attention to some learners (limited capacity, shyness, few opportunities to communicate in groups, etc.) to help them overcome psychological barriers.

Stage 3: After the cooperative learning activity: Evaluate the activities that have taken place.

After each lesson, it is necessary to evaluate the activities that have been carried out - which activities were effective, which activities were not suitable, which activities should be maintained, which activities need to be changed. Specifically: Have the members of the lesson helped each other? Is there a sense of responsibility for the collective; Do members have the opportunity to participate and develop their own abilities and strengths? How effective is the lesson, what lessons need to be learned for the following lessons. This process helps to consolidate and perfect highly effective group activities, and adjust inappropriate or ineffective activities for the following lessons.

4. CONCLUSION

It can be seen that the cooperative teaching method in groups is one of the extremely effective active teaching methods, especially when applied in teaching English. Teachers applying this active teaching method not only create proactive exploration and self-learning of distance learners, but also help increase interest and create the right learning motivation to help learners improve their own capacity and level.

Promoting students' initiative and self-learning ability is becoming more and more popular in foreign language classes. Research results show that cooperative learning activities not only improve learning outcomes but also create excitement for students, making them feel more confident and communicate better. However, to organize cooperative learning activities well requires significant efforts from both teachers and students. Understanding the nature of cooperative teaching methods, each teacher will have to have specific activities with their own characteristics to contribute to improving the effectiveness of learning and teaching foreign languages.

Acknowledgements: This study is supported by Tan Trao University, Tuyen Quang, Vietnam.

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USING ROLE-PLAYING METHOD IN TEACHING SKILL COURSES AT THUY LOI UNIVERSITY

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ABSTRACT

The role-playing method is a popular teaching approach, especially effective in subjects aimed at developing students' skills. When using this method, students take on real-life situations with specific roles, fostering the development of practical skills such as communication, teamwork, critical thinking, creativity, and confidence. The article employs document research and observation methods to study the application of role-playing methods in teaching three skills-based subjects at Thuy Loi University. The research results show that the application of role-playing in teaching these skill courses at Thuy loi University not only increases learning interest but also enhances students' communication and problem-solving abilities. Therefore, this study offers practical suggestions, contributing to improving the quality of soft skills education at other universities, with the aim of enhancing students' soft skills.

Keywords: Role-playing method, Soft skills, Thuy loi University.

1. INTRODUCTION

Higher education plays a crucial role in human resource development strategies, particularly in preparing students with the professional skills necessary to meet labor market demands. In addition to specialized knowledge, soft skills such as communication, teamwork, and problem-solving are also essential. However, according to recent studies, many university students in Vietnam still lack the necessary soft skills, leading to difficulties in adapting to the work environment after graduation.

To address this issue, universities are increasingly focusing on applying active teaching methods to enhance students' soft skills. Thuy loi University has been a pioneer in incorporating soft skills courses into its curriculum since 2007. By implementing active teaching methods such as presentations, group discussions, games, and case studies, students have shown significant improvements in soft skills. Among these, the role-playing method has proven particularly effective in developing communication and teamwork skills, helping students better understand the importance of these skills.

Given the reality and successes achieved, this paper aims to study and share experiences on how to apply the role-playing method in teaching soft skills at Thuy loi University. Through this research, the author hopes to contribute to improving the quality of soft skills teaching and provide practical suggestions for other universities to enhance their students' soft skills.

2. LITERATURE REVIEW

2.1. The Role-Playing Method

"Role-playing" is one of the active teaching methods that encourages learners' autonomy, independence, and creativity. Currently, there are many different perspectives on the role-playing method:

Authors Van Hasselt, Romano, and Vecchi evaluate the use of role-playing in adult training as a popular method for training individuals in the workplace, promoting better interaction with colleagues and in social settings. They define role-playing as "the simulation of encounters, communications, or events between individuals in the real world" (2008, pp. 251). According to Hoang Phe's Vietnamese Dictionary (1992, pp. 337): "Role-playing is the portrayal of a character in a script on stage or screen by acting and speaking as if it were real". In the book *Teaching and Teaching Methods in Schools*, author Phan Trong Ngo states: "The role-playing method in teaching involves the instructor providing a script and directing, with students acting according to their assigned roles. Through this, they learn to think, express attitudes, and act, as well as acquire other interaction skills of the characters in the script" (2005, pp. 283).

Author Tran Thi Tuyet Oanh in the book *Education, Part 1* (2005, pp. 227) defines role-playing as "a teaching method in which the teacher organizes the learning process by constructing and implementing a script to help students deeply understand the content". The *Guidebook for Teachers Implementing the 10th Grade High School Textbook Curriculum* (2006) states: "Role-playing is a method of organizing for learners to practice or 'try out' certain behaviors in a hypothetical situation". Authors Nguyen Van Cu and Nguyen Duy Nhien (2008, pp. 22) in their article "Teaching and Learning Civic Education in High Schools, Theoretical and Practical Issues" define role-playing as "a method of organizing for students to practice certain behaviors in a hypothetical situation to master the lesson content".

These views share the commonality of considering role-playing as a method in which the instructor or student creates a script with learning content, requiring learners to act out roles. Its essence lies in the instructor's primary role in editing the teaching content into suitable scripts or situations for learners to use or create scripts and take on roles, thereby acquiring knowledge and forming skills. Additionally, teaching through role-playing is not limited to acting; it includes identifying, selecting knowledge, constructing scripts, assigning roles, and performing them. From this, learners can draw lessons on knowledge, attitudes, and skills.

According to the author, role-playing is a teaching method in which students act out characters in a script to express the characters' perceptions, attitudes, and behaviors. Through this, they can practice, experience, and derive appropriate and positive knowledge, attitudes, and skills.

2.1.1. Forms of Role-Playing

Based on preparation time: Direct Role-Playing (Creating and acting out a script during the class); Prepared Role-Playing (Prepared at home according to the previous class's assignment and performed in the next class).

Based on the learning objective: Memory-replay Role-playing (Building a script based on known knowledge with simple situations); Inferential-developmental Role-playing (Developing the script, dialogue, and roles from existing knowledge through inference); Application-contact Role-playing (Building the script based on common life situations and behaviors).

Based on student interaction: Independent Role-playing (Performed by an individual); Group Role-playing (Preparing and building a script based on group interaction, which is the most common form).

Based on lesson content: Thematic Role-playing (All groups perform the same topic); Varied Role-playing (Each group has different topics). The classification of role-playing forms is relatively meaningful, according to different approaches or criteria. Therefore, instructors can choose and adjust the forms to suit specific knowledge units, lessons, and classes (Pham Viet Thang, 2017, pp. 213).

2.1.2. Advantages and Disadvantages of the Role-Playing Method

The role-playing method in teaching is an effective instructional approach applied across various fields, especially in teaching practical skills-based subjects. By implementing this method in teaching skill-based courses at Thuy Loi University, the author has observed the following advantages and disadvantages of this approach:

** Advantages*

- Engagement and Interest: Role-playing stimulates student interest and provides opportunities to express emotions, develop communication skills, handle situations, and gain confidence, with feedback from instructors and peers to improve and apply skills in practice.

- Creativity and Confidence: It encourages students to be creative, use imagination, and become more confident in communication. It motivates students to change attitudes and behaviors positively.

- Dynamic Learning Environment: Role-playing makes lessons more dynamic and attractive, increasing interaction between students and instructors. It also allows instructors to assess students' understanding and adjust teaching methods accordingly.

** Disadvantages*

- Scenario Appropriateness: Instructors must carefully select and construct scenarios that fit the students' level and the course requirements. Without proper organization, students may struggle to perform effectively.

- Preparation Effort: This method requires thorough preparation, consuming time and effort from both instructors and students to achieve desired outcomes.

- Applicability: It may only be effective with active students and not suitable for those with limited engagement. Additionally, some students may lack acting talent or feel reluctant to perform in class.

Role-Playing Method Usage Process

- **In-class Role-Playing Process:** The role-playing teaching process occurs within a single class session. This includes selecting knowledge content, shaping the scenario, dialogue preparation, role allocation, acting, and concluding with discussion, feedback, comments, and drawing lessons on awareness and skills—all within one class session. This process comprises five steps:

Step 1: *Instructor introduces the situation based on the lesson content:* Groups are formed, and role-playing scenarios are assigned to each group, with clear guidelines on script preparation time and performance time.

Step 2: *Groups discuss and create the script and roles:* Group members quickly prepare to perform their assigned roles and coordinate with others to form the script and acting plan.

Step 3: *Groups perform the script:* They can creatively modify dialogue and performance methods.

Step 4: *Instructor and the rest of the class observe and discuss:* They evaluate performances and discuss the knowledge content conveyed through role-playing, focusing more on the content than the acting ability. During this step, the instructor and other students may ask questions related to the performances.

Step 5: *Conclusion and drawing lessons on awareness and skills:* Based on the evaluation of the content, significance, and performance, students draw lessons on awareness and skill application under the guidance of the in.

- **Pre-prepared Role-Playing Process:** This process starts from the end of the previous lesson and continues until the next lesson session, including:

Step 1: *Task Assignment:* After the previous class session, based on the content of the upcoming lesson, the instructor may assign topics and tasks (possibly in groups) for students to prepare at home, including script preparation and role-playing practice, with communication and information sharing with the instructor. Groups may work on the same or different topics but must manage time allocation effectively.

Step 2: *Preparation:* Students explore, identify problems, and create the script based on the assigned content or topic.

Step 3: *Script rehearsal:* Students prepare their dialogue, organize the script parts according to their roles, and practice. Group members may meet or discuss online to coordinate their roles. They adjust their performances to make them natural and suitable for the task requirements.

Step 4: *Classroom role-playing performance:* In the new class session, groups perform their scripts in the order assigned or voluntarily.

Step 5: *Discussion and Conclusion:* This is the most important step, focusing on observation, listening, participation, and evaluation from both the instructor and students. After role-playing, the instructor guides students to provide feedback, debate, and expand on the topic, leading to a shared understanding of the knowledge and skills needed.

3. METHODOLOGY

The main objective is to understand the use of role-playing in teaching skills courses at Thuy Loi University and evaluate its effectiveness for students. The research utilized qualitative methods, including document research and observation:

- Document research method: This involves collecting information related to the theoretical foundations of the role-playing method. The data, once collected, will be synthesized and analyzed to evaluate the effectiveness of the role-playing method in teaching skill-based subjects at Thuy loi University.

- Observation method: The author used a participant observation method conducted from February to July 2024 during the teaching of three skill-based courses to observe the effectiveness as well as the challenges of applying role-playing techniques in the teaching process.

4. RESULTS

4.1. Applying Role-Playing in teaching skill-based courses at Thuy loi University

The steps to build lessons using the role-playing method in skill-based courses include five steps:

Step 1: *Identifying training objectives*: The instructor should identify both theoretical and practical training objectives: What important skills need to be formed and developed through role-playing? Ensure that everyone has the opportunity to speak during role-playing, focusing on developing communication, conflict management, and teamwork skills. When creating role-playing scenarios, the instructor should guide students to ensure everyone has a chance to speak.

Step 2: *Identifying content and topics*: To support student self-learning, the instructor should guide students in exploring materials and identifying learning objectives, especially for topics not yet covered. These topics should be suitable for role-playing and help develop important skills such as communication, listening, emotional management, and negotiation. Scenarios in role-playing exercises should be specific and detailed, allowing students to create their scripts to enhance creativity.

Step 3: *Role-Playing phase*: Before role-playing, the instructor should clarify the topic, learning objectives, assign roles and observers, and set the time for role-playing. The instructor should create a comfortable yet orderly and focused environment. Students involved in role-playing should actively develop their scripts while adhering to time constraints. The remaining students will act as observers, evaluating the role-players based on lesson criteria, learning lessons on knowledge, skills, and problem-solving. The instructor should not interfere or remind students, as this might reduce the initiative and flexibility of the role-playing, except when the allocated time has ended or if there is no time left for discussion after role-playing.

Step 4: *Post-Role-Playing discussion*: Discussion after role-playing is a crucial part of this teaching method. Discussing immediately after role-playing helps students retain observations and feedback from the role-playing and draw lessons for themselves. The instructor facilitates post-

role-playing discussions, encouraging students to ask questions and provide feedback on the content performed.

Step 5: Post-Role-Playing feedback and lesson summary: The instructor provides an overall review of the role-play, connecting the role-playing situation with the skills to be developed. Besides summarizing the essential content, the instructor should comment on students' communication skills, attitudes, and styles, enabling students to learn and gain experience through role-playing (Pham Thi Hai Yen, 2019, pp. 40).

4.2. Example of Using Role-Playing in Teaching Certain Skills Courses for Students at Thuy Loi University

4.2.1. Soft Skills and Entrepreneurial Spirit Course

Situation in Chapter 2: Introduction to Communication

You are a member of a work group at ABC Company. Recently, there has been a conflict between two members: An, the project manager, and Binh, the technical expert. The conflict began when An made a project development decision without consulting Binh. Binh felt left out and expressed his strong opinion during a group meeting, which An disagreed with. As a result, tension arose, and the group began to split into two factions.

Your task and your group's task are to role-play the situation above and ensure that communication principles are followed, and a consensus on the group's direction is achieved.

Some suggestions for your group:

1. *Preparation:* Identify An's and Binh's main points before the next meeting.
2. *Create a safe environment:* In the meeting, create an open and safe environment with the goal of resolving the conflict, not assigning blame.
3. *Listen and understand:* Provide opportunities for both An and Binh to present their views, listen sincerely, and ensure everyone has a chance to speak.
4. *Find a common solution:* Guide the group to find a common solution that integrates both viewpoints effectively.
5. *Implement an action plan:* Propose a specific action plan to resolve the issue, ensuring everyone's commitment to implementation.
6. *Monitor and evaluate:* Track the implementation of the action plan and regularly evaluate the situation to ensure everyone remains aligned and the conflict is resolved.
7. Through this scenario, students can focus on developing communication, conflict management, and teamwork skills.

Situation in Chapter 3, Lesson 1: Initial Impression Skills:

You are an applicant interviewing for the position of Marketing Specialist at XYZ Company, a leading company in the industry. You have thoroughly prepared your work experience, skills, and achievements. Below is the situation you will face during the interview:

1. Self-introduction (1 minute): You are asked to introduce yourself briefly and interestingly. How will you make a strong first impression?
2. Answering experience questions (3 minutes): The employer asks about your work experience, a notable advertising project you participated in, and how you contributed to the company's marketing strategy.
3. Direct challenge (3 minutes): The employer presents a hypothetical situation involving a problematic advertising campaign and asks you to explain how you would handle the situation and create a new strategy.
4. Suitability question (2 minutes): You need to answer why you think you are suitable for this position and how your skills and experience will contribute to the company's success.
5. Questions for the employer: Your task is to answer all questions maturely, demonstrating enthusiasm, in-depth knowledge, and teamwork skills. Additionally, pay attention to gestures, body language, and expression to convey to the employer that you are the ideal candidate.

Your group should role-play the above situation.

4.2.2. Negotiation Skills Course

Situation in Chapter 1: Introduction to Negotiation:

You are an independent fashion designer negotiating with a garment factory to produce your collection. You and your partner have a meeting to discuss the details of the production agreement. During the meeting, you share your goal of creating a quality collection at a reasonable production cost to compete in the market. When discussing the price, you propose a price of \$18 per product, emphasizing that this will benefit both sides. However, your partner disagrees and proposes a price of \$22 per product, citing the high quality of their products and services. During the negotiation, you make flexible moves, discussing a price reduction if you place a larger order, and propose a pre-payment to ease the workshop's financial pressure.

You should negotiate to achieve your goal of reaching an agreement with your partner at a price of \$20 per product, with 30% prepayment and a 5% discount for orders over 500 products.

1. Divide the class into two groups: one group will play the role of independent fashion designers, and the other group will play the role of representatives from a garment factory.
2. Discussion time: 20 minutes. Both groups will have time to assign participants for the negotiation (2-3 students), analyze the advantages and disadvantages, consider contingency plans, and develop strategies to achieve their objectives before entering the negotiation.
3. Negotiation time: 30 minutes.

4.2.3. Course: Developing Management Skills

Situation in Chapter 2: Emotional Management Skills

Minh is a first-year student who used to be an energetic and happy person, actively participating in extracurricular activities and having many friends. However, recently, Minh has gone through a series of personal events, such as losing a loved one and facing increasing academic pressure. Minh frequently feels sad, stressed, anxious, and no longer interested in the activities he once enjoyed. He feels increasingly distant from friends and family, has trouble sleeping, and lacks the motivation to attend classes. This situation is causing Minh to become mentally unstable.

1. Identify the emotions and describe the issues Minh is facing.
2. Role-playing as a therapist and outline the approach you think Minh should use to overcome this difficult period.

4.3. Some Notes and Experiences When Using Role-Playing Methods in Teaching Skill Courses

Deep understanding of each course: To effectively apply the role-playing method, instructors need thoroughly understand the subjects they teach, as well as the objectives related to the skills to be developed after the course, and how to relate these to real-world applications. This helps them identify scenarios and role-playing scripts that best reflect the course content, enabling students to grasp the course context authentically.

Create realistic situations: With in-depth knowledge of the subject, instructors can create role-playing scenarios that reflect real-life situations applicable to students' daily lives. This means that role-playing is not only about learning theoretical knowledge but also about problem-solving, decision-making, and social interaction. This helps students see that the knowledge they learn is not just abstract concepts but can be applied in reality.

Encourage creativity: The role-playing method also allows students to develop creative thinking. Instead of following specific instructions, students are challenged to find their own solutions to the scenarios presented. This helps them develop logical thinking skills, learn to think creatively, and become more confident in problem-solving. To achieve this, during the role-playing process, instructors should encourage creativity and independence in students rather than imposing their own views.

Focus on soft skills: The role-playing method not only aids in knowledge transfer but also focuses on developing students' soft skills, giving them the opportunity to practice communication, teamwork, and conflict resolution. These skills are not only important during the learning process but also form a critical foundation for personal development and future success in life. Therefore, during the process, instructors can continuously guide students on the necessary skills for each situation. After each role-playing session, the instructor provides detailed feedback on each student's performance, focusing on strengths and areas for improvement. Additionally, students are encouraged to self-assess and propose ways they can improve, helping them develop self-reliance and responsibility for their learning process.

Integrate technology: Instructors can take advantage of online resources such as videos or virtual platforms to expand the scope and depth of role-playing lessons or use online videos as scenarios for students to role-play.

Group discussion sessions: Organize discussion sessions after each activity so students can share their experiences, evaluate their performance, and learn from others.

Using the role-playing method not only helps students engage with real-life situations but also fosters interaction and group collaboration. During role-playing exercises, students need to interact with each other, which contributes to developing communication skills and creates a positive learning environment that encourages creativity and teamwork.

Additionally, the role-playing method provides students with opportunities to experience various roles and perspectives. By stepping into different characters, students gain a better understanding of the emotions, viewpoints, and even the challenges each role brings. This broadens their perspectives, encourages flexible thinking, and promotes empathy toward others.

Beyond individual benefits, the role-playing method also supports the shaping of social values. By participating in simulated situations, students can confront social and ethical issues, thereby building a sense of responsibility and contributing positively to the community. This not only deepens the learning process but also helps form responsible citizens with a positive outlook on society.

5. CONCLUSIONS

The role-playing method plays a crucial role in forming and developing students' skills, especially in courses related to soft skills. At Thuy Loi University, applying this method has not only increased student engagement but also enhanced their communication and problem-solving abilities, thereby improving overall learning quality. The role-playing method has become a powerful tool that allows students to practically and effectively hone their soft skills, enabling them to apply these skills immediately in real-life situations and future jobs.

The effectiveness of using the role-playing method at Thuy Loi University is a clear testament to the success of this approach. Students have made significant progress in developing the essential skills for their future careers. To achieve maximum effectiveness, instructors need to invest in researching and developing role-playing scenarios that align with the course content, create opportunities for students to prepare thoroughly, and encourage those who lack confidence to participate.

From this success, other universities can draw important lessons on applying the role-playing method in skill-based teaching. Creating a positive learning environment, where students can practice and develop their skills through real-life scenarios, will help them not only master knowledge but also grow comprehensively in character and life skills.

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DESIGNING THE CREATIVE EXPERIENCE ACTIVITIES WITH THE THEME OF SENSOR LIGHTS

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ABSTRACT

Creative experience activities are now a compulsory component of high school education according to the New Subject of the general education curriculum. To support both pedagogy students and teachers in achieving these educational goals, we propose a STEM education project focused on designing, assembling, and programming a sound sensor light for high school students. This project aims to help students understand the operating principles of sound sensors, construct a simple electrical circuit, and write control code using Arduino. The article details the project's implementation over four lessons, including theoretical introduction, circuit assembly, Arduino programming, and product testing and presentation. Each lesson is structured to build on the previous one, ensuring comprehensive understanding and hands-on experience. Results indicate that students not only gained technical knowledge but also improved their teamwork and problem-solving skills through collaborative tasks. The outcomes of this project demonstrate the feasibility and effectiveness of the STEM education approach in enhancing educational practices and student outcomes, providing a practical framework for educators to integrate into their curriculum.

Keywords: STEM, creative experiential activity, sound sensor, sensor light, high school

1. INTRODUCTION

In contemporary education, fostering creativity and practical problem-solving skills has become a primary focus. One innovative approach to achieving these goals is through the design and implementation of creative experiential activities, which engage students in practical applications. This paper explores the development of such activities with the theme of sensor lights, aiming to integrate technology and creativity to enhance learning outcomes.

The concept of sensor lights serves as an ideal theme for creative experiential activities, bridging theoretical knowledge with practical application. Sensor lights involve the use of sensors to detect environmental changes, such as light or sound, and provide corresponding responses, making them a compelling topic for exploring various technical principles and design aspects. Through projects centered around sensor lights, students can apply their understanding of electronics, programming, and design in a hands-on, interactive context.

This paper details the process of designing creative experiential activities based on sensor lights, focusing on the educational benefits of such projects. Through practical activities, students are encouraged to experiment with circuit design, programming, and problem-solving, thereby

developing essential skills within a real-world context. These activities are crafted to stimulate creativity, promote teamwork, and deepen students' understanding of fundamental sensor technology principles.

By examining the integration of sensor lights into educational activities, this paper aims to highlight the potential of these projects to enhance student engagement and learning. By providing a structured approach to designing and implementing sensor light projects, educators can create meaningful and impactful learning experiences that prepare students to tackle future challenges related to technology and design.

2. LITERATURE REVIEW

In the evolving landscape of education, the imperative to innovate and enhance teaching methods is increasingly recognized. Contemporary educational practices are progressively embracing a variety of approaches to foster deeper learning and engagement among students. One such approach is experiential education, which emphasizes active participation in real-life experiences and reflection on those experiences to solidify understanding and develop skills (Thành, 2008; Chung, 2018).

Experiential education goes beyond traditional instructional methods by involving students holistically - intellectually, emotionally, physically, and socially. This method promotes creativity, autonomy, decision-making, and satisfaction with learning outcomes, creating a more dynamic and engaging learning environment (Allison & Seaman, 2017). It encourages students to question, explore, problem-solve, and take responsibility, with a focus on the learning process and the insights gained rather than just the end results (Ministry of Education and Training, 2018).

The significance of experiential learning extends into various educational fields, including STEM education. Research has shown that integrating experiential activities within STEM curricula enhances student engagement and understanding by providing practical, hands-on experiences that bridge theoretical knowledge with real-world applications (Moomaw, 2024). Studies such as those by Buechley et al. (2008) and Bui et al. (2023) have demonstrated the effectiveness of experiential methods in fostering students' creativity and practical skills in technical disciplines.

Furthermore, the development of experiential learning competencies among educators is crucial for adapting to the evolving demands of educational innovation. Teachers who are adept at incorporating experiential activities can better support students' learning and facilitate the acquisition of critical thinking and problem-solving skills (Phuc, 2018).

Despite the advances in improving educational practices, there remains a need to further explore how experiential learning can be tailored to individual learner development. This study intends to bridge this gap by investigating the use of experiential learning methodologies in various educational contexts and their impact on student competencies and outcomes.

3. METHODOLOGY

3.1. STEM Education

STEM lessons involve a teaching and learning process where, under the guidance of the teacher, students actively engage in learning activities within a specific space and time. Students apply their knowledge and skills from STEM fields to solve practical problems, contributing to the development of their qualities and competencies.

In participating in STEM lesson activities, students need to use design models and build solutions to address problems according to engineering processes while applying the scientific method to test hypotheses. Each STEM lesson can include the following learning activities: posing questions/identifying problems → researching background knowledge → formulating hypotheses → planning → executing the plan → analyzing data → drawing conclusions → reporting the product (Ministry of Education and Training, 2018).

Therefore, implementing methods such as project-based learning, problem-based learning, experiential learning, and inquiry-based teaching will facilitate the successful deployment of STEM lessons. In this project, it was carried out over four 45-minute lessons, including the following steps:

- + *Introduction and Theory*: Introduction to the sound sensor, the components of the system, and its operating principles.
- + *Circuit Assembly*: Students assemble the circuit from the introduced components.
- + *Programming and Calibration*: Students program the Arduino to control the LED based on signals from the sound sensor.
- + *Completion and Presentation*: Students test, finalize the product, and present their results.

3.2. Methods in Designing the Creative Experience Activities with the Theme of Sensor Lights

The lesson plan “Creative Experience Activities with the Theme of Sensor Lights” employs various scientific research methods to ensure effective teaching and learning. In the process of surveying and conducting pedagogical experiments with students from Lawrence S.Ting School and iTutorTDN Academy Center, various research methods were employed to ensure the effectiveness of the STEM lessons. Action Research collected feedback from previous classes to adjust content and teaching methods. Design-Based Research defined the topic of sound sensors over 4 periods with specific learning objectives. The lesson was also implemented as a Case Study to monitor student interaction with STEM activities, while evaluating effectiveness through assembly and programming tasks. Finally, Qualitative Research gathered students' feelings and opinions through interviews and observations.

3.3. Applying the STEM Design to “Building the Teaching Process”

A. Period 1: Introduction and Theory

- Objectives:

- + Students understand basic concepts about sound sensors and simple circuits.

+ Students grasp the project goals and basic steps for implementation.

- *Content Overview:* In the first period, students will be introduced to the components of the sound sensor light system, including the sound sensor, Arduino, LED, resistors, and circuit connections. The teacher will explain the working principle of the sound sensor and how it detects surrounding sounds to control the LED. Students will also be introduced to the simple circuit diagram and how components are connected.

- Activities:

+ Warm-up (10 minutes):

Introduce the topic and objectives of the lesson.

Show a short video on applications of sound sensors in everyday life.

+ Lecture (25 minutes):

Introduce the system components: sound sensor, Arduino, LED, resistors, connecting wires, and power supply.

Explain the working principle of the sound sensor.

Describe the simple circuit diagram and how it operates with sound.

+ Discussion (10 minutes):

Organize students into smaller groups.

Ask each group to discuss how they will apply the knowledge to create a sound sensor light.

- Expected Outcomes:

No.	Activity	Required product	Note
1	Receive the task Determine in the process and evaluation criteria	Project plan table and evaluation criteria	In-class learning
2	Learn relevant knowledge and skills	Presentation about basic knowledge	Students work in groups outside of class time
3	Report relevant knowledge	Product design	Students report at class
4	Develop a design plan	Sample product	Students work in groups outside of class time
5	Present about design plan	Product report	Students report at class
6	Execute the product according to the plan		Students work in groups outside of class time
7	Report on the project		Students report at class

B. Period 2: Assembling the Circuit

- *Objectives:* Students can assemble the circuit for the sound sensor light.

- *Content Overview:* In the second period, students will begin assembling the circuit. The teacher will guide them step by step on how to connect components on a breadboard and check connections to ensure correctness and safety. Each group will perform the assembly under the

teacher's supervision and support. Common issues such as incorrect connections or faulty components will be addressed promptly.

- Activities:

1. Review (5 minutes):

Review the knowledge from the previous period.

2. Assembly Guidance (15 minutes):

Teacher guides the step-by-step assembly of the circuit: connecting the sound sensor to the Arduino, connecting the LED and resistor to the circuit, and ensuring correct and safe connections.

3. Group Practice (20 minutes):

+ Students in groups begin assembling the circuit according to the guidance.

+ Teacher supervises, assists, and answers students' questions.

4. Testing and Troubleshooting (5 minutes):

Each group tests their circuit to ensure all connections are correct.

- Expected Outcomes:

+ Design plan.

+ Circuit schematic diagram.

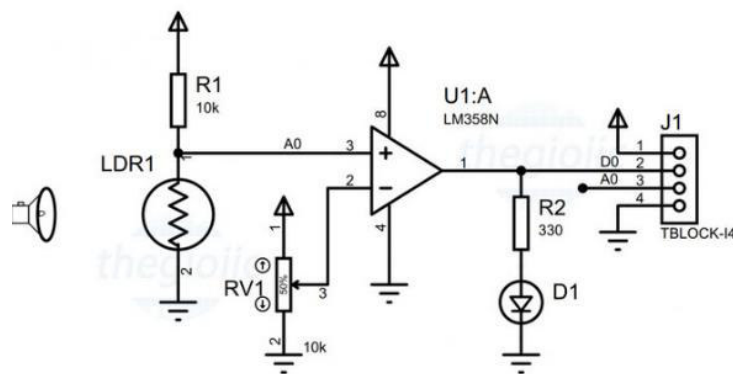


Figure 1. Basic circuit diagram

C. Period 3: Programming and Calibration

- *Objectives*: Students can program the Arduino to control the LED based on the sound sensor's signal.

- *Content Overview*: The third period focuses on programming the Arduino so that the LED lights up when sound exceeds a predefined threshold. The teacher will guide students in writing a simple code and explain each line. Students will then program their group's Arduino and test their circuit. Some groups may encounter difficulties with programming, but with the teacher's support, they will overcome these and better understand how to control the circuit with code.

- *Activities:*

1. Review (5 minutes):

Review the steps for assembling the circuit.

2. Programming Guidance (20 minutes):

+ Introduce Arduino programming and basic commands.

+ Teacher guides students in writing a simple code for the LED to light up when sound exceeds a set threshold.

3. Group Practice (10 minutes):

+ Students program their group's Arduino.

+ Teacher assists and answers questions as needed.

4. Testing and Calibration (5 minutes):

Each group tests their circuit and calibrates the code if necessary.

- Expected Outcomes:

+ Design plan.

+ Functional LED.

+ Adjusted design plan (if any).

+ Report on the process and experiences in creating the light.

+ Documentation of product creation (videos, photos, etc.).

```

// Khai báo chân cho cảm biến và relay
const int sensorPin = A0; // Chân analog cho cảm biến
const int relayPin = 2; // Chân kết nối với relay

// Khai báo ngưỡng cho cảm biến
const int threshold = 500; // Ngưỡng để quyết định khi nào bật hoặc tắt relay
bool vl;

void setup() {
  // Khai báo chân là INPUT hoặc OUTPUT
  pinMode(sensorPin, INPUT);
  pinMode(relayPin, OUTPUT);

  // Khởi tạo kết nối Serial
  Serial.begin(9600);
}

void loop() {
  // Đọc giá trị từ cảm biến
  int sensorValue = analogRead(sensorPin);

  // In giá trị cảm biến ra Serial Monitor
  Serial.print("Sensor Value: ");
  Serial.println(sensorValue);

  // Kiểm tra nếu giá trị cảm biến vượt quá ngưỡng
  if (sensorValue > threshold) {
    // Bật relay
    delay(200);
    if (sensorValue > threshold) {
      vl = !vl;
    }
  }

  // Chờ một khoảng thời gian trước khi đọc lại giá trị cảm biến
  digitalWrite(relayPin, vl);
  delay(100);
}

```

Figure 2. Programming guide

D. Period 4: Finalization and Presentation

- *Objectives*: Students complete their project and present their product.

- *Content Overview*: In the final period, students will complete their project and prepare to present it to the class. Each group will review the entire system, decorate the light if desired, and prepare a short presentation about the project process, challenges encountered, and solutions. The presentation helps students consolidate their knowledge, practice presentation skills, and receive feedback from the teacher and peers.

- *Activities*:

1. Project Finalization (15 minutes):

+ Students review the entire system to ensure everything is functioning correctly.

+ Decorate the light if desired.

2. Preparation for Presentation (10 minutes):

Each group prepares a short presentation on the project process and challenges faced.

3. Presentation and Feedback (15 minutes):

+ Groups present their products.

+ Teacher and other groups ask questions, provide comments, and give feedback.

4. Summary and Evaluation (5 minutes):

+ Teacher summarizes the learning process, highlights successes and areas for improvement.

+ Evaluate and award outstanding groups.

- *Expected Outcomes*:

+ Proposal for improving the light.

+ Complete project portfolio of the energy-saving light project.



(a) Group 1



(b) Group 2

Figure 3. Groups present their products

4. EXPERIMENTAL RESULTS

The pedagogical experiment was conducted with 82 students from Lawrence S. Ting School and iTutorTDN Academy Center, following these steps:

+ Introduction to Teachers: Teachers participating in the experimental teaching were informed about the content, methods, duration, and procedures for conducting the experiment.

+ Implementation of Teaching Plan: Teachers carried out the lessons in the experimental class according to the established teaching plan.

+ Surveying Student Opinions: A survey was conducted to gather student feedback after participating in the experimental learning activities.

+ Evaluation and Refinement: The collected data was used to evaluate, adjust, and enhance the established teaching plan.

The students' learning activities were documented through note-taking, video recording, and collection of group projects. The gathered data indicates positive outcomes from the creative experience activities. The survey data indicate that students actively sought new knowledge related to sensor lights, with a mean score of 2.94 and a standard deviation of 0.22. They also expressed a strong desire to participate in similar learning activities in the future, reflected by the same mean score. However, students rated the clarity and engagement of the module's content lower, with a mean score of 2.50 and a standard deviation of 0.50. The module was effective in enhancing students' confidence in using sensor lights (mean = 2.82) and fostering teamwork and collaboration (mean = 2.88). These findings suggest that while the module has been successful in promoting active engagement and application of knowledge, there is still room for improvement in content delivery and clarity.

Results of the student survey after participating in the specialized study module

Note: 3 = Strongly agree; 2 = Partially agree; 1 = Disagree

Survey Content	Mean	Standard Deviation
1. Actively seek new knowledge related to sensor lights	2.94	0.22
2. Apply and relate knowledge from other subjects to this module	2.84	0.34
3. The content of the knowledge in the module is clear and engaging	2.50	0.50
4. Interest during participation in the "Sensor Lights" learning module	2.94	0.22
5. Discover personal creativity after participation	2.42	0.56
6. The module helps students understand the applications of sensor lights in practice	2.78	0.43
7. Desire to participate in similar learning activities in the future	2.94	0.22
8. The activities in the module encourage teamwork and collaboration	2.88	0.30
9. Students feel more confident in using sensor lights after completing the module	2.82	0.35
10. The module enhances critical thinking and problem-solving skills related to sensor lights	2.76	0.45

5. CONCLUSIONS

The project results indicate that students not only grasped technical knowledge about sound sensors and Arduino programming but also developed teamwork and problem-solving skills. The completed products function correctly and exhibit high aesthetic quality, reflecting the students' creativity.

The “Sound Sensor Light” project is a prime example of applying STEM education to teaching, helping students grasp scientific and technical knowledge in a visual and practical manner. The project implementation process not only provided knowledge of sensors and circuits but also helped students foster key 21st-century skills, including logical analysis, effective problem-solving, and team collaboration. The results achieved from the project demonstrate the feasibility and effectiveness of the STEM education approach in enhancing the quality of teaching and learning.

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Table of evaluation

No.	Evaluation Criteria	Score
Report (15 minutes)		
1	Students need to present all the basic content on the reported topic.	10
2	The design of the report should have harmonious colors and a reasonable layout.	5
Plan design (25)		
3	The report must include all the required content: schematic diagrams, design drawings, scientific basis, operating principles, technical specifications (materials, structure, and quality of the final product)	20
4	The poster for the presentation should have harmonious colors and a reasonable layout.	5
Energy-saving and eco lights (35)		
5	Evaluate the operating principle of the product, adjust the brightness of the light based on the characteristics of the circuit and the actual power supply (without using a transformer), and design a simple electronic circuit.	10
6	The product must be designed with an appropriate power rating ($P = 40W$) and adjustable brightness, using easily accessible materials.	15
7	Consider when integrating the product with other devices.	5
8	The product has an attractive, compact form that is convenient for disassembly and repair.	5
Presentation skills (15)		
9	Persuasive presentation.	5
10	Well-done answering the questions.	5
11	Participating in developing ideas for a group's report	5
Teamwork skills (10)		
12	Effective process	5
13	Cooperative effort	5
Overall: 100 scores		

Evaluation form of teacher/students for each group's presentation

Evaluation form number 1: Product design

This form is used to evaluate the team when they present the design proposal for the product.

No.	Evaluation Criteria	Maximum Score	Group's score
1	Explaining briefly about the schematic diagram of the electrical circuit design of the system and the product model.	2	
2	Explaining clearly the direction of current flow and identifying the polarity of electrical devices.	3	
3	Presenting the roles and characteristics of the components of the system (power source, wires, switches, sensor modules).	3	
4	Creative presentation	2	
Overall		10	

Evaluation form number 2: Product evaluation

This form is used to evaluate the team when they introduce the product.

No.	1 score	2 score	2,5 score
1	Using direct current (DC) power source, maximum 6V.	Using direct current (DC) power source, maximum 5V.	Using direct current (DC) power source, maximum 3V.
2	The sensitivity of the light within a distance of 0.5 meters.	The sensitivity of the light within a distance of 1 meters.	The sensitivity of the light within a distance of 2 meters.
3	The electrical circuit is correctly connected according to principles but it is still loose and lacks safety.	The electrical circuit is connected according to principles, securely, and safely (tight connections)	The electrical circuit is connected according to principles, securely, and safely (with tight connections), and it is neat and good-looking
4	The cost of the product is 250.000 đ	The cost of the product is form 150.000 to 250.000 đ	The cost of the product is less than 150.000 đ

*Students are allowed to install the "Sound Meter" app on their smartphone to measure sound intensity.

ENHANCING ELEMENTARY EDUCATION THROUGH ENVIRONMENTAL EDUCATION INTEGRATION IN 5th-GRADE SCIENCE CURRICULUM

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ABSTRACT

Integrating Environmental Education (EE) into elementary school curricula, particularly within the 5th-grade science classroom, is a powerful approach to enhancing student learning and engagement. This article explores the implementation of the “Eggshell Planting” project, which aligns with the 2018 general education standards. By blending theoretical concepts with hands-on, creative activities, the project fosters essential skills in students, including creativity, problem-solving, and collaboration. Thematic lessons focused on environmental topics allow students to relate their classroom learning to real-world applications, deepening their understanding of scientific principles. Additionally, the project encourages teamwork and enhances presentation abilities, fostering a dynamic and interactive learning environment. The hands-on nature of EE not only improves scientific literacy but also sparks increased enthusiasm and curiosity for learning, ultimately preparing students for future academic and personal success. Through this integration, students are not only equipped with practical knowledge but are also inspired to become lifelong learners with a strong interest in environmental stewardship.

Keywords: Environmental education, STEM integration, elementary students, eggshell planting, 5th-grade science

1. INTRODUCTION

The integration of Environmental Education (EE) into elementary curricula represents a transformative approach to teaching, particularly within the 5th-grade science classroom. By blending theoretical concepts with creative, hands-on activities, EE not only deepens students' grasp of scientific principles but also immerses them in meaningful, practical experiences. This innovative method creates a dynamic learning environment where education is both informative and engaging.

Incorporating EE into the science curriculum equips students with intuitive tools that connect classroom learning to real-world applications. Through thematic lessons, such as “Eggshell Planting”, aligned with the 2018 general education standards, students cultivate essential skills in problem-solving, creativity, and collaboration. These activities foster foundational research, design refinement, and tangible outcomes, sparking a deeper interest in science and its interdisciplinary connections.

This article examines the benefits and methods of integrating EE into the 5th-grade science curriculum, emphasizing how this approach enriches students' educational experiences and prepares them for future academic and personal success. By nurturing a collaborative and stimulating learning atmosphere, EE integration ignites enthusiasm and curiosity - key elements in fostering lifelong learning.

2. LITERATURE REVIEW

The integration of Environmental Education (EE) into the 5th-grade science curriculum represents an innovative approach to teaching that combines scientific concepts with real-world applications. EE has evolved since the mid-20th century in response to growing environmental concerns, aiming to develop informed and responsible citizens (Palmer, 1998). This educational approach emphasizes understanding ecological systems and fostering a sense of responsibility and stewardship (Stevenson, 2007). Theoretical foundations of EE are rooted in constructivist theories, which view learning as an active process of knowledge construction (Piaget, 1970), and Dewey's experiential learning theory, which supports learning through direct experience (Dewey, 1938).

EE enhances scientific literacy by providing real-world contexts for learning complex scientific concepts. Monroe et al. (2019) highlight that EE helps students connect scientific principles with environmental phenomena, improving comprehension and retention. Additionally, EE promotes critical thinking and problem-solving skills, essential for 21st-century education. Chawla and Cushing (2021) argue that EE activities require students to analyze information and make informed decisions, engaging them with real-world environmental challenges. Furthermore, EE fosters creativity by encouraging thematic projects like "Eggshell Planting," which allow students to explore concepts artistically and scientifically (Carrier et al., 2020).

Methods for integrating EE into the curriculum include thematic units, hands-on activities, and project-based learning. Thematic units focused on environmental topics provide a cohesive framework for teaching various scientific concepts, aligning with the 2018 general education standards (Smith & Peterson, 2018). Hands-on activities, such as "Eggshell Planting", connect theory with practice and promote student engagement (Stevenson, 2007). Project-based learning (PBL) encourages students to investigate real-world problems, develop solutions, and present their findings, enhancing content knowledge and cultivating research, collaboration, and communication skills (Thomas, 2000).

The integration of EE impacts student skills and attitudes by fostering collaboration, improving presentation abilities, and sparking interest and enthusiasm for learning. EE encourages teamwork and communication, helping students develop interpersonal skills and appreciate diverse perspectives (Chawla & Cushing, 2021). It also enhances students' presentation skills through projects that require organizing and communicating information effectively (Carrier et al., 2020). By connecting scientific concepts to real-world environmental issues, EE makes learning relevant and exciting, motivating students to engage more deeply with their studies (Monroe et al., 2019). This approach aligns with contemporary educational standards, which emphasize interdisciplinary learning and skill development (Smith & Peterson, 2018).

3. MATERIALS AND METHODS

Lesson Plan Overview:

Grade: 5

Duration: 2 periods

Focus: Reproduction of flowering plants using an “Eggshell Planting” project.

Steps:

Introduction:

Scenario: Students are introduced to the project with a creative task involving Baby Na, who wants to plant seeds in eggshells.

Tasks: Label seed parts, grow seedlings, and decorate eggshells.

Knowledge Acquisition:

Seed Identification: Label parts of the seed using a diagram.

Seedling Development: Note key stages in seedling growth.

Germination Conditions: Watch instructional videos, discuss germination requirements, and complete worksheets.

Practical Application:

Materials Preparation: Prepare soil and eggshells, sow seeds, and monitor growth.

Decoration: Select materials for decorating eggshells and create designs.

Implementation and Evaluation: Groups build and test their egg-seedling models, evaluate their projects, and present their results.

Materials and Tools:

Teacher Preparation: Study sheets, marking sheets, sowing instructions, planting diary.

Student Materials: Bean seeds, eggshells, soil, tools for planting, decoration materials, worksheets.

Evaluation:

Teamwork: Assess collaborative processes.

Final Product: Evaluate functionality, aesthetics, and creativity of the decorated eggshell seedlings.

4. RESULTS

Building the Lesson Plan: Eggshell Planting

Grade: 5

Duration: 2 periods

Timing: During the unit on Reproduction in Plants and Animals in Science, focusing on how seedlings grow from seeds.

Lesson Description

The topic “Reproduction of Flowering Plants” or “Eggshell Planting” in Science requires students to:

Draw or use a provided diagram to label the parts of a seed.

Practice growing plants from seeds.

Use the diagram to identify key stages in the development of a seedling.

Demonstrate the growth process of a seedling.

In this STEM lesson, students will plant seeds in eggshells and decorate them to create meaningful gifts.

Requirements

Label the parts of a seed.

Grow plants from seeds.

Identify key stages in seedling development using a diagram.

Present the growth and germination process of seedlings.

Measure and calculate the length of bean plants during the experiment.

Select and use various materials to decorate eggshells.

Collaborate with group members to conduct experiments.

Teaching Aids

Teacher Preparation:

Study sheets, marking sheets, and instructions for sowing bean seeds.

Planting diary.

Tools and materials provided to student groups.

Each group (4-5 students) should prepare the following tools and materials:

Sow bean seeds one week in advance, following the instructions. Each student should sow 10 bean seeds to ensure at least 6 healthy bean plants are available for the experiment.

Complete a planting diary to track the growth of the plants.

Main teaching activities

Activity 1: Introduction

Start-up

Students listen to the scenario: “Baby Na loves plants and wants to decorate her study corner with them. However, she lacks the necessary tools and wants to be creative by using recycled materials. She asks her friends for suggestions on how to plant seeds and make pots using eggshells. Can you be creative and help Baby Na?”

Students observe images of seedlings grown in eggshells and receive new tasks for the lesson: sowing seeds, growing plants in eggshells, and decorating the eggshells as gifts.

Task Assignment

The teacher assigns specific tasks to the students:

Sow seeds and grow at least 3 seedlings.

Ensure the seedlings grow steadily, reaching a minimum height of 3 cm with healthy green leaves.

Decorate the eggshells according to each student's preference.

Activity 2: Acquiring New Knowledge

Identifying Parts of the Seed

Students identify and label the parts of the seed, including the shell, embryo, and stored nutrients, on the provided diagram.

Understanding Seedling Development

Using the diagram, students note the main stages of seedling development from a seed.

Encouraging Observation and Honesty

Students are encouraged to be diligent in performing tasks, observing changes, and taking notes.

They should be honest in recording information during the experiments.

Activities to Explore the Structure of Seeds:

Group Formation:

The teacher organizes the class into groups of 4 to 6 students. Each group is tasked with selecting a name and electing a leader.

Initial Observation:

The teacher asks the class: "Observe and describe how a seed is structured". (Hint: Seeds consist of three main parts: the shell, the embryo, and stored nutrients.)

Video Presentation:

The teacher shows a video about the structure of seeds (watch from the beginning to 1 minute and 45 seconds).

Video source

Worksheet Activity:

The teacher distributes Worksheet 1 to each group and asks them to annotate the different parts of a seed.

Activities to Explore Conditions for Seed Germination:

Continued Observation:

The teacher instructs students to continue watching the video (from 1 minute and 45 seconds to 2 minutes and 54 seconds).

Discussion on Germination:

The teacher asks: "What conditions are necessary for seeds to germinate?" (Hint: The necessary conditions include appropriate temperature and humidity.)

Worksheet Completion:

The teacher summarizes and asks students to complete task number 2 on Worksheet 1.

Activities to Explore the Seed Germination Process:

Stages of Germination:

The teacher prompts the students: “Continue watching the video and describe the stages of bean seed germination.”

Final Video Observation:

Students observe the remaining portion of the video, focusing on the process of bean seed germination (from 2 minutes and 55 seconds to the end).

Worksheet Completion:

The teacher concludes the activity and asks students to fill in task number 3 on Worksheet 1.

Teacher's Summary:

Seed Structure:

Seeds consist of three parts: the shell, the embryo, and stored nutrients.

Germination Conditions:

For seeds to germinate, they require good soil, appropriate temperature, adequate moisture, and high-quality seeds.

Activity 3: Practice and Application (Find Solutions, Create, and Implement)

Objective:

Select and combine various materials to decorate eggshells.

Collaborate with team members in designing, implementing, and evaluating the experiment.

Organizing Activities:

Learn About Materials and Tools:

The teacher distributes Worksheet 2 to each group.

One or two groups present their ideas based on the content, which may include how to plant, how to prepare, how to choose seeds, and how to decorate eggshells.

Students work in groups to sketch their ideas.

The teacher provides criteria for the groups, emphasizing the need for optimal conditions for plant growth, aesthetics, and economical use of materials.

Students present their ideas and make optimal choices.

The teacher summarizes the groups' ideas and highlights the important implementation steps.

Implementation Steps:

Step 1: Prepare the soil and eggshells for sowing seeds. The soil should be loosened and aerated using a small planting shovel or similar tool. Empty eggshells need to be cleaned and

drained. Use a needle to poke a hole in the bottom of the eggshell to allow water to drain and prevent the seedling roots from becoming waterlogged.

Step 2: Add soil to more than half of the eggshell.

Step 3: Gently press each seed into the center of the soil, pressing it deeply into the eggshell. If the soil is dry, use a mist sprayer to moisten it. Place the eggshell in a cool, airy, and well-lit area.

Step 4: Water the seeds 2 to 3 times a day, adding just enough water to keep the soil moist.

Design Implementation and Adjustment:

Students complete their group's design for planting trees in eggshells.

They record any design changes made compared to the original idea and explain the reasons for these changes.

Manufacturing, Testing, and Evaluation:

Groups of students use materials to create the model based on the sketches reviewed by the teacher. The teacher guides and supports groups as needed.

Students use the criteria provided in the product evaluation form (supplied by the teacher) to self-assess the products created by their team.

Sharing, Discussing, and Refining:

Students present and discuss their group's results. The teacher asks questions to clarify any differences between the groups' approaches and helps students understand and explain these differences.

Each group displays their product in front of the class and explains how they implemented their design. Based on feedback from the teacher and peers, groups refine their product.

The teacher allows students to vote on their favorite products that best meet the proposed criteria.



(a) Group 1

(b) Group 2

Figure 1. Groups present their products

5. CONCLUSIONS

The integration of Environmental Education (EE) into the 5th-grade science curriculum, illustrated by the “Eggshell Planting” project, enhances elementary education and aligns with the 2018 general education standards. This approach develops essential skills such as collaboration, creativity, problem-solving, and presentation abilities. By merging theoretical concepts with practical activities, students engage in a dynamic learning environment that fosters critical thinking and enthusiasm for environmental topics like plant growth and sustainability.

The hands-on nature of the project, combined with collaborative work, allows students to creatively apply their knowledge and achieve tangible outcomes. This experience builds strong interpersonal skills and prepares them for future academic and professional challenges. Overall, integrating EE into the curriculum promotes lifelong interest in environmental stewardship and scientific inquiry, improving educational outcomes and supporting holistic development.

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EFFECTIVENESS OF LABORATORY INSTRUCTIONAL VIDEOS IN UNIVERSITY EDUCATION: CASE STUDY IN GENERAL PHYSICS MODULE B

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ABSTRACT

This study investigates the effectiveness of Laboratory Instructional Videos (LIVs) in university education, with a focus on the General Physics Module B. The research aims to evaluate the accuracy of scientific hypotheses and the practicality of LIVs in achieving educational objectives and cognitive needs of students. Using comprehensive survey instruments, the study assesses the suitability of LIVs by examining the clarity of procedural steps, alignment with students' learning attitudes, and their applicability in real-world educational contexts. Additionally, the research examines the scientific rigor, theoretical clarity, and instructional quality of LIVs, including the accuracy of Vietnamese terminology and English subtitles to facilitate student learning and self-study. Findings underscore the pivotal role of LIVs in enhancing both laboratory practice and independent study, emphasizing their potential to improve instructional effectiveness and student engagement in university-level physics education. The study contributes valuable insights into optimizing LIVs for practical applications in teaching, learning, and curriculum development within the context of Food Science education, highlighting potential areas for refinement and improvement based on student feedback and educational outcomes.

Keywords: Laboratory Videos, University Education, Physics Learning, Educational Impact, Student Interaction

1. INTRODUCTION

General Physics is a discipline that tightly integrates theory and experimentation, with a particular emphasis on practical laboratory work. In the teaching process of General Physics Module B, laboratory experiments play an especially crucial role and are an inseparable component. In the current trend of educational innovation with a focus on enhancing students' ability to apply knowledge in practical situations, and the shift from knowledge-centered learning to application-focused learning, laboratory experiments become more important. These experiments form the foundation of teaching, helping students accurately and solidly grasp knowledge, while also serving as a bridge between theory and practice (Pea, 2006). This approach creates a learning environment that stimulates students' interest in, and love for, General Physics.

Today, visual methods that engage auditory, visual, and tactile senses are highly valued by educators. In the teaching process, the use of instructional videos for laboratory experiments maximizes the stimulation of sensory systems, thus involving all of the students' senses in the learning process. These visual methods can be used to introduce new content or reinforce already learned knowledge.

The General Physics Module B curriculum in universities has inherited and built upon the strengths of the current programs, with a focus on practicality. It equips students with practical laboratory skills and the ability to apply their physics knowledge to solving real-world problems, meeting the demands of everyday life. The use of instructional videos in laboratory teaching not only enhances learning outcomes but also plays a significant role in the comprehensive development of students' abilities.

2. LITERATURE REVIEW

The effectiveness of observational learning depends on the demonstrator's skill level and the number of demonstrations. When learners practice in groups, they are likely to perceive the tasks they are observing as achievable (Braaksma et al., 2002). The use of videos and multimedia in higher education, particularly in Physics, has become increasingly widespread. Laboratory experiment videos are now rich resources, easily accessible and supporting teaching through visualization and simulations. Websites like ipt.hcmute.edu.vn, huaf.edu.vn, and international sites such as physicsclassroom.com and phet.colorado.edu/vi/ provide numerous video resources to aid learning (Thu et al., 2018).

Studies show that instructional videos enhance students' understanding of Physics through visual learning. Pilakouta et al. (2012) created videos on basic experiments with detailed guidance. Edunovus Online Physics Practical website offers videos on experiments like Refraction Index Measurement, with clear instructions and diagrams (Thao et al., 2018). Nagata et al. (2016) also produced videos for basic mechanics experiments, making it easy for students to follow along.

In Vietnam, universities such as Nong Lam University and Hue University have developed instructional videos for experiments like Wheatstone Bridge Resistance Measurement and Determination of Gravitational Acceleration (Hai et al., 2018). However, most foreign videos are in English, and domestic videos are tailored to specific programs, not fully meeting the needs of An Giang University. Therefore, it is essential to develop instructional videos that align with the university's specific curriculum.

3. METHODOLOGY

3.1. General Physics Laboratory Experiments

General Physics Laboratory Experiments (GPL) introduce students to researching physical phenomena in a lab setting and verifying learned physical laws. They are crucial in physics education for acquiring, verifying, and applying knowledge and are integral to the methods of understanding physics (Hai et al., 2018).

Experiments can be used at different stages of teaching, from introducing research problems to assessing knowledge and skills. They enhance the quality of learning, develop experimental skills, foster scientific habits, increase interest in physics, and strengthen teamwork. Experiments also simplify complex physical phenomena, making them easier to observe and measure, and serve as a visual tool to help students understand physical processes.

There are two main types of experiments in physics teaching: demonstration and practical experiments.

Demonstration Experiments:

Primarily conducted by the instructor with possible student participation, these are used in class to introduce new knowledge or reinforce learning.

Types include:

- Introductory Experiments: Engage students with upcoming topics.
- Research Experiments: Build or verify knowledge.
- Reinforcement Experiments: Apply and systematize knowledge.

Practical Experiments:

Conducted independently by students in various settings (classroom, lab, home).

Types include:

- Direct Experiments: Performed in class, typically for new knowledge or review.
- Practice Experiments: After course sections, focusing on skill development and deeper understanding.
- Home Physics Experiments: Conducted with everyday materials, fostering creativity and providing data for future lessons.

3.2. Methods of Investigation

Purpose of Investigation:

The objective is to explore the current state of laboratory equipment used for teaching General Physics, the extent to which instructors utilize visual aids and experiments to enhance students' competencies, and to identify the strengths and weaknesses in the teaching process. This investigation will serve as a foundation for proposing measures to improve student competencies through the use of experiments and instructional videos, tailored to the actual conditions of the institution.

Content of Investigation:

- a. Student Attitudes: Evaluating students' attitudes towards the General Physics Module B course.
- b. Importance of Experiments: Assessing the perceived importance of physics experiments in the curriculum.
- c. Lab Equipment: Evaluating the availability and quality of physics lab equipment.
- d. Student Research Capabilities: Determining students' ability to independently study and conduct lab experiments.
- e. Instructor Usage: Measuring the frequency of experiment use by instructors in various lesson types (e.g., introducing new knowledge, practice sessions, lab work).

f. Interest in Instructional Videos for Physics Experiments: Gauging the level of interest in using instructional videos during lab experiments and the extent of their use by instructors.

Methods and Tools of Investigation:

A survey was designed based on the characteristics of experiment use in physics teaching and the educational program. The survey was conducted via Google Forms with students of DH23TP class. Statistical methods in educational research were applied to quantitatively process the data. The survey was conducted in multiple phases from November 18, 2022, to February 20, 2023

Building and Using the Laboratory Instructional Videos (LIVs)

In the General Physics Module B at An Giang University, practical exercises are categorized into two types: Experimental Practice and Observational Practice. To enhance practical teaching, we propose developing a set of instructional materials (IM) including instructional videos for demonstrating experimental procedures, documentary videos for observational practices, sample lesson plans, and assessment questions.

Principles for Developing Instructional Videos:

1. Alignment with Curriculum: Ensure the videos align with the content and objectives of the curriculum.
2. Suitability for Audience: Tailor the content to meet the needs of the students.
3. Visual and Aesthetic Quality: Ensure videos are clear, visually appealing, and professionally produced.
4. Flexibility and Effectiveness: Create videos that are adaptable and effectively support learning goals.

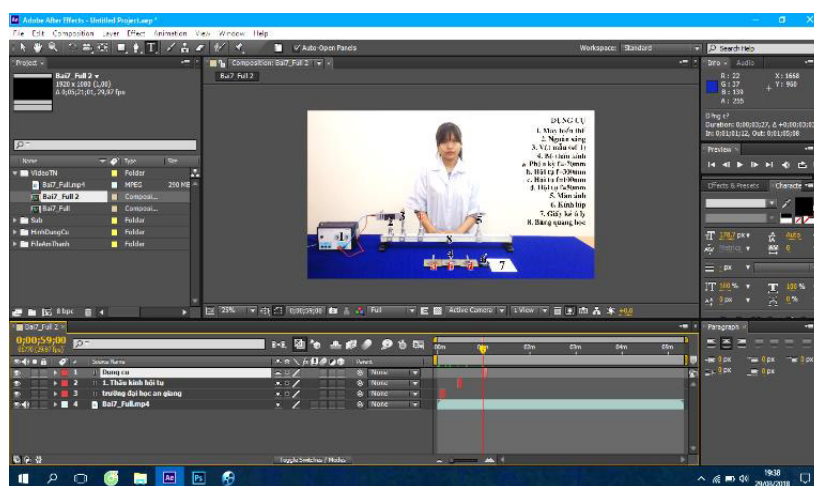


Figure 1. Editing “Practical Optics and Optical Instruments” Instructional Video with Adobe After Effects.

Steps for Developing and Using Instructional Videos:

1. Preparation and Production:

Creating Videos: Teachers can either record their own videos or use existing, reliable sources. Ensure clarity in both visual and audio aspects, and verify that the content is accurate and aligned with lesson objectives.

2. Incorporating Videos into Lessons:

- Introduction: Use videos at the start of lessons to engage students and introduce new topics.
- Illustration: Employ videos to demonstrate key steps and concepts in practical exercises.

3. Integration into Exercises and Activities:

- Replication: After viewing, students can be tasked with replicating the steps shown in the videos and submitting their results.

- Discussion and Evaluation: Facilitate discussions and Q&A sessions to evaluate students' understanding and application of the content.

4. Assessment:

- Student Submissions: Ask students to record their own practical work and submit these recordings for evaluation.

- Feedback: Use videos to provide feedback, correct errors, and guide students in improving their practical skills.

4. RESULTS AND DISCUSSION

4.1. Investigation on the Status and Impact of Physics Experiments in University: Evaluating Students, Equipment, and the Effectiveness of Instructional Videos

Attitudes towards the Physics Course

The survey results indicate that many students find Physics to be a challenging subject. Specifically, 75% of students agreed or strongly agreed that Physics is difficult for them. Despite this challenge, 95.96% of students reported that effective teaching helps them understand Physics concepts better. However, 83.06% of students also noted that it is hard to maintain attention during model demonstrations by the instructor. This suggests that while Physics is perceived as a difficult subject, dedicated instruction significantly improves students' comprehension.

Effectiveness of Physics Experiments

The effectiveness of laboratory experiments in Physics is highly regarded by students. According to the survey, 97.58% of students agreed or strongly agreed that experiments enhance their learning experience. Additionally, 100% of students confirmed that experiments aid in a clearer understanding of Physics concepts. These results underscore the importance of practical experiments in improving students' grasp of the subject matter.

Importance of Physics Experiments

The importance of experiments in Physics education is well recognized among students. The survey revealed that 75.8% of students agreed or strongly agreed that experiments are a crucial

component of learning Physics. This consensus highlights the role of hands-on experimentation in facilitating effective learning and underscores its value in the educational process.

Evaluation of Physics Laboratory Equipment

Students' feedback on laboratory equipment shows mixed feelings. While 94.35% of students noted that some equipment is small and difficult to observe, 98.39% agreed or strongly agreed that the overall quality of the equipment is satisfactory. Furthermore, 62.91% of students felt that they could clearly observe experimental procedures during instructor demonstrations. Although the equipment's size can pose challenges, the quality is generally deemed acceptable, and instructor demonstrations help mitigate visibility issues.

Students' Ability to Independently Conduct Experiments

The survey results reveal that students face challenges in independently conducting experiments. About 75.8% of students feel that their ability to self-learn and research experiments is limited, while 83.07% believe they can perform experiments well on their own. However, 91.13% of students still feel their practical skills need improvement. This indicates that while students recognize their progress, there are ongoing difficulties in independent research and practice.

Students' Interest in Experimental Instructional Videos

Students show strong interest in using instructional videos for experiments. The survey found that 80.43% of students agreed or strongly agreed that such videos make it easier to conduct experiments. Additionally, 82.92% of students felt that instructional videos would improve their experimental results, and 85.05% believed these videos would enhance their understanding and retention of knowledge. Finally, 76.16% of students agreed or strongly agreed that videos would help them achieve better results in experiments. These findings suggest that instructional videos are highly valued for their effectiveness in facilitating learning and improving experimental outcomes.

4.2. Development of Instructional Videos for General Physics Experiments

The video production team includes the following roles: Scriptwriter and Actor; Set Secretary; Director; Cinematographer; Assistant Director; Production Instructor

During the filming process, we used two cameras: the Samsung Galaxy J5 (2015) and the Sony XA (2016) to meet the needs for remote and standard filming. The Samsung Galaxy J5 (2015) can record videos in HD (1280 x 720 pixels) with a pixel density of 294 ppi. Meanwhile, the Sony XA (2016) has a resolution of 13 MP and records videos in Full HD 1080p at 30 fps. By using both cameras, we were able to meet the requirements for remote and standard filming in the videos.

Each Laboratory Instructional Video (LIV) consists of the following main sections:

I. Theoretical Background:

- Provides a summary of related knowledge, including concepts and formulas for calculating physical quantities relevant to data processing and experimental results.

II. Experimental Equipment:

- Introduces the list of necessary tools, equipment, and materials for the experiment.
- Provides a brief overview of the main equipment used in the experiment.

III. Experiment Procedure:

- Includes the following steps:
 - Assembling and arranging the equipment appropriately (if applicable).
 - Detailed procedure for using the equipment, observing, and recording data into pre-prepared tables.
 - Conducting multiple measurements (at least 5 times) to achieve more accurate results.
 - Instructions on data analysis, calculating errors using formulas presented in the theoretical background.
 - Displaying relationships between quantities with graphs (if applicable).
- Finally, evaluates results and answers questions at the end of each experiment.

Table 1. Laboratory Instructional Videos (LIVs) in General Physics Module B

No.	Experiment Title	Video Name	Duration
1	Determining the Melting Point of Ice	01_XD_NNC_nuocda	07'53"
2	Determining the Acceleration due to Gravity	02_XD_giatoc_g	06'25"
3	Determining the Value of Resistance; V-I Characteristics	03_XD_giatricuadientro	09'05"
4	Practical Optics and Optical Instruments	04_TN_quanghoc	08'39"

Evaluation of the Practicality and Effectiveness of Instructional Videos in Supporting Physics Experimentation

Vietnamese Content:

The survey assessed the relevance and clarity of Vietnamese content in the instructional videos, including objectives, theoretical background, and experimental procedures. Results showed 100% agreement that the videos met students' expectations effectively.

English Content:

The accuracy of English subtitles was evaluated. Results indicated high accuracy with over 97% precision in spelling and over 95% in grammar. The content was deemed error-free and appropriate.

Quality:

The videos, based on designed scripts, were praised for clear image and sound quality. Survey results indicated:

- Duration: 90.2% to 96.2% of students found the duration appropriate.

- Sound Quality: 64.4% to 69.7% rated the sound quality as good, with 22.7% to 24.2% rating it as very good.

- Image Quality: 62.1% to 68.9% rated the image quality as good, with 25.8% to 26.5% as very good.

- Technical Aspects: 91.7% to 95.5% rated technical aspects and effects as adequate.

- Audio Speed: 68.2% to 72.7% found the audio speed good, with 24.2% to 25.8% rating it as very good.

Areas for Improvement:

84% of students felt no major improvements were needed. Suggestions for enhancement included theoretical content, tool introductions, assembly instructions, and video duration.

Impact of Instructional Videos on Students' Knowledge and Skills

- Knowledge Impact: 97.73% of students agreed that instructional videos helped them conduct experiments more easily. 98.48% felt that the videos improved their understanding of the subject matter.

- Skill Development: 96.21% of students believed the videos helped them achieve better results in experiments. 96.97% felt the videos made it easier to conduct experiments effectively and saved time in measurements.

- Group Work Skills: 98.48% of students found that the videos enhanced group discussions and problem-solving. 98.49% agreed that the videos helped in preparing experiments, and 99.25% felt they improved their ability to report results.

5. CONCLUSIONS

In this study, the development and implementation of four instructional videos for the General Physics Module B have significantly enhanced the learning outcomes of students. The videos, covering key experiments such as determining the melting point of ice and the acceleration due to gravity, were found to improve students' comprehension and practical skills. Specifically, 98.48% of students reported that the videos helped them better understand the subject matter, while 96.97% noted that the videos facilitated more effective and time-efficient experiment conduction. Additionally, the use of these videos fostered better group work skills, with 99.25% of students agreeing that their ability to collaborate and report results improved.

These findings underscore the effectiveness of instructional videos in bridging the gap between theoretical concepts and hands-on applications in university physics education. The videos not only provided clear and accessible guidance for conducting experiments but also contributed to a more engaging and interactive learning environment. This approach aligns with the goals of modern educational reform, emphasizing the importance of practical skills and the application of knowledge in real-world situations.

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DEVELOPING CRITICAL THINKING CAPACITY IN TEACHING MATH

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ABSTRACT

Critical thinking is a capacity that students need to develop during the learning process, especially in studying math subjects at the university level. This article focuses on analyzing the role and methods to help develop critical thinking for students in teaching mathematics at the university level. Research results show that using discussion methods such as group discussion, situation analysis, open-ended problem solving... can significantly contribute to promoting critical thinking for students. From there, the article proposes some solutions to improve the effectiveness of developing critical thinking capacity for students in teaching mathematics at university.

Keywords: critical thinking, mathematics teaching, higher education

1. INTRODUCTION

Critical thinking is one of the core competencies that students need to develop during their studies, especially in learning mathematics at the university level. Critical thinking helps students analyze and evaluate information independently, form their own viewpoints and arguments, and thereby make appropriate decisions or solutions.

However, in the current reality of teaching mathematics at universities, the development of critical thinking for students still mainly focuses on memorizing and performing mathematical exercises in a routine manner, lacking the ability to analyze, reason, and express their own opinions and viewpoints. This negatively affects the development of competencies such as creative thinking, problem-solving, decision-making,...

From the above situation, this article aims to analyze the role and methods to develop critical thinking for students in teaching mathematics at the university level, thereby proposing some solutions to improve the effectiveness of developing this competency.

2. LITERATURE REVIEW

In the context of higher education, critical thinking is an important ability that not only shapes academic success but also reflects a deep understanding and the ability to apply knowledge in practice.

Critical thinking is not only related to logical reasoning and analysis but also includes the ability to evaluate, process information, and draw constructive conclusions. This highlights the important role of critical thinking in developing critical skills, which are the foundation for the comprehensive development of students in higher education. The author Rasiman Rasiman divided critical thinking competence into increasing levels from 0 to 3 with specific manifestations based on problem-solving methods (see Table 1) (Rasiman, 2015).

According to D’Alessio et al. (Fernando A. D’Alessio, 2019), critical thinking has a significant impact on students’ academic performance, and developing critical thinking helps them achieve higher academic results. Similarly, Fong et al. also demonstrated a positive relationship between critical thinking and students’ academic success (Carlton J. Fong, 2017). This underscores the importance of developing critical thinking in higher education environments.

Table 1. Three levels of Rasiman Rasiman

Expression	Level	Expression
Level 0	Without critical thinking skills, it is impossible to solve problems	Can only clearly identify given facts and form the topic of a specific problem or issue
Level 1	Has little critical thinking ability	Can identify the facts of the issue but is less suitable in providing prerequisites (concepts/theorems/data) and solving problems based on inappropriate conceptual theorems
Level 2	Has better critical thinking ability	Can identify the reality of the issue, appropriately reveal the nature of prerequisite knowledge, and solve the problem, but still lacks accuracy in some stages of implementation
Level 3	Has excellent critical thinking ability	Can clearly identify the provided facts, refer to prerequisite concepts/theorems/documents, and has the ability to plan and execute the plan accurately and reasonably. Additionally, has the ability to distinguish conclusions based on logical thinking

By 2020, Akhdinirwanto and colleagues had researched the use of the PBL method to enhance critical thinking skills for middle school students (R. W. Akhdinirwanto, 2020). The results of this study indicated that PBL combined with debate could be an effective hypothetical model to improve students’ critical thinking. Similarly, Amin and colleagues also mentioned the positive impact of PBL on students’ critical thinking skills (Saiful Amin, 2020).

In this context, PBL is not only a teaching method but also a learning approach that can be used to encourage reasoning and analysis from students. For example, Anesa researched the effectiveness of a PBL-based module on classical genetic material to improve students’ critical thinking skills (Anesa, 2021). These studies provide evidence for the importance of PBL in developing critical thinking in higher education.

Arini and colleagues researched the use of mind mapping strategies for essay writing, emphasizing the role of promoting critical thinking through creative learning techniques (Ni Wayan Arini, 2017). This highlights the diversity of teaching and assessment methods that can be used to encourage critical thinking in higher education environments.

A detailed study on how Problem-Based Learning (PBL) can be applied to enhance students’ critical thinking abilities in higher education environments. By presenting the definitions and concepts of critical thinking, introducing PBL and how it contributes to the development of this skill, it proposes a comprehensive and in-depth view of the relationship between these two concepts. By synthesizing previous studies and analyzing specific elements in the PBL model, it clarifies that PBL is not only a teaching method but also a powerful tool to encourage and develop students’ critical thinking. Additionally, it discusses how to assess critical thinking in the PBL environment and highlights the opportunities and challenges in

expanding the application of PBL to different subjects and educational contexts. By analyzing both aspects, it provides specific suggestions and guidance for instructors and researchers on how to optimize PBL to enhance students' critical thinking abilities in higher education environments (Nguyen Minh Anh Tuan, 2024).

The dissertation of Vuong Vinh Phat (Phat, 2022) summarized several teaching processes using 'scientific debate' from foreign and proposed the 'debate-summary' model in teaching Calculus in high schools. Each model mentioned by the above authors is usually suitable for teaching a specific content and more appropriate for university teaching environments than high schools.

From the studies on the manifestations of critical thinking described by (Ennis, 1980) and (Ennis, A taxonomy of critical thinking dispositions and abilities, 1987), a proposed process for forming and developing critical thinking skills for learners includes the following 7 steps:

Step 1: Receive information

Step 2: Make an argument

Step 3: Find evidence and reasoning

Step 4: Affirm the argument

Step 5: Acknowledge

Step 6: Act

Step 7: Verify and Reflect

Thus, we can understand it as a logical thinking process aimed at objectively evaluating and analyzing information to solve problems, create, and make decisions. We can propose the concept that "*Critical thinking is the ability to engage in purposeful, self-regulatory judgment, widely recognized as an important, even essential, skill*".

3. MATERIALS AND METHODS

Critical thinking is one of the important skills that students need to develop during their studies, especially in learning mathematics at the university level. The role of critical thinking in teaching mathematics at the university level is as follows:

- Helps students independently and deeply analyze and evaluate mathematical problems, concepts, and theories instead of passively receiving them.
- Encourages students to actively explore and discover new knowledge, rather than just memorizing and applying formulas.
- Trains students in logical reasoning, enabling them to present their own viewpoints and opinions on mathematical issues.
- Helps students relate and apply mathematical knowledge to real-life situations and solve open-ended problems.

- Motivates students to actively and positively participate in the learning process, fostering creativity.

Thus, critical thinking plays a very important role in improving the quality of mathematics teaching at the university level, contributing to the formation and development of essential skills for students in the current era.

Methods to develop critical thinking in university mathematics teaching

In teaching mathematics at the university level, the following methods can be used to develop critical thinking for students:

+ *Group discussion method*: Group discussion is an effective method to promote students' critical thinking. During discussions, students are encouraged to present their own opinions and viewpoints on mathematical issues, compare, analyze, and evaluate the group's opinions, thereby drawing appropriate conclusions and solutions.

+ *Situation analysis method*: Situation analysis allows students to apply mathematical knowledge to analyze and evaluate real-life situations and propose suitable solutions. The situations are designed to require students to reason, argue, and propose their own opinions and viewpoints.

Open problem-solving method: Open problem-solving allows students to explore, search, and create during the process of solving mathematical problems that lack information, have multiple solutions, or have various ways of solving. To solve these problems, students need to actively search, select, analyze, and evaluate the information, ideas, and proposed solutions.

These methods all contribute to training and developing the core elements of critical thinking such as analysis, evaluation, reasoning, and proposing personal opinions for students during their mathematics studies at the university.

4. RESULTS AND DISCUSSIONS

Recognizing the important role of critical thinking as well as the effective methods to develop this skill, we can propose the following solutions to enhance the effectiveness of developing critical thinking for students in teaching mathematics at the university level:

4.1. Innovate teaching methods, enhance discussion activities, analyze situations, and solve open problems

Example situation: "Optimizing production costs" in Table 2.

Construct a mathematical model: Let x , y , and z be the quantities of products A , B , and C to be produced each day, respectively. The objective function to be optimized is: ($P = 5x + 3y + 4z$) (maximize profit).

Constraints: Material constraint; Time constraint; Non-negativity constraint.

Solve the problem: Use the simplex method or optimization tools such as Excel Solver or MATLAB to find the optimal values of x , y and z .

Discuss the results: After finding the optimal values, students can discuss the significance of the results, the factors affecting production decisions, and how to improve the model if additional information is available.

Conclusion: Analyzing this situation helps students apply knowledge of optimization and linear programming to a real-world problem, while also developing their analytical and problem-solving skills.

Table 2. Optimizing production costs

Context	A manufacturing plant needs to optimize its production costs to increase profits. The plant produces three types of products: A, B, and C. Each product requires a different amount of materials and production time. The plant has daily limits on materials and production time
Data	<ul style="list-style-type: none"> - Product A: requires 2 units of materials and 3 hours of production - Product B: requires 1 unit of materials and 2 hours of production - Product C: requires 3 units of materials and 1 hour of production - Total materials available each day: 100 units - Total production time available each day: 120 hours
Request	Determine the number of each product to be produced daily to optimize production costs, knowing that the profit from each product A, B, and C is 5, 3, and 4 units of money, respectively

4.2. Develop scenarios and exercises that are challenging, requiring students to reason, argue, and propose their own opinions

Example 1: A delivery company needs to optimize its delivery schedule to reduce costs and time. The company has multiple delivery points within the city and needs to determine the optimal route. Requirement: Construct a mathematical model to optimize the delivery route. Use the shortest path algorithm (such as Dijkstra’s algorithm or the Floyd-Warshall algorithm).

Propose improvements to the model if additional factors such as delivery time, fuel costs, or traffic conditions are considered.

Example 2: An economist needs to analyze economic data to predict future market trends. The data includes economic indicators such as GDP, unemployment rate, and inflation. Requirement: Use statistical and regression methods to analyze the data. Provide predictions about market trends for the next 5 years. Argue the reliability of the predictions and propose measures to improve the prediction model.

These scenarios and exercises not only help students apply mathematical knowledge to real-world problems but also develop their reasoning, argumentation, and opinion-formulating skills.

4.3. Organize regular exchange, sharing, and group discussion activities among students

Divide students into small groups and assign each group a difficult exercise or an open problem. Each group will discuss and find a solution, then present the results to the class. Encourage students to think creatively and collaborate. Develop communication and presentation skills. Help students gain a deeper understanding of the knowledge through explanation and debate. Organize study experience sharing sessions where students can exchange effective study

methods, ways to solve difficult problems, and exam experiences. Create opportunities for students to learn from each other. Help students find study methods that suit themselves. Strengthen the spirit of solidarity and mutual support in learning.

Organize discussions on the practical applications of mathematics in various fields such as economics, engineering, data science, etc. Invite experts or alumni to share their experiences and knowledge. Help students see the importance and real-world applications of mathematics. Encourage students to delve deeper into the fields where mathematics is applied. Create motivation for learning and provide career orientation for students.

Present real-life scenarios or open problems that require students to work in groups to find solutions. The groups will discuss, analyze, and propose solutions. Benefits include: Developing teamwork and problem-solving skills. Encouraging students to think logically and analyze situations. Creating opportunities for students to apply their knowledge to real-world situations.

4.4. Encourage students to actively seek and explore new knowledge instead of passively receiving it

Assign students individual research projects on advanced mathematical topics or the application of mathematics in various fields. Students will independently search for materials, conduct research, and present their findings to the class. Benefits include: Developing research and self-study skills. Encouraging students to explore new fields and expand their knowledge. Enhancing presentation and public speaking skills.

Provide open-ended exercises or real-world problems that do not have a single solution. Require students to independently explore and propose different solutions. Encourage creative and critical thinking. Help students apply knowledge to real-life situations. Develop problem-solving skills.

Encourage students to use technological tools and online resources such as online courses, mathematical software, and learning forums to self-study and explore new knowledge. Enhance the ability to use technology in learning. Provide rich and diverse resources. Promote lifelong learning and self-study.

Organize group discussions and peer learning sessions where students can exchange ideas, share knowledge, and support each other in the learning process.

4.5. Innovate assessment methods, enhance process evaluation forms such as presentations and projects

To ensure that PBL (Project-Based Learning) truly contributes to the development of students' critical thinking, the assessment needs to be meticulously and multidimensionally designed. Below are some methods for assessing critical thinking in a PBL environment:

Solve the problem: In the PBL (Project-Based Learning) process, students are often assigned real or hypothetical problems to solve. Assessment can focus on students' ability to analyze the problem, identify causes and effects, and propose feasible and logical solutions.

Assessment can be based on how students approach and solve the problem, including the logic in their thinking, the ability to apply knowledge, and the skills to solve real-world problems.

Discussion and presentation: PBL (Project-Based Learning) often requires students to participate in group discussions to exchange ideas and develop their thinking. Assessment can measure students' contributions to discussions, their ability to listen and respond to peers' viewpoints, and their ability to express their opinions clearly and persuasively.

Presentation and argumentation skills can be assessed through presentations or reports, where students must present and defend their opinions in front of the class and a panel of judges

Product or project: An important part of PBL is that students must produce products or projects after the research and discussion process. Evaluation can focus on the quality and creativity of the product or project, as well as the ability to apply knowledge to solve specific challenges.

Evaluation can also consider the level of cooperation and group organization of students during the production of the product or project.

These evaluation methods provide a comprehensive view of the development of students' critical thinking in the PBL environment, from problem-solving abilities to communication and knowledge production skills.

These activities not only help students explore and discover new knowledge on their own but also develop important skills such as critical thinking, problem-solving, and teamwork. Along with innovating assessment methods, enhancing formative assessments like presentations and projects... Implementing these solutions will help promote critical thinking for students, thereby contributing to improving the quality of mathematics education at the university level.

5. CONCLUSION

Critical thinking is an important skill that students need to develop during their studies, especially in university-level mathematics. Developing critical thinking will help students analyze, evaluate, and reason independently, thereby forming their own viewpoints, opinions, and appropriate solutions.

Methods such as group discussions, case analysis, and solving open-ended problems are considered effective approaches to developing critical thinking for students in university mathematics education. Additionally, it is necessary to have innovative solutions, teaching methods, and organize discussion activities and formative assessments to enhance the effectiveness of developing students' critical thinking skills.

Focusing on developing critical thinking for students in university mathematics education will contribute to forming and developing the essential skills needed for students in the current era.

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TEACHING WRITING IN THE DIRECTION OF DEVELOPING CAPACITY FOR CAO LAN PRIMARY STUDENTS IN TUYEN QUANG

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ABSTRACT

Developing writing ability when teaching Cao Lan primary school students is an important but challenging task for teachers. This study was conducted in 5 primary schools including Dai Phu Primary School, Kim Phu Primary School, Nhu Han Primary School, Doi Binh Primary School, and Dai Phu Primary School in Tuyen Quang Province from January 2024 to June 2024 based on survey research design to assess teaching oriented towards developing writing capacity for Cao Lan ethnic primary school students. This study used Questionnaires and informal interviews to collect quantitative and qualitative data. The findings show that most Cao Lan primary school students make phonetics, spelling, vocabulary, semantics, sentences, paragraphs and text mistakes. The study provides effective solutions for the teaching process and writing skills of Cao Lan primary school students. Good writing ability will support students to get good test results and other real-life activities.

Keywords: Developing writing skills, good test results, Tuyen Quang Province, Cao Lan primary school students, ethnic primary school students

1. INTRODUCTION

For primary school students, especially minority ethnic students, writing can be challenging and uninteresting. This is because it requires a rich vocabulary, comprehensive knowledge and skills, as well as high creativity and flexibility. Developing writing skills in primary school students in general, and Cao Lan students in particular, is always a crucial and difficult task for educators. Based on surveys and practical research on teaching and learning for Cao Lan students in grades 3, 4, and 5 in Tuyen Quang, we aim to propose solutions to make this teaching process more effective, helping Cao Lan primary students improve their writing skills. According to our view, writing proficiency in Vietnamese clearly reflects one's ability to think, make judgments, reason, and express personal views on the objective world and social issues. With good writing skills, Cao Lan primary students will have more opportunities to assert themselves through classroom tests and other real-life activities.

2. LITERATURE REVIEW

Around the world, researchers are interested in and appreciate the role of writing and teaching in schools, aiming to teach writing effectively to promote learners' abilities. Researching Teaching writing skills, Donn Byrne pointed out "writing is for the reader. When we write, we encode thoughts into language. Because the reader is not present when we write, we must always pay attention to how we write, such as arranging ideas, writing sentences, and the information we need to convey" (Donn, 1998). According to Richard & Rodgers, language learning must always be connected to the social context, learners use language to interact and communicate to achieve

specific goals and objectives (Richard - Rodgers, 2001). In the study *Literacy Reading, Writing and Children's Literature*, the authors also said that: As a language skill, writing implies a thinking process. When writing, learners will learn how to collect information, select them to reflect their thoughts and opinions (Gordon - Rosemary - Paul - Lesley - Marcelle, 2004).

In Vietnam, teaching to develop competence has been discussed and researched quite a lot since the 90s of the twentieth century, especially after Resolution No. 29-NQ/T.U of the Central Executive Committee. Party (2013) on fundamental and comprehensive innovation of education and training in Vietnam. In 2013, in the article *Competencies and the problem of classifying "competencies"* in current research published in the *Journal of Education*, on the basis of synthesizing many previous studies, author Bui Minh Duc presented the results synthesizes definitions of the concept of "capacity", criteria and ways to classify capacity (Duc, 2013). In 2015, Le Ngoc Tuong Khanh published the study *Orientation for assessing writing capacity of elementary school students in Science Magazine*, Ho Chi Minh City University of Pedagog, which synthesizes perspectives on teaching writing, proposes a way to form and develop writing capacity for elementary school students, and provides directions for evaluating the writing capacity of elementary school students (Khanh, 2015). The group of authors Do Ngoc Thong (editor in chief), Do Xuan Thao (editor), Phan Thi Ho Diep - Le Phuong Nga in the book *Teaching to develop primary Vietnamese language competency* have pointed out some specific contents so that teachers can guide students step by step in the writing process, helping students write spoken and written texts in a variety of functional styles (Thong, Thao, Diep, Nga, 2021).

However, specific surveys and research on teaching writing for Cao Lan primary school students in Tuyen Quang are lacking. This is the origin of our research.

3. METHODOLOGY

Anket survey method is used to find out students' ability to use Vietnamese written language, descriptive method, analysis of documents such as student essays, in-depth interviews to find out communication ability. in the receptive ability of teachers and students, and finally, mathematical statistical methods of survey results.

3.1. Research Results

3.1.1. Theoretical Issues

** Concept of Competency, Language Competency, and Writing Competency*

The term "competency" is derived from Sino-Vietnamese, where "năng" means to perform well, and "lực" means strength; thus, "năng lực" refers to the power to accomplish something (Duc, 2013). Words like talent, ability, skill, and competency all share a common point: they refer to a person's capacity to perform one or more tasks. According to the Vietnamese general education program (2018), "competency is a personal characteristic developed through inherent qualities and the process of learning and practice, allowing individuals to mobilize a comprehensive set of knowledge, skills, and other personal attributes such as interest, confidence, and willpower to successfully carry out a specific activity and achieve desired results under specific conditions" (Thong, Thao, Diep, Nga, 2021). Language competency can be understood as the ability to

effectively use "spoken and written language in communication, manifested in skills such as reading, writing, speaking, and listening" (Thong, Thao, Diep, Nga, 2021).

Writing competency "reflects the ability to think, generate ideas, and express and present those ideas clearly, coherently, and persuasively" (Thong, Thao, Diep, Nga, 2021).

Thus, writing competency in composing essays is understood as the ability to effectively apply written language in social communication, demonstrated through word choice, sentence construction, paragraph development, and creating various types of texts from simple to complex. A student with writing competency is not only able to use Vietnamese correctly but also communicates effectively, understands and interacts with culture, and uses language in different contexts.

** Purpose of Enhancing Writing Competency in Essay Writing for Cao Lan Primary School Students*

Improving writing competency in essay writing for Cao Lan primary school students helps them grasp, consolidate, and expand knowledge, develop writing skills, and thus enhance their Vietnamese language learning and practice. This helps them achieve the educational goals and requirements set by the school and their own learning tasks.

** Some Characteristics of the Cao Lan People and Writing Competency of Cao Lan Primary School Students in Tuyen Quang*

+ The Cao Lan Ethnic Group

The Cao Lan ethnic group is considered a branch of the San Chay ethnic group. However, historically, the Cao Lan people have disagreed with merging with the San Chay ethnic group and still refer to themselves as "San Chay." According to the Han-Vietnamese pronunciation, San Chay means "Son of the Mountain." The term Lan, pronounced "làn" in Cao Lan language, means "house," so Cao Lan translates to "high house" - referring to people living in high stilt houses or houses on high hills (not low areas). The meanings of these names reflect the pride in the Cao Lan people's identity and ethnic name [According to Mr. Tran Minh Quang, 85 years old, from Go Gianh Village, Kim Phu Commune, Tuyen Quang City, and Mr. Tieu Son Hoc, 74 years old, from Doi Binh Commune, Yen Son District].

According to our research, Cao Lan families are typically small, consisting of parents and children, with few extended families living together. Researcher Khong Dien has recorded from the Cao Lan elders in Yen Son District that in the past, the Cao Lan people lived in clusters by clan, but as the population grew, large households split into smaller ones, so most Cao Lan villages are now interspersed with different clans (Dien, 2003). They often choose to build houses near markets and main roads, close to Kinh ethnic villages. The Cao Lan people have a long-standing cultural tradition, with unique characteristics as well as influences from neighboring ethnic groups. According to ethnological institute documents, the Cao Lan language belongs to the Tay-Thai language group. The Cao Lan people use Chinese characters to record genealogies, ritual books, stories, poems, and folk songs. The prevalent language state among the Cao Lan people today is multilingual, mainly bilingual (Cao Lan-Vietnamese). Most Cao Lan people speak and write Vietnamese fluently. Some elderly Cao Lan people know Chinese characters. This

multilingualism/bilingualism, while promoting mutual understanding among ethnic groups, also has drawbacks, as it is a natural and unequal state. Cao Lan people, especially the younger generation, while striving to master another language (primarily Vietnamese), often forget or lose proficiency in their mother tongue.

The Cao Lan people also created a script called "Cao Lan Nom," based on Chinese characters (square characters representing ideas), which expresses both meaning and Cao Lan pronunciation (similar to "Han Nom" used by the Vietnamese). This script is used in genealogy books, ritual books, and some folk poetry. Many people have commented that this script is "very difficult to read and understand," and "the majority of people can understand it when read aloud but cannot read or write it themselves" (Dien, 2003). The Cao Lan people also "recreated" Cao Lan script using Latin script symbols with some modifications to record Cao Lan language. As a result, a form of Cao Lan script emerged, with letters and principles similar to Latin script. Poet Lam Quy remarked that "this script is very common. Anyone who can read and write Latin script can write letters and communicate in Cao Lan within their ethnic community" (Dien, 2003). He noted that many folk songs, proverbs, and plays have been recorded using this script. In the Cao Lan folk songs collected by Lam Quy and Ngo Van Tru, the Cao Lan text is also recorded in this "script." Thus, although the Cao Lan people do not have a distinct writing system, they have shown great flexibility and creativity in developing Cao Lan Nom to document their cultural life and emotions. However, this "script" is difficult to learn and currently only a few elderly people can read/write it, which is a significant limitation for preserving the cultural values of this ethnic group [6, 9].

+ Current State of Writing Proficiency in Composition Exercises Among Cao Lan Elementary School Students in Tuyen Quang

To understand the characteristics of Cao Lan primary school students in learning essay writing, we conducted practical surveys as follows:

+ Scope and Subject: We selected primary schools in areas with the highest population of Cao Lan in Tuyen Quang Province. These include: Dai Phu Commune (Son Duong District) with Dai Phu Primary School, which has 900 Cao Lan students out of 1254 total students, accounting for 71.77%. Kim Phu Commune (Tuyen Quang City) with Kim Phu Primary School, which has 179 Cao Lan students out of 633 total students, accounting for 28.27%. Nhu Han Commune (Yen Son District) with Nhu Han Primary School, which has 206 Cao Lan students out of 539 total students, accounting for 38.21%. Doi Binh Commune (Yen Son District) with Minh Cam Primary School, which has 218 Cao Lan students out of 334 total students, accounting for 65.26%. The main survey subjects include school leaders, subject managers, homeroom teachers who also teach Vietnamese to Cao Lan students, and we also reviewed 510 essays written by Cao Lan students in grades 3, 4, and 5 in Tuyen Quang.

+ Time: We conducted the survey during the 2020 – 2021 school year.

+ Survey Content: The survey focused on issues such as: What are the advantages and difficulties Cao Lan primary students face when learning Vietnamese? How does their writing ability compare to other students? In terms of phonetics and spelling: we surveyed their

pronunciation compared to standard pronunciation and spelling. This survey helps identify how pronunciation affects writing according to current spelling and writing rules in essays. In terms of vocabulary and semantics: we surveyed their use of words in their essays. In terms of expression and sentences: we surveyed their expression and common syntactic structures. In terms of text coherence: we surveyed their sentence creation and paragraph development. Additionally, we explored what methods and solutions teachers have implemented to improve writing competency and their effectiveness in practice

* Survey Results:

+ Phonetic and Spelling Errors: Students frequently confuse sounds such as L-N, Ch-Tr, D-R-Gi, X-S, and have difficulty distinguishing between the initial consonants ng - ngh - gh. Common spelling mistakes include mixing up "lên - nên" (e.g., "Cô giáo đã dạy em lên người." should be "Cô giáo đã dạy em nên người."), "làm - nằm" (e.g., "Cô đã hướng dẫn chúng em nằm bài tập khó." should be "Cô đã hướng dẫn chúng em làm bài tập khó."), "lầm - nằm" (e.g., "Rễ cây như những chú chăn đang lầm ngủ." should be "Rễ cây như những chú chăn đang nằm ngủ."), "chường - trường" (e.g., "Bây giờ, chúng em đã khôn lớn chường thành nhưng vẫn không quên cô giáo." should be "Bây giờ, chúng em đã khôn lớn trường thành nhưng vẫn không quên cô giáo."), "rụng - dụng" (e.g., "Mùa thu cây rụng lá." should be "Mùa thu cây rụng lá."), "sâu sắc - xâu sắc" (e.g., "Đó là bài học xâu sắc với em." should be "Đó là bài học sâu sắc với em."), "sâu - xâu" (e.g., "Có những chú xâu con đang bò trên chiếc lá" should be "Có những chú sâu con đang bò trên chiếc lá"), "sao - xao" (e.g., "Trên trời có những ông xao lấp lánh" should be "Trên trời có những ông sao lấp lánh").

In addition to spelling errors, students also violate capitalization rules. Despite being a basic rule of Vietnamese, many students capitalize words arbitrarily or fail to capitalize names, place names, paragraph beginnings, sentence beginnings, and titles correctly. Examples include: "Em sẽ nhớ mái trường mình cầm của em." (should be "Em sẽ nhớ mái trường mình cần của em."), "cô giáo của em tên là lan." (should be "Cô giáo của em tên là Lan."), "Em được nghe câu hát của tác giả hoàng vân..." (should be "Em được nghe câu hát của tác giả hoàng vân...").

+ Vocabulary and Semantic Errors: Some students use words incorrectly in terms of sound and structure. For example, "Khung cảnh cánh đồng vào buổi sáng rất lãng mạng" (students wrote "lãng mạng" instead of "lãng mạn"), "Con mèo tròn như quận dây" (students wrote "quận dây" instead of "cuộn dây"), "Cô có đôi mắt nhìn quốn hút" (students wrote "quốn hút" instead of "cuốn hút"), "Bố em là tri thức" (students used "tri thức" which means knowledge, instead of "trí thức" which means intellectual). Errors also include using incorrect words, such as "tươi tốt" instead of "tươi đẹp" or "tươi vui," and "ân huệ" instead of "công ơn." Students often use redundant, repetitive expressions, like.

"Hiện nay, đang ngồi trên ghế nhà trường, em thầm hứa phải ra sức học tập để góp một phần công sức vĩ đại của mình vào xây dựng trường." They also frequently misuse colloquial expressions and redundant phrases, affecting the clarity and coherence of their writing. This indicates a lack of proficiency in choosing appropriate words and expressions, often influenced by spoken language.

+ **Sentence Errors:** Students often write sentences that are convoluted, vague, or repetitive, reflecting limited language application and thinking skills. Examples include: “Qua kỉ niệm này em rất có lỗi với ông ngoại và ông trăng cho đến bây giờ học lớp 5 em vẫn nhớ như in,” “Em sẽ nhớ mãi hình ảnh buổi sáng sớm sẽ không bao giờ quên ngày nghỉ thư giãn quan trọng ấy và không xem nhiều phim vào buổi tối,” “Đuôi mich mỗi khi nhìn thấy chủ về nó thường vẫy cái đuôi rất nhiều như muốn được chơi với em.” Due to the influence of spoken language, sentences often lack proper structure, such as missing subjects or predicates. For example: “Vào buổi tối và buổi trưa khi em đồ ăn cho mich, sẽ thè lưỡi và thở trông rất buồn cười,” “Từ xa như cái quả bóng to lớn,” “Nếu nhắc đến hoa hồng là đại diện cho tình yêu. Thì hoa phượng là hoa học trò,” “Mai này dù xa trường rồi. Em vẫn sẽ nhớ đến ngôi trường của em.”

+ **Paragraph and Text Errors:** Cao Lan primary students generally struggle with paragraph linking and maintaining text coherence. Some students, mostly in grade 5, demonstrate basic skills in organizing sentences and paragraphs logically. This group comprises 15 out of 162 students (9.3%). These students have begun to use linking techniques like repetition, substitution, or conjunctions to connect ideas. Most students, however, present unclear ideas and improperly segmented paragraphs, making it difficult for readers to follow the text. For instance, in descriptive essays, students often mix up the order of description, leading to disorganized narratives.

** Analysis of Survey Results:*

Based on the survey of Cao Lan students, approximately 85% (1,277,000 out of 1,503,000) have the ability to perceive, speak, and read Vietnamese like Kinh people. This is due to their proximity to Kinh people, their preference for living near main roads and markets, and their parents' increasing focus on education. The Cao Lan children's open and friendly nature also aids their integration into the education system. However, about 15% of students face difficulties due to intellectual delays, low learning motivation, lack of focus, or family neglect.

The survey reveals that Cao Lan primary students' writing skills are limited in phonetics, spelling, vocabulary, sentence structure, and text organization. The predominant influences include the use of spoken language in writing, limited vocabulary, and a lack of structured writing instruction. Additionally, the scarcity of educational materials and the lack of focus on writing skills in teaching contribute to the challenges faced by students.

3.2. Principles for Developing Writing Skills in Vietnamese Composition

+ **Phonetics, Spelling, Vocabulary, and Semantics:** Elementary students need to grasp the basic knowledge of Vietnamese phonetics and spelling, including blending and recording syllables, words, and sentences. By grades 3, 4, and 5, they should master Vietnamese spelling rules and the proper use of homophones. Students should use vocabulary and semantics accurately, distinguishing between spoken and written language to avoid stylistic errors and redundancies.

+ **Sentence Types in Composition:** Students should understand sentence components and structures for different writing purposes. Grades 3, 4, and 5 students need to express themselves correctly and effectively, using various sentence types appropriately.

+ **Paragraphs and Text:** Students should understand the writing process and be able to write texts according to different types required by teachers. They should use paragraph linking techniques to ensure text coherence and logic.

3.3. Measures to Enhance Writing Skills for Cao Lan Primary Students

To develop writing proficiency, students need an understanding of language, writing strategies, writing skills, and the ability to perform writing tasks in various situations to meet communication needs. Before school age, children's communication environment is limited, and their communication ability is primarily oral. However, once they start school, they receive formal education and are exposed to written language, using writing to create texts for communication purposes. Thus, writing proficiency is not innate but developed through a systematic educational process. Therefore, in the new general education program, the primary school curriculum includes the subject of Writing, which aims to provide "knowledge and skills to help students create written texts" and "help students produce oral and written texts in various functional styles" (Thong, Thao, Diep, Nga, 2021). According to our survey, the writing practice in the teaching of Writing at primary schools with Cao Lan students generally adheres to the content of the new general education curriculum. All 15 Vietnamese language teachers across various grade levels have developed detailed teaching plans and lesson plans for writing processes and different types of texts. For example, assignments include simple writing about family (Grade 3), storytelling, describing characters, writing dialogues, and letters (Grade 4), and describing people and scenes (Grade 5). During teaching, teachers use various methods such as visual aids, guided discussions, and practice exercises. Additionally, 10 out of 15 teachers regularly incorporate information technology into their lessons, and 8 out of 15 integrate Writing with other subjects like Spelling, Reading, and Vocabulary.

However, to enhance writing proficiency among Cao Lan primary school students, we propose the following measures:

+ Regularly practice spelling, distinguish between spoken and written language, and write correct and good sentences: In practice, teachers often rely on existing or outdated templates from textbooks, which limits students' opportunities to improve their Vietnamese writing skills. Teachers should collect, record, and use examples of well-written sentences and paragraphs from students' own work, thereby providing models that are familiar and relevant. This approach also encourages students to compete and improve their writing, addressing the typical attitude of Cao Lan primary students who may feel disadvantaged compared to Kinh students. Writing practice should not be limited to the curriculum; spelling and sentence writing should also be incorporated into extracurricular activities such as collective activities, contests, and quizzes. Teachers should also model proper language use in daily interactions and teaching.

+ Integrate Writing with other subjects and real-life experiences, combining observation and note-taking skills. For example, in Spelling lessons, teachers should help students write correctly while also encouraging them to use new vocabulary. In Vocabulary and Sentence Construction lessons, teachers should help students understand the meanings of words and idioms and their usage in writing. When guiding students in reading poetry or stories, teachers

should combine this with instruction on vocabulary, figurative language, and expression. This integration makes each subject a catalyst for enriching students' writing exercises. Teachers should exploit the practical knowledge that Cao Lan students possess, such as their agricultural background, to enhance their writing. Additionally, teachers should focus on improving observation and note-taking skills, as most students lack these abilities. A significant number of Cao Lan primary students do not have literary notebooks, and schools have not emphasized experiential learning in Writing. This needs to change.

+ Guide students step-by-step through the writing process: forming ideas, drafting, writing paragraphs and essays (self-editing, peer editing, teacher feedback), and presenting their work (Thong, Thao, Diep, Nga, 2021). Teachers need to prepare questions, worksheets, and facilitate discussions to guide students. Encouraging independent thinking, idea generation, and creative expression is crucial. Teachers should help students identify the main topic of their writing, collect relevant information, and understand the structure of paragraphs. Teaching techniques for effective introductions and conclusions should be provided in simple, memorable steps. After writing, students should review their work for spelling and grammar errors, and peer reviews can ensure objectivity.

+ Coordinate efforts at the departmental, school, and subject team levels to improve writing skills among Cao Lan primary students. For struggling students, improving writing skills requires teachers to have strong expertise, patience, and the ability to apply various methods and approaches, as well as a genuine passion for teaching and dedication to their work

4. CONCLUSION

Compared to other ethnic groups like the Hmong, Thai, and Dao, Cao Lan primary school students have advantages in learning Vietnamese, particularly writing, due to their proximity to Kinh communities and their cultural openness. With proper guidance and a well-structured learning plan, these students can significantly improve their writing proficiency to match that of Kinh students in central schools.

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ENHANCING STUDENT WRITING SKILLS THROUGH ARTIFICIAL INTELLIGENCE: APPLICATIONS AND IMPLICATIONS

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ABSTRACT

This study presents a comprehensive overview of the role of artificial intelligence (AI) in helping students' writing abilities. Since writing ability is essential for both academic and professional success, teachers are using AI-driven tools more frequently to give students individualized feedback, guidance, and support. This study examines the wide range of AI applications targeted at enhancing students' writing skills through a review of previous research and case studies. These consist of online writing assistants, grammar and style checks, plagiarism detectors, and automated essay scoring systems. The study also explores the pedagogical implications of using AI in writing teaching, highlighting how it might improve personalized learning, encourage self-directed learning, and develop metacognitive awareness. This study employs qualitative research methods to gather viewpoints from 50 students from different majors and 10 teachers through semi-structured interviews and focus groups. The results demonstrate how AI has significantly improved HaUI students' writing abilities and how AI tools contribute to more successful and customized writing education.

Keywords: Artificial Intelligence, writing skills, applications, implications, enhance

1. INTRODUCTION

Writing proficiency is a fundamental skill that supports both professional and academic achievement. Being able to write well is more crucial than ever in a society that is becoming more digital and interconnected. However, many students face significant challenges in developing strong writing skills. It is frequently difficult for traditional writing training methods to meet each student's unique learning demands, and offer instant and individualized feedback. This gap has prompted teachers to look into creative ways to improve writing education by utilizing technology.

The potential of AI to provide real-time assistance, adaptive learning, and personalized feedback presents encouraging opportunities for improving writing skills. Large number of texts may be analyzed by AI-driven technologies, which can also offer detailed feedback on grammar and style and tailored advice based on each student's performance. Understanding the implications

and applications of AI in writing education becomes essential as educational institutions and teachers want to incorporate these technologies into their teaching processes.

This study aims to provide a thorough analysis of how AI can improve students' writing abilities. It specifically aims to: (1) Explore the ways in which AI technologies help students become more proficient writers while emphasizing their features and advantages; (2) Examine different AI tools and systems, like grammar checkers, virtual writing assistants, and automated essay grading systems, and evaluate how well they work for teaching writing; (3) Discuss the potential effect of AI on teaching methods, supporting personalized learning, striking a balance between AI and human instruction and ethical issues related to the application of AI in the classroom.

2. LITERATURE REVIEW

2.1. Writing skill and its challenges

Writing is the most challenging areas for students to master, while being an essential talent in both academic and professional contexts. Graham and Perin (2007) stated that writing is a complicated process that many students find difficult to manage because it requires a complex collection of skills such as grammar, vocabulary, coherence, and critical thinking. Many demands of students are frequently not adequately met by traditional methods of teaching writing, such as peer review and direct instruction. In their cognitive process theory of writing, Flower and Hayes (1981) highlighted the difficulties students encounter in structuring their ideas and turning them into texts that make sense. This problem is still a major obstacle in writing teaching today.

According to Bereiter and Scardamalia (1987), a lack of cognitive resources causes many students to struggle and impairs their capacity to efficiently prepare, edit, and rewrite their work. This frequently results in students writing at a surface level, concentrating more on text production than on clarifying and developing their thoughts. Hinkel (2011) also emphasized the difficulties faced by non-native English speakers, including problems with grammar, language transfer and cultural variations in writing customs, all of which make writing much more difficult.

2.2. Role Of Ai In Education

AI has increasingly been recognized as a transformative force in education. Luckin et al. (2016) talked about how AI may be used to provide individualized instruction that changes to meet the needs of each student. AI has shown great promise in language instruction by offering instant feedback, which Bates (2019) said is essential for language learning and development. By enhancing the accessibility and interactivity of instructional materials, mobile and AI-based technologies are transforming language learning, as examined by Kukulska-Hulme and Traxler (2013).

Shermis and Burstein (2013) highlighted the use of AI in automated essay scoring systems for writing instruction, which have been demonstrated to offer reliable and impartial evaluations of student work. These systems assess essays using natural language processing (NLP) algorithms

based on a set of preset standards, providing comments that can help students with their revisions. Leacock and Chodorow (2000)

3) discussed how AI has been included into grammar and style checkers, which are now very useful resources for students who want to improve the clarity and mechanics of their writing.

2.3. Benefits Of Ai In Writing Education

2.3.1. Personalized feedback

One of the primary advantages of AI in writing education is the capacity to offer personalized feedback. According to McNamara et al. (2015), students may fix problems as they emerge since AI-driven feedback is more immediate and specific than traditional approaches. Students can receive feedback of this kind that is customized to meet their specific needs, assisting them in concentrating on their areas of greatest need. Attali and Burstein (2006) demonstrated how AI systems may effectively identify patterns in student writing and provide individualized recommendations that improve the educational process.

2.3.2. Enhanced engagement

AI tools have the ability to increase students' interest in writing practice. Dabbagh and Kitsantas (2012) claimed that gamification and interactive features in AI-based learning platforms can motivate students to practice more frequently. AI tools have the potential to make writing practice an engaging and sustained experience for students by integrating features, like progress tracking and rewards. The significance of prompt feedback in maintaining student engagement was also highlighted by Mory (2004), and AI systems are especially well-suited to deliver this advantage.

2.3.3. Promotion of self-directed learning

Another important benefit of AI in writing education is that it encourages self-directed learning. Zimmerman (2002) emphasized the significance of self-regulation in education, pointing out that students who take charge of their education have a higher chance of succeeding in the long run. AI technologies facilitate this by giving students access to resources that let them work on their own while providing direction that fosters the growth of their critical thinking and problem-solving abilities. According to Azevedo et al. (2004), learning environments powered by AI have the potential to improve students' metacognitive abilities, allowing them to consider how they write and decide how to make their work better.

2.4. The English Teaching Situation At Haui

As a pioneer of teaching English for Occupational Purposes (EOP) for technical students in Viet Nam, HaUI has carried out the EOP project since 2015 and has obtained some achievements. At this university, the flipped classroom model is applied to all EOP classes of eight different major groups including Automotive Technology, Business, Chemical Technology, Electrical and Electronics Engineering, Garment Technology and Fashion Design, Mechanical Engineering, Information Technology, and Tourism and Hotel Reception.

Eight non-majored English groups at HaUI study EOP in 6 semesters, from the first year to the third year. Students have to complete the EOP curricula in 30 credits. For each module, students study 5 credits equivalent to 75 periods, of which 40 periods are taught in face-to-face (F2F) classes with teachers and 35 periods are self-study on eop.edu.vn. An online lesson includes the following contents: Vocabulary, Grammar, Listening, Reading, Writing, Pronunciation, and Speaking. Each section is designed with topic-related exercises for students to learn and practice before joining F2F classes. During the F2F classes, students are asked to apply the knowledge and skills they have learned online to perform class activities in groups, pairs, and individually. Before class, students study online on the website eop.edu.vn. They learn key language knowledge in Vocabulary, Grammar, and practice language skills in Listening, Reading, Writing, Pronunciation. Students learn pronunciation, how to write words in the Vocabulary section. For the Grammar part, students learn tenses, forms, usages, grammatical structures and useful expressions related to the topic of each unit. At the end of the Vocabulary, Grammar section students can test their online language knowledge through section tests. For Listening and Reading skills, students practice various types of tasks such as listening and reading for main ideas or for detailed information. Students can practice writing skills via different levels from writing simple to complex sentences, paragraphs, emails, letters, etc. In addition, students have to complete their writing tasks and speaking videos, then upload them on the online learning site so that teachers can give comments and marks. Besides, students have 2 F2F classes (100 minutes per class) equivalent to 4 periods each week with teachers and other students to practice their English-speaking skills. When studying each unit, students are required to understand the overall objectives and the objectives of each lesson. The curriculum consists of 8 units with 2 lessons for each. A F2F lesson is designed from 4 to 5 activities with 1 warm-up activity and 3-4 learning activities. After class, students continue to log in the learning site eop.edu.vn to complete the remaining online tasks like section tests, unit tests, writing and speaking assignments. The level of online completion and the scores of these online tests are used by teachers to determine the conditions for students to take the end-of-term exams.

3. METHODOLOGY

3.1. Design of the study

This study employed a qualitative research methodology to explore the applications and implications of AI tools in enhancing students' writing skills at HaUI. This methodology is intended to collect detailed information about the experiences of students as well as the perspectives of teachers who have used AI tools in their writing lessons.

3.2. Participants

The study involved two groups of participants: 10 HaUI English teachers frequently include AI tools into their lesson plans, such as grammar checkers, plagiarism detectors, and virtual writing aides and 50 students from a variety of majors, including Automotive Technology, Business, Chemical Technology, Electrical and Electronics Engineering, Garment Technology and Fashion

Design, Mechanical Engineering, Information Technology, and Tourism and Hotel Reception were enrolled in the EOP program.

3.3. Data Collection

Both teachers and students participated in semi-structured interviews. The interviews with the students centered on their experiences using AI-powered writing tools, the feedback they got, how the tools affected their learning, and any difficulties they ran into. The discussions with teachers explored their perspectives on the balance between AI and traditional teaching techniques, the integration process, and the pedagogical effectiveness of AI technologies.

The interviews' semi-structured format provided flexibility, allowing participants to go into further detail about their experiences while also making sure that important topics like AI's function in feedback, learning engagement, and writing improvement were addressed.

Two focus group discussions were conducted, one with students and another with teachers, to explore collective experiences and generate dialogue around common themes. Focus groups provided an interactive platform where participants could discuss their views on AI's role in writing education, compare experiences and make suggestions for enhancements.

The focus of the student focus group was on how AI technologies promoted writing assignments, self-directed learning and collaborative learning. The pedagogical difficulties, ethical issues and the general efficacy of AI apps in improving writing abilities were the main topics of the teacher focus group.

3.4. Results

At HaUI, the utilising of AI tools in the English writing education is transforming how students engage with writing tasks. These applications aim to enhance the quality of writing education and provide personalized support to students.

3.5. Virtual writing assistants

AI-powered devices known as virtual writing aides provide students with immediate feedback on their work. As students write, these tools help them improve their writing skills by offering instant feedback on grammar, style, and structure. Virtual writing assistants can assist students in improving their writing more quickly and interactively by providing real-time edits and improvements. This immediate feedback promotes ongoing writing practice and assists students in quickly resolving problems in their work, which improves writing habits and abilities.

Students who were interviewed said they valued the instant feedback that virtual writing assistants provide. One student stated, *"I feel like I can learn and improve faster because the tool tells me what to fix right away, especially with grammar mistakes I often make."* Another participant highlighted the time-saving benefits of the program, saying, *"I used to have to wait for my teacher's feedback, but now I get suggestions immediately, and that helps me write more efficiently."*

However, there were also worries about possibly using these technologies too much. A focus group participant said, "I fear sometimes that I rely too much on the virtual assistant and do not think of my own ways to improve my writing. It is simple to accept the recommendations without understanding why."

3.6. Grammar and style checkers

Grammar and style checkers are crucial tools for enhancing students' writing's accuracy and readability. HaUI uses programs like Grammarly, ProWritingAid, and Hemingway Editor to offer thorough input on a range of writing-related topics. These tools are especially helpful for fixing grammar mistakes, refining writing style, and enhancing overall readability.

As one participant observed, *"Grammarly is excellent for identifying minor errors, particularly in essays that I write. Seeing my work through a second pair of eyes is like that."* Another student shared how Hemingway Editor helped them make difficult phrases simpler: *"Hemingway truly gets me to think about how I phrase things. I occasionally use too many fancy terms, but the tool helps me keep things simple."*

Although students valued these tools, some thought the feedback was not always consistent. One student clarified, saying, *"I get confused when Grammarly and ProWritingAid offer contradictory recommendations. Sometimes, I am not sure which advice to follow."*

3.7. Plagiarism detection tools

HaUI places a high value on upholding academic integrity, and plagiarism detection software is essential to making sure that students create unique work. Students' writing is compared to a large database of sources using tools like Turnitin and Copyscape to find possible instances of plagiarism. By teaching students the value of accurate citation and originality in their writing, these tools aid in the prevention of academic dishonesty.

One student emphasized the value of Turnitin in their academic career, saying, *"Before utilizing Turnitin, I had no idea how simple it was to unintentionally plagiarize. It helped me be more careful about my citations and paraphrasing."* Some participants, however, thought that these tools' feedback was sometimes overly strict: *"Sometimes, frequent phrases were highlighted by Turnitin, and even though they were not actually copied, I had to replace them. It can be annoying."*

3.8. Automated scoring systems

Written assignments are evaluated and scored by automated scoring systems using AI algorithms. These systems evaluate various components of writing, including logic, coherence, and grammar. Automated scoring systems can provide thorough feedback on particular writing elements, enabling students to recognize their areas of strength and areas for improvement.

According to a focus group discussion, some students thought the feedback lacked depth, even though they thought automated scoring was efficient. Someone said, *"The automated system helps me see where I went wrong, but it does not always explain why, and that is where I still need*

my teacher's help." Another student commented, *"It is helpful to get a quick score, but I still prefer when my teacher reads my work and gives more personalized comments."*

Students understood that a balance between AI and human feedback was necessary, even though automated scoring was quick and easy. A participant said, *"AI feedback is good for basic errors, but only a teacher can really understand my ideas and give me advice on improving my arguments."*

Results from HaUI's semi-structured interviews and focus groups show that most students value the ease and effectiveness of AI tools for improving their writing. Grammar checkers, plagiarism detection software, and virtual writing assistants have made it simpler for students to spot and fix mistakes, polish their work, and uphold academic integrity. Nonetheless, issues with an excessive dependence on these tools, inconsistent feedback, and shallow AI-generated evaluations point to areas where human supervision is still essential. Several key themes emerged from the data:

Real-time feedback enhances learning: Students benefit from instant feedback from virtual writing assistants, which speeds up their writing improvement and encourages ongoing involvement in the writing process. *"I do not have to wait for feedback anymore. That encourages me to keep getting better because it is right there."*, one student said.

Balancing AI and human intervention: Students still appreciate the nuanced feedback that only a human teacher can offer, particularly for content and arguments, even though they find AI tools helpful for grammar and style fixes. According to a participant, *"The AI can help with grammar, but it cannot really understand what I am trying to say like my teacher can."*

Concerns about dependency: Students are getting increasingly concerned about relying too much on AI input. As mentioned by a student, *"It is easy to just accept the suggestions without thinking, and I worry I am not learning how to edit on my own."*

Inconsistent feedback from AI tools: Different recommendations from other AI programs, like Grammarly and ProWritingAid, caused confusion for some students. Because the instruments sometimes provided contradictory feedback, they had trouble deciding which recommendations to follow.

Overall, these results suggest that AI tools can be helpful in improving writing education, but their impact is greatest when paired with student critical involvement and human feedback. In order to improve its approach to AI integration, HaUI must continue to address issues with over-reliance, inconsistent feedback, and the requirement for deeper analysis than simple grammatical correction.

4. CONCLUSION

AI has greatly improved HaUI students' writing abilities. Tools like automatic scoring systems, grammar checkers, plagiarism detection software, and virtual writing assistants offer valuable real-time feedback, personalized recommendations, and objective assessments. When combined, these tools help make writing education more individualized and successful.

A blended learning strategy that combines AI tools with traditional teaching methods should be implemented by teachers to ensure that students receive both individualized feedback and practical instruction. Policymakers must address concerns of access and equity, making sure that every student has the technology they need to take use of AI tools. For AI integration to be successful, continual teacher training is also necessary.

As AI develops further, it will probably play a bigger part in education and present fresh approaches to teaching writing. In order to improve writing practices and make them more efficient and individualized, educational institutions can use AI technologies. Accepting these developments could influence the direction of writing education going forward and enhance student outcomes.

Further research is needed to explore the long-term effects of AI on students' writing abilities, particularly in the areas of critical thinking, creativity, and independent writing. Which AI technologies are most effective for various learning levels and writing genres could be determined through comparative studies. With these insights, teachers and policymakers can protect student development while optimizing the use of AI in writing education.

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SOCIAL RESOURCE MOBILIZATION IN CONTRIBUTION TO STABLE PROMOTION OF GENERAL EDUCATION FROM HO CHI MINH CITY'S PRACTICE

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ABSTRACT

Resource mobilization for education advancement is one of the significant resolutions to improve the quality of general education. The report focuses on getting insight into the Communist Party of Vietnam and the Vietnamese government's resource mobilization policy for education advancement. The article examines the essential mobilization of social resources for development investment in general education, the current status of policy implementation regarding the mobilization of social resources for development investment in education in Ho Chi Minh City, including the outcomes and limitations. Based on the current state of the policy's implementation in Ho Chi Minh City, the author will discuss the methods to mobilize and make use of the social resources for general education's sustainable growth in the city. Also, these methods contribute to the effective implementation of fundamental and comprehensive innovation in education, which meets the demands of country development in the industrialization, modernization, and international interpretation eras.

Keywords: education resources, Ho Chi Minh, Ho Chi Minh Education

1. INTRODUCTION

Social resources are the sum of resources outside the state budget; mobilizing social resources is the mobilization of resources outside the state budget through contributions and investments of organizations, individuals, businesses, communities, and people. Ho Chi Minh City is one of the biggest economic, cultural, and educational centers in the country. The increase in education and quality of resources is one of the most crucial contributors to the city's sustainable growth. With a contribution of 28% of the national GDP, Ho Chi Minh City still faces difficulties despite the advantages of education development. With more than 1 million high school students, the city faces challenges in general education investment from population growth. Particularly in the 2-session teaching orientation, according to the 2018 general education program, teaching and learning facility assurance is a huge barrier. Nowadays, one of the effective solutions to ensure sustainable growth in general education is to boost social resource mobilization in the education field.

Rationale

Given the gradual downslide of natural resources and the advancements in science and technology, education investment is the most efficient way to ensure the country's development. In acknowledgment of the cruciality of education and training, the Communist Party of Vietnam and the Vietnamese government state the consistent perception that education and training, in parallel with science and technology, are of the utmost importance. Investment means

improvement. In response to new era demands, on November 4, 2013, the Communist Party's Central Executive Committee imposed Resolution No. 29-NQ/TW of the 8th Central Committee (11th Tenure) on "Fundamental and comprehensive innovation in education, serving industrialization and modernization in a socialist-oriented market economy during international integration." It stated that one of the most important things in the overall goal is to build the opening, practical learning and training, well teaching, learning, and organizing education; also, to have sensible structures and methods in education that are connected to learning society. (The Communist Party of Vietnam, 2013, p. 3). The policy, particularly in changing the general education program in terms of learners' virtue and competence, requires enormous resources. To meet the demands, besides the government investment budget, it is essential to efficiently mobilize social resources. Nowadays, the resolution states that: "there should be a symbiotic development between public and non-public educational institutions and among regions. Besides, it's critical to prioritize investment in education and training for ethnic minorities, mountainous areas, deprived areas, boundaries, island territories, and policy beneficiaries. Moreover, the next thing is to democratize, and socialize education and training." This reflects the consistent perception of the Communist Party of Vietnam in mobilizing social resources for investment in the development of education in general and general education in particular.

On November 28, 2014, to implement the policy of the Party about fundamental and comprehensive innovation in education, Resolution No. 88/2014/QH13 about Innovation in teaching programs, general textbooks funded by the government, and the social budget was approved by the National Assembly (The National Assembly of Vietnam, 2013, p. 2). This lays an important foundation for education in general and localities to be able to mobilize social resources effectively to implement general education programs sensibly and attain effectiveness.

On June 4, 2019, in response to the demand for mobilizing resources for the development of education in Vietnam, the Government issued Resolution No. 35/NQ-CP about augmenting the mobilization of social resources for investment in education and training development during the period 2019–2025. The goals are determined by 2025 to augment the mobilization of social resources to make a significant and actual change in attracting, using, and managing national and foreign resources for developing education and training. Also, it is determined to improve the quality of education and human resource training to meet the theme of the Fourth Industrial Revolution and international integration. (Prime Minister, 2019, p.1). Not only does this measure ensure the effective accomplishment of fundamental and comprehensive innovation in the 2018 General Education Program, but it also ensures equity in education access. The government requires ensuring equity in access to an open, diverse, flexible, interconnected modern education with a variety of features, methods, and levels of training that strongly enhance human resources, especially high-quality ones, to meet the requirements of the Fourth Industrial Revolution and international integration by 2030. (Prime Minister, 2021, p.1)

There are still certain limitations evaluated by the Central Committee, despite the notable accomplishments of the Party, government, and citizens of the city, based on a summary of the 10-year implementation of Resolution No. 16-NQ/TW of the Central Committee of the Party

regarding the direction and tasks for the development of Ho Chi Minh City until 2020. Under the new conditions, the Central Committee has decided to issue Resolution No. 31-NQ/TW of the Politburo on the direction and tasks for the development of Ho Chi Minh City until 2030, with a vision toward 2045. Resolution No. 31 offers an opportunity for Ho Chi Minh City to pilot its system and policy to grow, of which determination in the education field is to: Continue to invest in building the city into a major education and training center, with a focus on training high-quality human resources, approaching international standards, adapting to the digital transformation process, and fostering innovation and integration. (The Communist Party of Vietnam, 2022, p. 7). The policy from the Party, National Assembly, and Government on education innovation in general, and education socialization, in particular, provides an important foundation for localities, including Ho Chi Minh City. This policy, as a consequence, enables localities to build their policy of mobilizing social resources and to invest in sustainable growth in general education within the area, which will contribute to enhancing the quality of human resources to meet development requirements.

The current situation of implementing policies on mobilizing social resources and investing in the development of general education in Ho Chi Minh City

Implementing the Communist Party of Vietnam & Vietnamese government's policy on mobilizing resources and investing in education development, the Ho Chi Minh City Party Committee issued Action Program No. 46-CTrHĐ/TU on June 21, 2015, to implement Resolution No. 29-NQ/TW of the 8th Central Committee (11th Tenure) on "Fundamental and comprehensive innovation in education, serving industrialization and modernization in a socialist-oriented market economy during international integration." The City Party Committee calls for collective efforts and voluntary contributions from the whole society to participate in building schools and classrooms, engaging in nurturing and educating the younger generation to the best of their abilities. The Resolution of the 11th Tenure of the Ho Chi Minh City Party Committee Congress for the term 2020 - 2025 advocates developing the city's general education towards Perfecting the education system towards smart education, open education, lifelong learning, and building a learning society. Construct and develop the model of "Advanced, modern schools in the trend of integration (Ho Chi Minh City Party Committee, 2020, p. 177). To implement this policy, socialization, and mobilization of social resources with the participation of both the Government and citizens are necessary. As a result, the city's general education will be sustainably developed in a modern direction. With the aim of effectively mobilizing social resources for investing in education development, on September 6, 2023, the Ho Chi Minh City People's Committee issued Decision No. 3776/QĐ-UBND ratifying the project "Socializing the development of the education and training sector in Ho Chi Minh City for the period 2023 - 2025, with a vision towards 2030.". The project's standpoint is: Continuing to perfect the policy of renewing the education management mechanism, increasing investment resources, while renewing goals, methods, structures, and sources of investment capital...; diversifying types of education, developing non-public educational institutions, expanding cooperation, international collaboration, and developing effectively educational institutions with 100% foreign capital (Ho Chi Minh City People's Committee, 2023, p.1). The city advocates the need to continue improving solutions to attract investment resources more effectively after determining the importance of the policy based on the

results achieved in attracting investment in the education sector in previous periods. The Ho Chi Minh City Education Development Strategy until 2030, with a vision towards 2014, emphasizes the need to timely exploit opportunities to attract high-quality resources and integrate internationally for education and training development (Ho Chi Minh City People's Committee. 2024, p.7). Not only does attracting social resources for investing in education development need to be actively and innovatively implemented to ensure the quality of educational resources, but the process also has to be suitable for the city's education development orientation.

Implementing the policy of mobilizing social resources for the development of general education in Ho Chi Minh City has yielded significant results.

Results of attracting social resources for investment in general education from 2016 to 2022. During the period from 2016 to 2022, mobilizing social resources for building and establishing new schools (besides public ones) resulted in the establishment of 30 schools with 503 classrooms, with a total investment of around 440 billion VND. In 2022, the education and training sector of the city continued to receive support from parents, organizations, individuals, and associations in the form of cash and assets worth about 20 billion VND. From 2009 to 2023, the city's investment stimulus program in the education sector has approved 86 projects with a total investment capital of 9,160 billion VND, of which the budget-supported loan capital is 4,022 billion VND (Ho Chi Minh City People's Committee. 2023, p.15). Social resources invested in education and training have contributed to increasing the scale of the school system, improving teaching and learning conditions, and enhancing the education's quality in the city.

In the school year 2022-2023, mobilizing social resources for the development of general education contributed to increasing the scale of educational facilities, meeting the citizens' learning needs, and improving education quality. Here are the statistics of the total number of general education facilities and the proportion of non-public educational facilities until the academic year 2022-2023.

Table 1. The number of general education institutions and the proportion of public and non-public sectors in the academic year 2022-2023

Field of study/ Education Level	Total number of educational institutions	Public		Non-public	
		Number of institutions	Percentage %	Number of institutions	Percentage %
Entire sector	2.310	1.350	58.5	960	41.5
Preschool	1305	968	74	337	26
Primary school	516	490	95	26	5
Middle school	286	279	97.5	7	2.5
High school	203	113	55.6	90	44.4

Source. The data is processed from

Through the table, it can be seen that implementing the policy of mobilizing social resources for investing in the development of general education in Ho Chi Minh City has achieved significant results. Specifically, social resources have invested up to 41.5% of the total number of educational

institutions. Which have a focus primarily on preschool education at 26% and high school one at 44.4%. The entire city has 57 educational institutions implementing advanced, internationally integrated school projects, 724 language and computer centers, 94 organizations conducting life skills education and extracurricular activities, and 26 preschool and high schools with foreign investment (Ho Chi Minh City People's Committee. 2024, p.7). Social investment resources for general education play an important role in improving the quality of education, and meeting people's diverse needs for learning in modern, integrated environments, hence, providing comprehensive development for students.

Some limitations exist: Some areas with industrial parks, export processing zones, and areas with high mechanical population growth rates, such as Binh Tan District, Binh Chanh District, and District 12 still lack schools and classrooms, especially preschools and primary schools. Due to the lack of classrooms, the ratio of students attending school for 2 sessions per day does not meet the requirements of The 2018 General Education Program reform, and the student-to-teacher ratio in a classroom is higher than the city's average.

Mobilizing social resources for investing in renovating existing schools in the public school system still faces shortcomings, as resources are mainly mobilized from parents of students at schools without policies to attract legal funding from other sources.

Mobilizing social resources for the development of general education mainly just focuses on investing in physical infrastructure and operating school systems, without effective solutions to attract social resources to implement projects for developing the teacher workforce, enhancing professional competence and innovating teaching methods.

2. METHODOLOGY

In conducting the research, the author primarily uses historical and logical methods to analyze the policies of attracting social resources and investing in education development by the Communist Party of Vietnam and the Vietnamese Government. The analysis helps form the basis for the policy of mobilizing social resources for education advancement in Ho Chi Minh City.

Clarify the legal basis for mobilizing social resources for the development of education, the significance of mobilizing social resources for the cause of universal education. From the economic and social conditions in Ho Chi Minh City and the practicality of universal education, the author analyzes the issues in education that can utilize social resources to develop infrastructure, enhance human resources, and improve educational programs. Analyze the strategy and measures of mobilizing social resources for the sustainable development of universal education of the Party Committee, and the government of Ho Chi Minh City. The author clarifies the results of implementing the socialization policy of education in Ho Chi Minh City.

Based on the research results on the current status of mobilizing social resources for educational development in Ho Chi Minh City, the author uses a historical method to summarize

the characteristics, issues raised, and recommendations for effective solutions to mobilize social resources contributing to the sustainable development of universal education at this location.

3. DISCUSSION AND CONCLUSION

First, improving institutions to attract social resources to invest in developing general education towards quality, efficiency, and sustainability.

To efficiently mobilize social resources for investment in education development, Ho Chi Minh City must evaluate educational projects that meet the criteria for public-private cooperation. Soon, the city should address institutional issues and concerns, and call for investment cooperation, particularly in the 86 planned school projects in the area. Also, the city needs to implement Resolution No. 31 of the Politburo dated December 31, 2022, to build a breakthrough mechanism, attract development investment resources, and promote socialization in the field of education and training. According to the Central's directive, the city authority should consider reasonable education budget distribution to partly assist non-public institutions. The budget is invested in basic construction, prioritizing the expansion of the library system to meet the needs of students, in line with building a learning society. The city authority should find ways to support school fees for non-public school students according to the corresponding ratio of public school students as a form of ensuring educational equity. Moreover, reasonable support mechanisms, policies, and sanctions for investors in apartment buildings, new residential areas, and industrial parks are required to ensure the construction of a school system corresponding to the mechanical increase in population after putting the housing projects into use according to regulations.

Second, implementing policies to mobilize social resources transparently to improve public school facilities.

Mobilizing social resources is one of the most necessary and effective measures to develop general education. However, the actual process of implementing this policy in Ho Chi Minh City still has certain shortcomings. Annually, the process of mobilizing resources to improve facilities in public schools still encounters resistance from some parents. Given the current situation, the city's educational sector should focus on enhancing communication efforts and raising awareness among officials and citizens at all levels about the significance of socializing education. This will assist in enhancing the quality and effectiveness of educational activities. Policy communication needs to be carried out regularly and effectively to create social consensus for the policy of socializing education. The city's education sector should conduct a thorough social investigation to gather the opinions of parents, students, and relevant organizations to advocate for funding in education. Since then, there have been adjustments in policies and implementation processes following society's aspirations and desires, and creating people's trust in the policy of socialization of education.

Third, creating policies to mobilize social resources to invest in improving the quality of educational human resources.

The current activities to attract investment resources for general education in the city are mostly focused on constructing schools and classrooms. To achieve sustainable development in

general education and to ensure equal education access, the city should conduct research, advocate, and attract social resources to support projects aimed at enhancing the quality of the teaching workforce. By providing training courses for teachers to improve their expertise, skills, and teaching methods, we can contribute to enhancing the overall quality of teaching and learning. Furthermore, the city should research breakthrough policies to attract domestic and foreign high-quality human resources to develop education aiming to build the city into a regional education center. Sustaining development and improving the quality of general education have been ensured only if the quality of educational human resources has been improved.

Fourth, promoting the role of external educational organizations in improving students' capacity.

As a dynamically developing city, the policy of socialization of education has provided opportunities for various organizations and individuals to contribute to educational development in diverse ways. Alongside the core education program in schools across the city, schools are also engaging in teaching life skills, English, STEM education programs, and experiential learning, with collaboration among schools, especially public ones, and external educational organizations. These activities contribute to providing additional options for parents and students to enhance students' skills in various aspects.

Besides the achievements, there are many social criticisms worth paying attention to in collaborative activities between high schools and external educational organizations while these programs are implemented. The city should get insight into suitable mechanisms for outside organizations and individuals to offer students supplementary education activities through an independent external education system. This will be conducive to effectively promoting social resources. Additionally, the city's education sector needs to strengthen program appraisal, and inspection of external educational center's teaching activities to ensure quality, efficiency, and compliance with regulations.

Education and training play particularly important roles in the sustainable development of Ho Chi Minh City. Socialization of education and building a learning society are major programs that contribute to improving the quality and effectiveness of educational activities. In the roadmap to turn Ho Chi Minh City into a regional education center, researching measures to attract diverse investment resources for education from society will make an important contribution to the success of fundamentally and comprehensively innovative general education in Ho Chi Minh City.

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MEASURES TO IMPROVE THE EFFECTIVENESS OF TRAINING INFORMATION TECHNOLOGY SELF-STUDY SKILLS FOR PEDAGOGY STUDENTS AT HUNG VUONG UNIVERSITY

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ABSTRACT

Practicing information technology self-study skills is extremely important for the development of the professional capacity of pedagogical students in the context of digital transformation. The article uses a combination of multiple parallel research methods. A questionnaire survey was identified as the primary method, with the participation of 45 lecturers and 423 pedagogical students from Hung Vuong University, Phu Tho province. The study was built on a 5-level Likert scale. In which: Weakness level from 1.0 to < 1.8; Average level from 1.8 to < 2.6; Good level from 2.6 to < 3.4; Good level from 3.4 to < 4.20; Very Good level from 4.20 to ≤ 5.0. The results show that lecturers and students know the importance of developing information technology self-study skills in the context of digital transformation. The basic information technology self-study skills available in pedagogical students are at a good level, while the self-study skills for applying technology in teaching (except for the skill of designing electronic lesson plans) are almost all at an average level. The evaluation results are an important basis for the article to propose five measures to improve information technology self-study skills for pedagogical students: Measure 1: Guide students to plan self-study scientifically; Measure 2: Building an information technology skills training club; Measure 3: Organize information technology training courses; Measure 4: Modernize information technology infrastructure; Measure 5: Integrate teaching tasks and content according to the orientation of developing information technology capacity in modules for pedagogical students.

Keywords: Information technology, self-study skills, pedagogical students.

1. INTRODUCTION

In the current 4.0 era, having information technology knowledge and skills plays a particularly important role in the process of adapting and meeting the requirements of digital transformation. Applying information technology in education has become a basic requirement in the professional capacity that needs to be formed and developed in pedagogical students - those who are trained to become teachers in the future (Tomte, CE, 2015), However, not all students have the conditions or time to participate in formal courses to improve their information technology skills. Therefore, developing information technology self-study skills has become a topic many people are interested in and learning about.

Information technology self-learning skills are the ability for an individual to actively seek, acquire, and apply new knowledge or skills about modern technical tools and means such as algorithms, programming languages, computer systems; networks, internet, data communications, applications, and software systems... without needing direct instructions from others.

Training information technology self-study skills for pedagogical students in the context of digital transformation has many advantages: (1). Cost savings; (2). Opens up a new, easier, and more flexible world of learning, suitable to individual abilities and learning conditions; (3). Stay competitive and contribute effectively to society; (4). Create opportunities to find jobs and retain employers... Besides the advantages, this process of self-study skills also has limitations (1). Requires appropriate infrastructure, network systems, and technological equipment; (2). Easy access to false information and requires learners to be selective to avoid confusion (3). Susceptible to foreign influences; (4) Takes a lot of time to learn and affects physical health and eyesight...

Forming and developing information technology self-study skills is a continuous process. Each student needs to have effective learning methods, avoid passive learning; good reading comprehension level; Have motivation, and passion, and spend time updating and learning about new information technology applications... Furthermore, English is the main language in the information technology industry, so it requires learners to read, write, and communicate in English (Nurmetov *et al.*, 2023).

Researchers have studied many ways to improve information technology proficiency in teacher training such as: Hayashi *et al.* (2007); Tian (2010), Ramdhonyet *al.* (2021), Wiyono *et el.* (2023), Sakibayeva & Sakibayev (2024)... but there are few comprehensive and in-depth studies on developing self-study information technology skills for pedagogical students in general and pedagogical students of Hung Vuong University in particular.

The goal of this study is to contribute several measures to develop information technology self-study skills for pedagogical students to meet the requirements of digital transformation in education based on a comprehensive review and assessment of Lecturers and pedagogical students at Hung Vuong University, Phu Tho Province on the process of forging information technology self-study skills. This research will be addressed by the following questions:

RQ1: Are pedagogical students at Hung Vuong University aware of the importance of developing information technology self-study skills in the context of digital transformation?

RQ2: What level of information technology self-study skills are available among pedagogical students at Hung Vuong University in the context of digital transformation?

RQ3: What educational measures are effective in developing information technology self-study skills for pedagogical students in the context of digital transformation?

2. LITERATURE REVIEW

Researchers have investigated many ways to improve information technology proficiency in teacher training. Although there are differences in considering information technology self-study skills as an independent competency (Sakibayeva & Sakibayev, 2024) or as a component of computer usage, cyberspace, digital and electronic (Taher, 2023) specific software applications (Word processing, spreadsheet or presentation software)... (Romani, 2009; Ferrari, 2012)... but the common point of the above studies is the capacity for information technology is associated with the skills to use computers to exploit, process, and share information. UNESCO's publication

(2011) mainly focuses on researching information technology capacity in pedagogical activities. Organizing teaching; and professional development to improve collaboration, leadership, and school innovation skills using information technology...

Research by Tri & Hoang (2023) has affirmed: Digital transformation is not only a general development trend but also helps higher education change traditional teaching methods to new active teaching methods that help learners be proactive and creative when participating in the learning process. The traditional classroom model that has existed for a long time is gradually shifting to classes that apply information technology to teaching and learning to reduce teaching hours, transfer knowledge to promote students' initiative, creativity and learning capacity. Create opportunities for learners to learn anytime, anywhere, learners can be proactive in the learning process, contributing to building a learning society... This is an important theoretical basis for the article to conduct research and propose measures to develop students' self-study skills in information technology.

Some studies investigate students' ability to work independently in the context of using new information technology (Ibraev *et al.*, 2024); The impact of learning information technology on personality-oriented education (Tian, 2010), choosing effective self-study methods to pass exams related to information technology (Hayashi *et al.*, 2007), the influence of communication methods and the use of information technology on student motivation and achievement (Wiyono *et al.*, 2023), factors determining university students' satisfaction with the use of information technology in the classroom in the context of the Covid19 pandemic (Inga-ávila *et al.*, 2022), from which there is a comparison of technology learning information when studying face-to-face and online (Shah & Arinze, 2023), university students' attitudes towards integrating information technology in higher education (Ramdhony *et al.*, 2021)....

Although there are many studies investigating information technology, there are few comprehensive and in-depth studies on developing information technology self-study skills for pedagogical students - those who will play an important role in the field of the information technology education system.

3. METHODOLOGY

To obtain objective and reliable research results, the article uses a combination of research methods such as: Analysis, synthesis, interview, expert consultation, investigation, observation. In which, the article identifies the main method used in this study as the questionnaire survey method with the participation of 45 lecturers and 423 pedagogical students of Hung Vuong University, Phu Tho province in the period from February 15, 2024 to June 15, 2024. On the other hand, the study was built on the Likert scale (5-level scale corresponding to a 5-point scale (Maximum score: 5 points; Minimum score: 1 point according to decreasing levels). In which: Distance value = $(5-1)/5 = 0.8$ according to increasing levels. The survey process explored and determined the reliability of the questionnaire with statistical techniques based on the analysis of the reliability of the Cronbach's Alpha coefficient (α) under the condition of $0.6 < \alpha < 1$ and the correlation coefficient between each item and the entire scale. The survey results showed that: The

measurement scale reached a Good level, ranging from 0.737 to 0.945, the items of the measurement were homogeneous and completely reliable enough to serve the survey process.

The quantitative data of the study was analyzed using SPSS statistical software, allowing researchers to make informed decisions based on quantitative findings

4. RESULTS

RQ1: Are pedagogical students at Hung Vuong University aware of the importance of developing information technology self-study skills in the context of digital transformation?

Through the process of studying reality, it has been shown that: Hung Vuong University has always determined that: Applying information technology is one of the key tasks to meet the requirements of digital transformation and forging self-study skills. The key factor contributing to improving the quality of educational activities. Among them, self-study information technology skills for students include: (1). Study in class (2). learn outside of class: Study alone at home or at your discretion Self-study with friends through clubs, associations, groups, and extracurriculars...

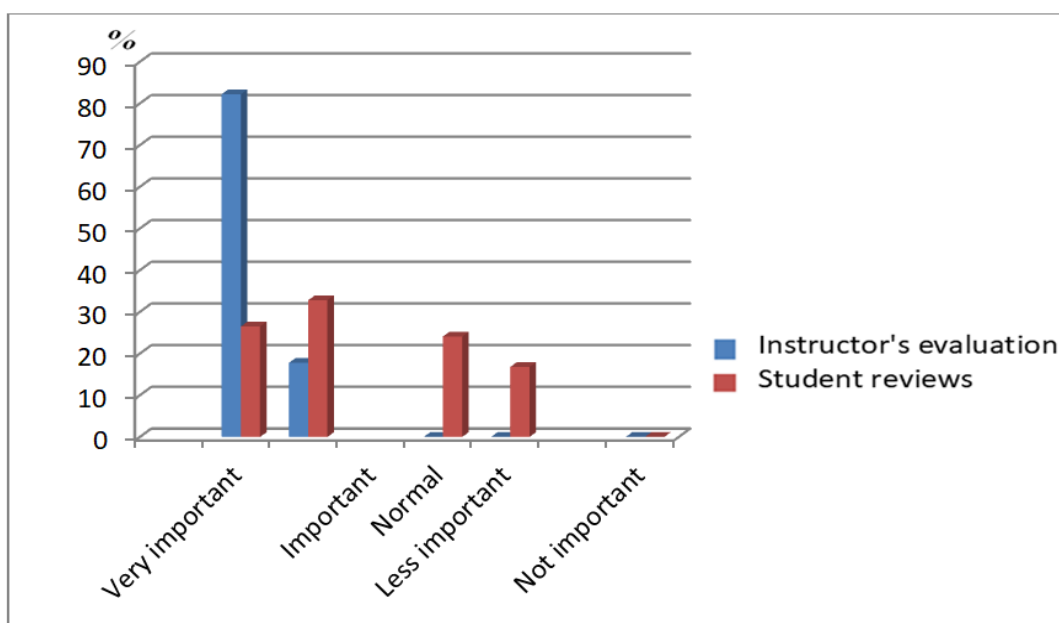


Figure 2. Evaluating the importance of training information technology self-study skills for pedagogical students at Hung Vuong University

Figure 2 shows that: Lecturers and students are aware of the importance of developing information technology self-study skills.

However, there are different assessments between lecturers and students about the importance of training information technology self-study skills for pedagogical students. While lecturers mainly rate it at a very important level of 82.2% and an important level of 17.8%, many students are not aware and rate it at a less important level of 16.8%, normal level of 24.1%, the important level is 32.8% and very important level is 26.5%.

RQ2: What is the level of information technology self-study skills of Hung Vuong University pedagogical students in the context of digital transformation?

Table 1 shows that: According to the lecturer's assessment: In general, basic information technology self-study skills of pedagogical students at Hung Vuong University such as document editing and presentation skills; use of the internet, use and management of information technology equipment; image and video processing; Spreadsheet setup is quite good.

Self-study skills belong to the group of technology applications in teaching such as using some software in learning; organizing online learning; and student management. In applying information technology in testing and assessment, lecturers all rated it at an Average level, only the electronic lesson plan design skills of students were rated by lecturers at a good level.

Table 3. Evaluation of some information technology self-study skills for pedagogical students at Hung Vuong University

Self-study information technology skills		Value smallest	Valu biggest	Mean	Median score	Std. Deviation
Basic skills	Use and manage information technology equipment	1	5	2.97	3,00	0.17
	Edit documents and presentations	1	5	2.95	3,00	0.21
	Set up a spreadsheet	1	5	2.95	3,00	0.21
	Use Internet	1	5	2.95	3,00	0.21
	Image and video processing	1	5	2.61	3,00	0.49
Technology application skills in teaching	Design electronic lesson plans	1	5	2.93	3,00	0.26
	Use some software in studying	1	5	2.91	3,00	0.28
	Organize online learning	1	5	2.90	3,00	0.29
	Student management	1	5	2.91	3,00	0.28
	Applying information technology in testing and assessment	1	5	2.95	3,00	0.21

Note: Weakness level ranges from 1.0 to < 1.8; Average level from 1.8 to < 2.6; Good level from 2.6 to < 3.4; Good level from 3.4 to < 4.20; Very Good level from 4.20 to ≤ 5.0.

The process of observing and directly interviewing some lecturers and pedagogical students at Hung Vuong University shows that: Students practice information technology self-study skills through many diverse forms: Online learning on Teams, Zoom, and Google Meets... allow students to study anytime, anywhere; Electronic textbooks: Applications such as Kindle, eBooks, Google Play Books support reading e-books on mobile devices; Online collaboration tools: use applications such as Microsoft Teams, Zoom,... for lecturers and students to interact flexibly and effectively; Learning support applications such as Quizlet, Duolingo ... help students practice self-study skills and knowledge through interesting online exercises and activities; Artificial intelligence; Virtual reality helps students experience a lively, interactive learning environment that is closer to reality...

RQ3: What educational measures are effective to develop information technology self-study skills for pedagogical students at Hung Vuong University, in the context of digital transformation?

Measure 1: Guide students to plan self-study scientifically

Guide students to plan to self-study information technology in a scientific way to help students achieve the highest efficiency in organizing their self-study activities. Includes steps:

Step 1: Determine your goals when studying information technology;

Step 2: Develop an information technology learning plan (Determine effective and appropriate content, methods, and conditions for self-study facilities...)

Step 3: Select documents and search for self-study sources that match your goals. You can refer to some websites and YouTube channels such as *TutorialsPoint* (providing free tutorials and e-books on many topics in information technology); *Codecademy* (offers interactive online courses in many programming languages); *W3schools.com* (This is a website specializing in web programming and related web technologies)...

Step 4: Practice

Step 5: Check, evaluate, and self-check and evaluate your information technology level.

Measure 2: Build a skills training club for the information technology skills training club

Clubs are a method of operation and an important part of the Union and Student Union organizations. This is an opportunity for students to study, practice, and develop information technology self-study skills through interaction and exchange between students.

Want the club to practice skills Effective operation of information technology requires ensuring an integer number switch: Join on cum God on one's pray; Are not stool special opposite to treat; brave tell the labor equal; Broadcast Huy count bright create; Respect students' opinions and personalities; Always motivating for students by multiform chemistry image awake nest position; Have can contact conclude with the image lifestyle and coordination fit with the other clubs to transmit Communicate or discuss current and social issues that students are interested in.

Measure 3: Organize information technology training courses

Information technology training courses contribute to propagating, consolidating, and raising awareness about skill training Self-study of information technology for pedagogical students. On the other hand, it helps students understand the importance, content, and application process information technology and legal documents: Decision No. 117/QD-TTg dated January 25, 2017; q Decision No. 749/QD-TTg dated June 3, 2020; q Decision 131/QD-TTg dated January 25, 2022, "*Increasing the application of information technology and digital transformation in education and training in the period 2022 - 2025, orientation to 2030*" ...

Measure 4: Modernize information technology infrastructure

Modernize information technology infrastructure including investment in information technology equipment, computer network systems, modern internet lines, and shared data systems in the school (Website, application software, sample lectures, consulting system). reference materials...) and connect with other databases while building a movement to use information technology in learning, diversifying learning forms, group activities, and technology application clubs. information technology.

Measure 5: Integrate information technology self-study skills into the curriculum

Integrate information technology self-study skills into the curriculum to help students proactively acquire knowledge and apply information technology knowledge and self-study skills to training activities. professionally, design and implement lesson plans to suit the characteristics of the subject. At the same time, lecturers need to create conditions for students to work in groups combined with whole-class discussions to develop a multi-information learning environment, create opportunities for students to self-study, and affirm their information technology capabilities and their own beliefs. Through a collaborative technology learning environment, students not only learn knowledge, experience, and attitudes but also learn practical and interactive skills.

5. DISCUSSION

The higher education industry in general and Hung Vuong University in particular are very interested in training information technology self-study skills for pedagogical students. We propose 5 measures to develop information technology self-study skills for pedagogical students that are appropriate and feasible based on theoretical research and practical assessment at Hung University. Vuong in the context of digital transformation.

The research results of the article are consistent with the announcements of the authors Tri & Hoang (2023): Digital transformation is not only a general development trend but also helps change traditional teaching methods. system to new active teaching methods to help learners be proactive and creative when participating in the learning process and authors Lim *et al.* (2015) said: *“Teachers with information technology self-study skills often achieve higher teaching effectiveness.”* The article also agrees with the conclusion of Chaib & Vensson (2005) when they said: *“Students need to have knowledge of information technology to perform well as citizens in the future and teachers must have the task of helping them gain this understanding; In particular, only teachers who have been trained in the use of information technology are able to effectively monitor and advise students”* and the article also agrees with the conclusions of Sabaliauskas, Bukantaitė and Pukelis (2006): *“To use information technology in the classroom, teachers need to have basic information technology capacity, technology capacity, information technology integration capacity, and technology use method capacity. information, capacity to manage the teaching and learning process with information technology ...”*

The research results of the article have confirmed the conclusions of Hayashi *et al.* (2007), Tian, X. (2010), Ibraev *et al.* (2024) is suitable. To adapt to the 4.0 era, learners themselves need to always strive to promote initiative, creativity, and learning capacity in general and information technology self-study capacity in particular (Tian, 2010). On the other hand, each lecturer creates opportunities for students to study anytime, anywhere (Hayashi *et al.*, 2007).

However, the difference in the article's research results compared to previous works is that we delve deeper into understanding measures to develop information technology self-study skills for pedagogical students - those who will play an important role in the education system. There are measures proposed in the article such as measure 1: Guide students to plan to self-study information technology in a scientific way, which has also been more or less analyzed in the works of Tri & Hoang (2023), Taher, A. (2023), Ibraev *et al.* (2024) or as measure 4: Modernization of

information technology infrastructure was also analyzed in Arifin 's work, Setiawan (2022), or measure 5: Integrating information technology self-study skills in the curriculum has also been more or less mentioned in the work of Ramdhony *et al.* (2021), but there are also educational measures, and very few studies mention such as measure 2: Building blacksmithing clubs skills Information technology for students in universities.

Conclude

In the context of digital transformation, information technology self-study skills play an indispensable role in the lives and development of the professional capacity of pedagogical students and are also important skills to help them adapt. Update knowledge and practice skills in an information technology environment that is constantly developing and changing.

Based on theoretical research and evaluation of the existing information technology self-study skills of pedagogical students at Hung Vuong University, the article has proposed a number of measures to develop self-study skills. information technology for students to meet the requirements of digital transformation in education.

Research process with the participation of 45 lecturers and 423 pedagogical students from the Departments of Primary & Early Childhood Education; foreign language departments; Faculty of Arts and Sports, Faculty of Nature; Faculty of Society and Culture and Tourism, University Hung Vuong, Phu Tho province has affirmed: The existing basic information technology self-study skills of Hung Vuong University pedagogical students are at a good level while the self-study skills in applying technology in teaching (except Except for electronic lesson plan design skills) are almost all at the Average level.

The results of the assessment of the current situation are an important basis for the article to propose 5 measures to improve information technology self-study skills for pedagogical students at Hung Vuong University, in the context of digital transformation: Measure 1: Guide students to plan their self-study scientifically; Measure 2: Build a skills training club information technology; Measure 3: Organize information technology training courses; Measure 4: Modernize information technology infrastructure; Measure 5: Integrate teaching tasks and content according to the orientation of developing information technology capacity in modules for pedagogical students.

The proposed measures have a close relationship with each other and at the same time, this is also the foundation for the article to continue developing the research direction: Effective management of information technology self-study activities for students. Pedagogical students of Hung Vuong University follow the orientation of developing the capacity to learn deeply and comprehensively about the skills of building and implementing lesson plans with information technology; skills in using information technology in classroom organization and management; in assessing student learning outcomes; in building, managing and exploiting teaching records...

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DEVELOP TEACHING CAPACITY FOR ELEMENTARY EDUCATION STUDENTS THROUGH ORGANIZING LEARNING THROUGH PLAY ACTIVITIES

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ABSTRACT

The goal of current general education innovation is teaching aimed at developing learners' qualities and abilities. To achieve this goal, schools need to innovate how they organize teaching activities to enhance learners' activities in the learning process. In elementary school, especially in the early grades, children always like to play due to their age's physiological and psychological characteristics. Play is a natural thing, an outstanding need for elementary school students, and when they can play they are pleased. In this article, we analyze the teaching capacity of primary school teachers; summarize some issues about learning through play; Organize learning through play in elementary school. From there, we propose several solutions to develop teaching capacity for elementary education students, so they can exploit the advantages of play to help students learn more easily and achieve success-better results, contributing to realizing the goals of the new general education program (2018).

Keywords: Students, Pupils, Primary School, Teaching capacity, learning through play.

1. INTRODUCTION

Resolution No. 29-NQ/TW of the Party Central Committee once again emphasized the importance of “developing the teaching staff” to “meet the requirements of educational and training innovation” and “to prepare children to adapt to the rapid and complex changes of future society” (Central Committee of the Party, 2018).

The above mission and goals set for teacher training schools require innovation in training, retraining, and fostering, first of all, innovation in the training process of pedagogical students according to the approach of professional capacity, aiming to develop capacity in general, teaching capacity in particular for students to meet the new requirements of general education after 2018. “Learning through play is an educational approach in which students interact, experience, and explore and solve problems in a fun, stimulating learning environment with playable activities connecting with learning goals to develop children's qualities and abilities.” (VVOB, 2021). Therefore, organizing learning activities through play is also a necessary competency for pedagogical students in general and Primary Education students in particular. The following article focuses on some solutions to develop teaching capacity for primary education students, helping students apply learning through play in teaching at primary schools.

2. RESEARCH RESULTS

2.1. Teaching capacity of primary school teachers

Teachers' teaching capacity has been studied by many educators. (Ministry of Education and Training, 2018), (Dang Thanh Hung, 2016), (Vu Xuan Hung, 2016)... Many educators have proposed different structures of teaching capacity.

Cohen, L, Manion, L. & Morrison. K (2011) proposed component competencies of teaching competency including:

- (1) Ability to design teaching plans and lessons;
- (2) Ability to assess learning outcomes and report learning outcomes of learners;
- (3) Ability to learn to improve professional qualifications and skills;
- (4) Ability to analyze programs, learning materials and develop programs appropriate to the school context;

(5) Ability to cooperate with colleagues inside and outside the school.

Anja Hilsenbeck (2011), emphasizes 10 core competencies, including:

- (1) Ability to interact with learners;
- (2) Ability to create a learning environment;
- (3) Lesson design capacity;
- (4) Ability to use diverse teaching strategies;
- (5) Ability to assess learning outcomes;
- (6) Ability to identify learners' needs;
- (7) Communication skills;
- (8) Cooperation capacity;
- (9) Ability to maintain pedagogical style;
- (10) Capacity to commit to improving professional expertise.

Studies in Vietnam also focus on the teaching competency framework of teachers with specific criteria. This article of ours focuses on the teaching competency of primary school teachers, we agree with the criteria of the teaching competency framework in the Pedagogical Competency Training Program for students of Hanoi National University of Education, including:

- (1) Capacity to design and develop programs, compile and develop textbooks;
- (2) Ability to apply methods, means and forms of organization of subject teaching;
- (3) Integrated teaching capacity;
- (4) Teaching planning capacity of teachers and students;
- (5) Ability to organize teaching/learning activities of students;
- (6) Ability to organize and manage the classroom during class hours;

- (7) Ability to support special students in teaching;
- (8) Ability to assess learning outcomes and student progress in teaching;
- (9) Capacity to establish, exploit and manage student records; (Hanoi National University of Education, 2014),

2.2. Learning through play and organizing learning through play in primary schools

2.2.1. Concept of Learning through Play

Learning through play has emerged as an important strategy to promote student engagement, inclusion, and comprehensive skills development beyond the preschool years. Policy makers, researchers and educators have promoted the notion that learning through play is developmentally appropriate—as it leverages school-age children's innate curiosity while easing the often difficult transition from preschool to school. (Parker, R., Thomsen, B.S., & Berry, A., 2022)

According to VVOB (2021), learning through play “is an educational approach in which students interact, experience, explore and solve problems in a fun, exciting learning environment, using play activities. connected to learning goals to develop students' qualities and abilities.”

2.2.2. Characteristics of Learning through Play

According to VVOB (2021), Learning through play has the following characteristics:

Interest: This is a typical characteristic of Play – students are interested in participating in games, experiencing moments of suspense, surprise, excitement or joy when they overcome challenges. When students have fun learning, they will be more interested in learning, thereby being proactive and voluntarily participating with friends and teachers.

Active participation: Learning through play always requires students to participate in the process of activities. Positiveness is shown when students are absorbed and highly focused on learning activities. At that time, their psychological state is changed, proactive and positive behavior gradually forms in learning activities.

Meaningful: During the learning process, students have the opportunity to connect what they know and have experienced with what they are learning. In addition, students have the opportunity to expand their knowledge through experiential and practical activities associated with real life. This meaningful feature contributes to making learning more profound, forming and developing critical thinking and creative thinking skills when students apply the knowledge they have learned to solve practical problems.

There are many opportunities for experimentation (with opportunities for repetition): Students can experiment with many different possibilities to answer the question they are investigating and make hypotheses, continuing to ask the next question. This way of learning helps them find many solutions to a problem, thereby forming and developing critical thinking, scientific reasoning, flexibility, creativity and patience.

2.3. Benefits of Learning through Play in Primary Education

2.3.1. Psychological characteristics of elementary school students

Elementary school students, usually between the ages of 6 and 11, go through many important psychological changes. At this stage, children begin to develop the ability to think logically and abstractly, although they still rely heavily on concrete and intuitive experiences. The children's rich imagination and creativity are also clearly demonstrated.

Another outstanding characteristic is social and emotional development. Elementary school students begin to form deeper friendships and learn how to work in groups. They also begin to understand and express their emotions more clearly, and learn how to manage emotions and resolve conflicts. (Bui Van Hue, 2015)

However, children still need guidance and support from adults to develop independence and confidence skills. Encouragement and praise from teachers and parents play an important role in building children's self-esteem and motivation to learn. When entering elementary school, students begin to consider learning as their main activity. At this age, children are more able to concentrate and persevere in learning tasks. However, to maintain interest and motivation, it is important to combine learning with fun activities. Learning through play is an effective method to help elementary school students acquire knowledge in a natural and interesting way. Learning through play has many benefits such as: contributing to developing students' cognition; contributing to developing students' creative thinking; contributing to developing social communication skills; contributing to developing students' emotions; contributing to developing students' physical development. (Bui Van Hue, Phan Thi Hanh Mai, Nguyen Xuan Thuc, 2008).

Learning through Play in the 2018 Primary Education Program: contributes to achieving the goals and requirements of the Primary Education Program; meets the requirements for innovation in teaching and learning methods and meets the requirements for innovation in student assessment.

2.3.2. Measures to develop teaching capacity for Primary Education students through organizing Learning through play

** Principles of developing measures to develop teaching capacity for students majoring in Primary Education through organizing Learning through Play*

- Principle 1: Ensure scientificity. The proposed measures ensure logic, based on the theoretical basis of learning through play.

- Principle 2: Ensure feasibility. The proposed measures need to consider practical conditions so that they can be easily applied in developing student capacity.

- Principle 3: Ensure impact on component competencies of teaching competency in teaching.

- Principle 4: Ensure the learning style and learning through play characteristics of university students. Measures to develop teaching capacity for students need to ensure that students can self-study through research, discovery, self-management, self-assessment, feedback collection, self-adjustment and ensure the advantages of learning through play.

** Some measures to develop teaching capacity for Primary Education students through organizing Learning through Play*

Measure 1: Equip students with theoretical knowledge about teaching capacity in general, and design and organization capacity for learning through play in primary school in particular.

Research results on competence show that: Competence has a complex structure, but the basic elements that make up its structural basis include knowledge, skills and expressive behavior (attitude). To have general teaching competence, teaching competence through play, one must first have knowledge about teaching competence, about learning through play approaches, teaching organization skills and corresponding attitudes.

The practice of developing teaching capacity of students in Primary Education shows that one of the reasons leading to the low effectiveness of developing teaching capacity through play is because students lack theoretical knowledge about applying Learning through Play in teaching at primary school.

This measure aims to equip students with general theoretical issues on teaching capacity, organizing teaching through play and related factors, supporting conditions to ensure the development of effective teaching capacity . From there, forming self-study motivation , stimulating internal factors for students to try, exert their will, overcome difficulties, proactively equip themselves with basic knowledge to practice the capacity to design and organize learning through play in primary school.

The measure affects all components of the capacity to organize teaching and learning through play in terms of theory. The content and implementation of the measure are as follows:

- Identify theoretical issues about teaching capacity and the approach to Learning through Play that need to be equipped for Primary Education students through teaching subjects in the training program.

- Forming motivation and needs for students to be self-reliant and ready to develop the ability to design and organize learning activities through play for primary school students.

Forming motivation plays an important role in developing the ability to design and organize learning activities through play , because "*motivation is the attraction and appeal of the object that the individual perceives as necessary to conquer to satisfy his or her own needs or desires*" . When students form motivation for self-development of the ability to design and organize learning through play in primary school teaching, they themselves will be proactive in this work. Notes that need to be implemented include:

- Help students realize the significance of developing the ability to design and organize learning through play for future career activities. The learning goals set by the lecturer need to be skillfully transformed into the individual goals of the students.

- Lecturers create cognitive and training needs throughout the course learning process by gradually increasing requirements in a reasonable manner and guiding students to successfully solve those requirements.

- Regularly encourage and motivate students to create positive emotions throughout the training process.

- Create a positive environment with competition between individuals and groups of students throughout the training process.

- Assessing the results of students' development of design and learning organization capacity through play ensures transparency, objectivity, fairness, and accuracy.

Measure 2: Develop self-study materials with module instructions to develop the capacity to design and organize learning through play for students majoring in Primary Education.

A teaching module is a type of teaching document that conveys a relatively independent unit of knowledge of the program. A teaching module is structured in a special way (containing objectives, content, teaching methods, assessment of learners' learning outcomes of the module, etc. These elements are linked together as a whole).

Modules with independent content: Self-study modules have full elements of objectives, content, and implementation processes to achieve the objectives. The module is designed in a way that learners can self-study according to instructions and achieve learning objectives for that knowledge content. The parts of the module such as readings, instructions, tests, and other exercises are arranged in a clear order, convenient for students to self-study, measure, test, and evaluate students' learning outcomes. The topic of the module is clearly defined, specific, and concise. The content of the module is written in precise, clear language in the form of guided self-study materials. The module is structured with a continuous and effective assessment system, at the same time encouraging learners' learning and creating opportunities for exchange and cooperation among learners.

Measure 3. Innovate training methods towards enhancing experiences and learning through play.

According to Kolb (1971), experiential learning is one of the learning models that helps learners learn effectively. Built on the foundation of "constructivist learning" and "interdisciplinary learning", the experiential method does not consider each subject as being confined in its own "room", without any connection with other subjects. Therefore, up to now, experiential learning is still valued and recognized as an effective learning method to develop learners' capacity.

Competence is only formed and developed through practice and experience. Therefore, this is an important scientific basis that creates the necessity of using this measure in the training process at teacher training colleges.

Purpose of using measures

Using measures to help students majoring in Primary Education experience the approach of learning through play, and at the same time be able to practice, apply design and organize learning through play right in the learning process at school. Thanks to that, students' teaching capacity can develop effectively and sustainably. Organizing the implementation of measures through creating conditions for students to organize and participate in the competition:

Activity 1: Assign students the task of designing and organizing competitions in the Pedagogical School.

Activity 2: Students organize and implement activities.

Activity 3: Evaluation, summary, and experience.

Measure 4: Organize guidance for students to practice designing and organizing learning through play in primary schools

Through pedagogical internships, strengthen the organization for students to design and organize teaching in general, and conduct design and organization of learning through play in teaching subjects and educational activities in primary school in particular.

This measure creates conditions for students to approach the reality of primary schools, practice, experiment with designing teaching plans and organizing learning through play. From there, students can learn from experience to adjust after each lesson and improve their own teaching capacity.

3. CONCLUSION

In the modern educational context, developing teaching capacity for elementary school students through Learning through Play activities has proven effective and necessary. To help students improve their teaching capacity in general and their capacity to design and organize learning through play in particular, it is necessary to apply the above pedagogical measures in a synchronous and flexible manner. The training program of pedagogical training institutions also needs to be innovated, equipping students with basic knowledge, opportunities to experience the facility, and practice rich and diverse teaching methods in general. and organize learning through play for elementary school students in particular. The measures proposed by the article have impacted the components of teaching capacity and helped develop the teaching capacity of students majoring in Primary Education.

Acknowledgements: This research is funded by Hung Vuong University, Phu Tho through a scientific research project, code: HV30.2023.

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ENHANCING SOCIAL RESPONSIBILITY OF PEDAGOGY STUDENTS IN THE CONTEXT OF EDUCATIONAL REFORM TOWARDS SUSTAINABLE DEVELOPMENT GOALS

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ABSTRACT

Ensuring a quality, comprehensive education is one of the sustainable development goals in Vietnam by 2030. Education for sustainable development is increasingly emphasized in various countries. The 8th Central Committee Conference (11th tenure) in 2013 approved the project "Fundamental and Comprehensive Reform of Education and Training to Meet the Requirements of Industrialization and Modernization under the Conditions of a Socialist-oriented Market Economy and International Integration." In this context, pedagogical students, who bear the "noble mission" of education, need to be aware of their social responsibilities towards society in general and the educational reform in particular. By combining qualitative research methods (theoretical research, data processing...) and quantitative research methods (surveying via questionnaires), this paper analyzes the social responsibility of pedagogical students-as one of the forces directly carrying out educational tasks in the future. Based on this analysis, the paper offers some recommendations to enhance the social responsibility of pedagogical students to successfully implement educational reform and achieve the sustainable development goals in our country.

Keywords: social responsibility, pedagogical students, educational reform, sustainable development, students, the social responsibility of students.

1. INTRODUCTION

"A nation that is ignorant is a weak nation" this was the assertion made by President Ho Chi Minh during the first meeting of the Government on September 3, 1945. Understanding this clearly, along with the development of society, education has become particularly important and is a top priority for Vietnam as well as other countries around the world to achieve sustainable development goals.

The Sustainable Development Goals (SDGs) are global objectives designed to call on all countries worldwide to participate in the process of ending poverty, protecting the environment and climate of the Earth, and ensuring that everyone everywhere enjoys peace and prosperity. The Sustainable Development Goals are the continuation of the Millennium Development Goals (MDGs) [UNDP Vietnam, "What are the Sustainable Development Goals?", accessed in April 2018]. This is also the call of the United Nations to Vietnam in particular and to UN member countries in general. In response to this call, on July 14, 2023, Deputy Prime Minister Tran Hong Ha signed Decision No. 841/QĐ-TTg, issuing the Roadmap for Implementing Vietnam's Sustainable Development Goals by 2030. The Decision outlines a specific roadmap, including the lead agency for implementing the 17 sustainable development goals in Vietnam by 2030 with 117

targets. Among these, Goal 4 is to ensure quality, equitable, inclusive education and promote lifelong learning opportunities for all.

In this goal, to achieve quality education, teachers are the decisive factor [Pham Minh Hac, 2002]. Recognizing this, at the 13th National Congress, the Party also identified this as a key aspect in the fundamental and comprehensive reform of education and training, and proposed solutions to improve the quality of the teaching staff and education management personnel. Among these, training and professional development are fundamental to enhancing the quality of the teaching staff. To improve the quality of the teaching staff, the quality of pedagogical students—those who will join this team after their education at colleges and universities—must first be improved. To enhance the quality of pedagogical students, they must first be aware of their social responsibilities and strive to fulfill these responsibilities, especially the responsibility of "nurturing people." This process helps them cultivate their competencies, qualities, and continuously improve themselves.

The paper combines qualitative research methods (theoretical research, data processing...) and quantitative research methods (surveying via questionnaires). Primary data were collected from an online survey sent to pedagogical students at the Ho Chi Minh City University of Education through a Google Form questionnaire. The paper uses random sampling of students from various pedagogical disciplines, from second-year to fourth-year students (first-year students had not yet enrolled). A total of 216 valid survey responses were collected and used in the data analysis process.

2. MAIN CONTENT

2.1. Educational Reform Towards Sustainable Development

Vietnam's education system has a long history, closely tied to the nation's cultural heritage. During the 10 centuries the Northern colonial period of Vietnam, education was a tool used by the invaders to impose their assimilation policies on our country. However, education also played a crucial role in helping our nation resist this assimilation, becoming a significant force that led to our independence in the 10th and 11th centuries. In 1070, the Ly Dynasty established the Temple of Literature in the capital city of Thang Long to educate royal princes and to honor the founders of Confucianism. From this point onward, Vietnam's education system became institutionalized and went through various stages of development. During the Tran Dynasty, education flourished further as the Temple of Literature was opened to scholars and mandarins.

Confucianism and formal education appeared in Vietnam in the first century AD. Naturally, this Confucian education was influenced by the foreign powers that were ruling our country. However, from the 11th century to the early 20th century, this "Chinese-influenced education evolved and refracted to become Vietnam's orthodox Confucian education".

It is worth noting that before Confucianism was introduced to Vietnam, Buddhist and Taoist philosophies had already been spreading and significantly influencing the lives and thoughts of our people. At that time, the Dai Viet nation saw the coexistence of three teachings: Confucianism, Buddhism, and Taoism, collectively known as the "Three Teachings in Unity." These teachings

harmonized with each other and had a certain educational impact on the populace. The "Three Teachings in Unity" created stability and consensus within Vietnamese society of the time, forming a unique ideological consciousness that contributed to the efforts of nation-building and defending the country, as well as in shaping the ethics and lifestyles of the people.

Although from the latter half of the Tran Dynasty to the Ho Dynasty, Buddhism and Taoism gradually lost their positions in official politics and education, their teachings and doctrines were not eradicated but rather deeply ingrained in social life, continuing to this day.

Throughout thousands of years of building and defending the country, including about 1,200 years under foreign domination until 1945, Vietnam's education system was severely restrained. Therefore, immediately after the August Revolution, two of the six urgent tasks of the Democratic Republic of Vietnam's government involved education. Since 1945, an independent Vietnam's education system was established, aimed at raising the intellectual standards of the people, transforming the nation into one that is learned and civilized, and overcoming the consequences of the colonialist policy of ignorance imposed by the French over nearly a century.

The Second Plenary Conference of the Central Committee of the Communist Party of Vietnam (8th term) set forth a strategic direction for the development of education and training. For the first time, Vietnam had a complete national education system operating under the Education Law passed by the National Assembly in December 1998.

Entering the 21st century, in order to successfully achieve the goals of industrialization and modernization, education is the foundation and condition for this process. The development of education is intended to develop human beings, and human resources, and promote socio-economic development, making the people "prosperous and the nation strong," ensuring that the people have a "wealthy, free, and happy" life. In the current knowledge economy and information age, the crucial role of education is even more apparent. Therefore, the Party has determined that "Along with science and technology, education is the top national policy," and education is the decisive factor in the nation's future. [Communist Party of Vietnam, 1993].

Starting from the Sixth Party Congress, the Communist Party of Vietnam proposed the policy of national renewal. Renewal began with a renewal of thinking, focusing on economic reform. By the Seventh Party Congress (June 1991), the Platform for National Construction during the Transitional Period to Socialism was put forward, which identified the characteristics of socialism in Vietnam. The Congress also approved the Strategy for Socio-Economic Stability and Development until 2000, one of which was a strong emphasis on the development of education and training. This renewal process brought the country, including education and training, into a new phase of positive development.

The Fourth Plenary Conference of the Central Committee of the Communist Party of Vietnam (7th term) marked a new milestone in the development of national education. For the first time in its history, the Communist Party of Vietnam issued a separate Resolution on continuing to reform education and training, with four guiding principles as follows:

1. Along with science and technology, education and training have been regarded by the Seventh Congress as the top national policy.

2. The development of education aims to raise the intellectual standards of the people, train human resources, and nurture talents; to educate individuals with cultural knowledge, scientific understanding, professional skills, self-reliance, creativity, discipline, a rich sense of compassion, patriotism, and a love for socialism; to live a healthy life, meet the development needs of the country in the 1990s, and prepare for the future. The expansion of education must go hand in hand with improving its quality and effectiveness, linking learning with practical application, and fostering both talent and morality.

3. Education must be closely aligned with the country's development needs while also keeping pace with the progressive trends of the times.

A lifelong learning education system for everyone must be implemented, recognizing that lifelong learning is both a right and a responsibility of every citizen.

4. Diversification of training methods. Ensuring social equity in education: students must pay tuition fees, and employers of trained labor must contribute to training costs. The state has policies to ensure that the poor and policy beneficiaries can all attend school.

[Communist Party of Vietnam, 1993].

On December 9, 2000, the National Assembly passed Resolution No. 40/2000/NQ-QH10 on reforming the general education curriculum. The goal was to “build new educational programs, methods, and textbooks to improve the overall quality of the younger generation, meeting the needs of developing human resources to serve the industrialization and modernization of the country, while being suitable for Vietnam's realities and traditions; and to approach the level of general education in developed countries in the region and the world.”

By the 8th Plenary Conference of the Central Committee (11th term) in 2013, the proposal for “Fundamental and comprehensive reform of education and training, to meet the requirements of industrialization and modernization in the context of a socialist-oriented market economy and international integration” was approved. In the process of educational reform, one of the key areas is the reform of teacher training, focusing on curriculum and textbook reform, and standardizing the teaching staff, thereby renewing teaching methods and developing skills and competencies for the younger generation to meet the sustainable development needs of the country.

Vietnam is currently undergoing a fundamental and comprehensive reform of its education and training system and has achieved initial successes: expanding educational opportunities, diversifying the education system, contributing to raising intellectual standards, developing human resources, and nurturing talent, thereby contributing to socio-economic development and international integration. These achievements have been made possible thanks to the focus on recruiting students into pedagogical fields, improving the quality of the training process, and fostering the responsibility of pedagogical students- the future educators.

Currently, the country is implementing the 2018 general education curriculum, which is the implementation and deployment of Resolution 88 of the 13th National Assembly (in 2014). The

goal of reforming the general education curriculum and textbooks is to create a fundamental and comprehensive shift in the quality and effectiveness of general education, aiming for global integration and producing global citizens.

2.2. Social Responsibility of Pedagogical Students in the Context of Educational Reform Aimed at Sustainable Development in Our Country

The ongoing process of globalization and international integration increasingly demonstrates that human beings cannot exist and develop independently from the community and society. Humans are both the objects and subjects of the educational process. Today, sustainable development is no longer the concern of individual nations; it has become a common goal for all of humanity. To achieve sustainable development, the responsibility of each individual as a social subject is emphasized. In a country, every citizen must be aware of their responsibility to society in general and to the educational reform process aimed at sustainable development in particular. This is especially true for the youth, as they are considered the "future owners of the country," and among them, pedagogical students-the future teachers who will carry out the mission of "nurturing people"-are of particular importance.

Pedagogy is the science of education and teaching in schools. In other words, the field of pedagogy trains teachers and staff for educational institutions. Working in the field of pedagogy means participating in the mission of nurturing people, training the human resources needed for various industries and sectors of society.

Students, in general, are those who are studying and researching at the university level and will eventually become experts in specific professional fields, contributing to the intellectual workforce of the future. Students are a part of the youth still undergoing training in educational institutions. Pedagogical students are those trained in the field of pedagogy, who study and practice to become teachers in the future. Besides becoming teachers, graduates in pedagogy can also work as staff in educational departments at the local and national levels, such as the Department of Education and Training or the Ministry of Education and Training.

Pedagogical students are also a part of the student and youth population, so they share the general responsibilities of students and youth. However, due to the specific nature of their training, pedagogical students have an additional "mission of nurturing people." Therefore, it is important to consider whether these students are aware of and fulfilling this mission. Based on an analysis of these issues, this paper will make recommendations to enhance the social responsibility of pedagogical students, particularly in fulfilling their "nurturing people" responsibilities.

Social responsibility is a concept that is no longer new, but its content has not yet been fully agreed upon. This concept is frequently discussed in the economic field, where the social responsibility of enterprises is emphasized. It refers to "the commitment of businesses to contribute to sustainable economic development by improving the quality of life of their employees, their families, the community, and society at large in ways that are beneficial to both the business and society as a whole" (according to the Private Sector Development Group of the World Bank). However, for society to exist and develop, every individual and organization within that society

must take on social responsibilities and fulfill them for the overall development of society. According to Nguyen Huu Long and colleagues, the social responsibility of youth is “the duty and obligation of each young person toward their own life, their family, and their country” [Vietnam Youth Academy, 2022]. Some perspectives emphasize the attitude with which responsibilities are carried out, arguing that social responsibility should be fulfilled voluntarily and consciously, meaning that social responsibility is not only a duty but also a moral obligation.

The social responsibility of youth, in general, is outlined in Articles 12, 13, 14, and 15 of the 2020 Youth Law, which was passed by the 14th National Assembly during its 9th session on June 16, 2020, and came into effect on January 1, 2021 this includes responsibilities to the nation, the state, society, the family, and oneself.

Social responsibility plays an important role in strengthening the bonds between individuals and the cohesion of society as a whole. It also reflects how closely an individual is connected to their community and state, as well as their sense of belonging to their family, society, and country. A lack of understanding or weak sense of social responsibility among individuals poses a serious threat to society.

3. RESEARCH RESULTS

In this study, we believe that appropriate aspects for surveying pedagogical students' awareness, attitudes, and behaviors regarding social responsibility should be considered. The study also emphasizes the importance of understanding how pedagogical students perceive their professional goals and how they have prepared to achieve these goals.

3.1. Awareness of Pedagogical Students About Social Responsibility

Understanding one's responsibility to society is the first and crucial step for students to be able to fulfill that responsibility in practical life. The essence of awareness is the creative reflection of the objective world based on practical activity. Once awareness is formed, due to its relative independence, it will guide practical actions. Practical activities can only succeed and be effective when we apply correct knowledge of objective reality to these activities. The success of the educational reform process aimed at sustainable development depends on whether the subjects involved (including pedagogical students - the future teachers) are aware of their responsibilities and fulfill them in the ongoing educational reform in our country. Pedagogical students should not wait until they become full-fledged teachers to fulfill these responsibilities; they need to be aware of and act on their social responsibilities even during their student years, both as citizens and future professionals.

Survey results indicate that pedagogical students have begun to develop an understanding of their responsibilities to society, as evidenced by their awareness of the Youth Law. 51% of the surveyed pedagogical students responded “yes” when asked, “Are you aware of the social responsibilities of youth as stipulated in the 2020 Youth Law, passed by the 14th National Assembly during its 9th session on June 16, 2020, and effective from January 1, 2021?”

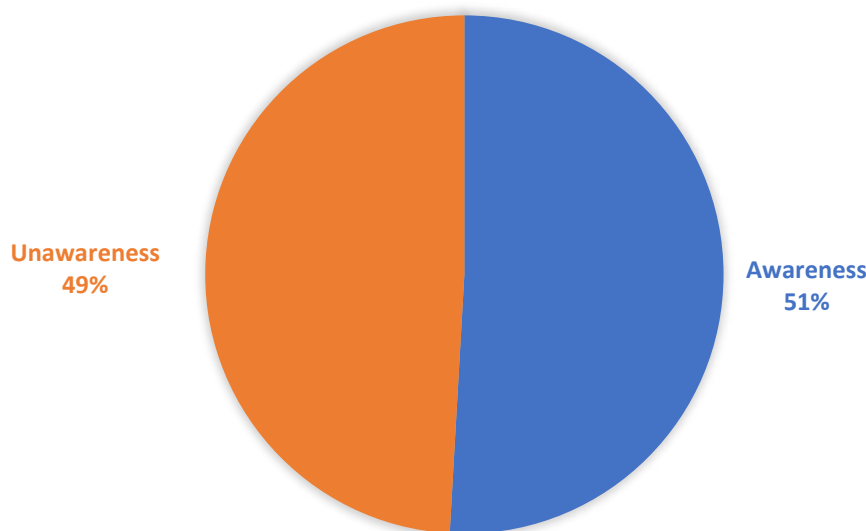


Chart 1. Pedagogical Students' Awareness and Unawareness of the Youth Law (%)

However, survey results show that a portion of pedagogical students (49%) are still unaware of the social responsibilities of youth in general as outlined in Articles 12, 13, 14, and 15 of the Youth Law 2020. Therefore, educating students about social responsibility is an issue that needs attention and should be addressed promptly. Although recognizing one's responsibilities does not necessarily mean that one will fulfill them thoroughly and effectively, without awareness, one won't know what to do because awareness helps people understand phenomena and the essence of things correctly, fully, and accurately, and from there, return to transforming practical realities, thereby renewing education. Therefore, when there is a lack of awareness, especially a lack of understanding of one's social responsibilities, it is difficult for students to fulfill their social responsibilities and meet the expectations society has for their profession, or they might only do it "by chance" and "get it right". When asked, "What responsibilities should pedagogical students have?" more than 50% of students chose each of the responsibilities listed (responsibility to family, country, state and society, and self). Thus, even those students who are unaware of the Youth Law 2020 have initially recognized their responsibilities.

For education students, in addition to being aware of the general social responsibilities of youth as stipulated by law, they also need to be aware of the purpose of their profession, which is to train new generations – to educate the human resources for society in various fields. "Nurturing people" is a noble and sacred mission unique to the teaching profession.

In the article "Combating Illiteracy" published in the "Cứu Quốc" newspaper, issue 58, dated October 4, 1945, President Ho Chi Minh urged: "Vietnamese citizens! To maintain independence, to make the nation rich and strong, every Vietnamese must understand their rights, their duties, and must have knowledge to participate in the national construction, and first of all, must know how to read and write in the national language" [Ho Chi Minh, Complete Works].

3.2. Attitude of Pedagogical Students About Social Responsibility

Survey results show that most students acknowledge that teaching is a profession that plays an important role in the education and development of the country's human resources, which means they are aware of the responsibilities of the profession they have chosen towards society. When asked for their opinion on the statement: "Teaching is a profession that plays an important role in the education and development of the country's human resources," 65.7% of students selected "strongly agree," 22.7% selected "agree," and only 0.5% (1 opinion) selected "disagree". Understanding the role of a profession is an important part of career orientation. The role acts as a detailed plan that guides and directs human behavior. These roles specifically point out the ways to achieve goals and complete tasks.

Correct career orientation is the "compass" that guides actions throughout students' studies and professional careers later on. This is the first and most important step in fulfilling students' responsibilities to society, especially in the "mission of nurturing people." Being aware of their social responsibilities will enable individuals to maximize their potential and fulfill those responsibilities in the best possible way.

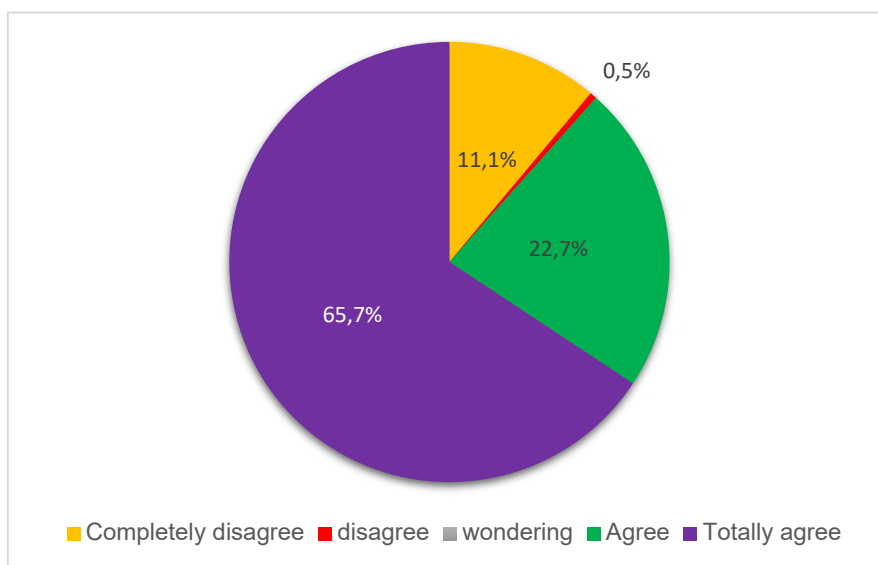


Chart 2. Opinions of Pedagogical Students on the Statement: "Teaching is a Profession That Plays an Important Role in the Education and Development of the Country's Human Resources" (%)

The behavior of pedagogical students concerning social responsibility

Social responsibility is expressed in various forms depending on the relationship, nature, and historical context, such as: an individual's responsibility to their family, collective, country, and people. Based on its nature, an individual's social responsibility is reflected in various aspects of social life such as: studying, researching, labor and production, obeying the law, protecting the environment, developing the economy, building, and defending the country. Being conscious of and fulfilling these duties is referred to as having social responsibility and vice versa.

Survey results also show that, although there are still students who are unaware of their legal responsibilities, in practical activities, they have demonstrated these behaviors through the self-assessment results of their performance levels according to the criteria in each aspect of their social responsibility.

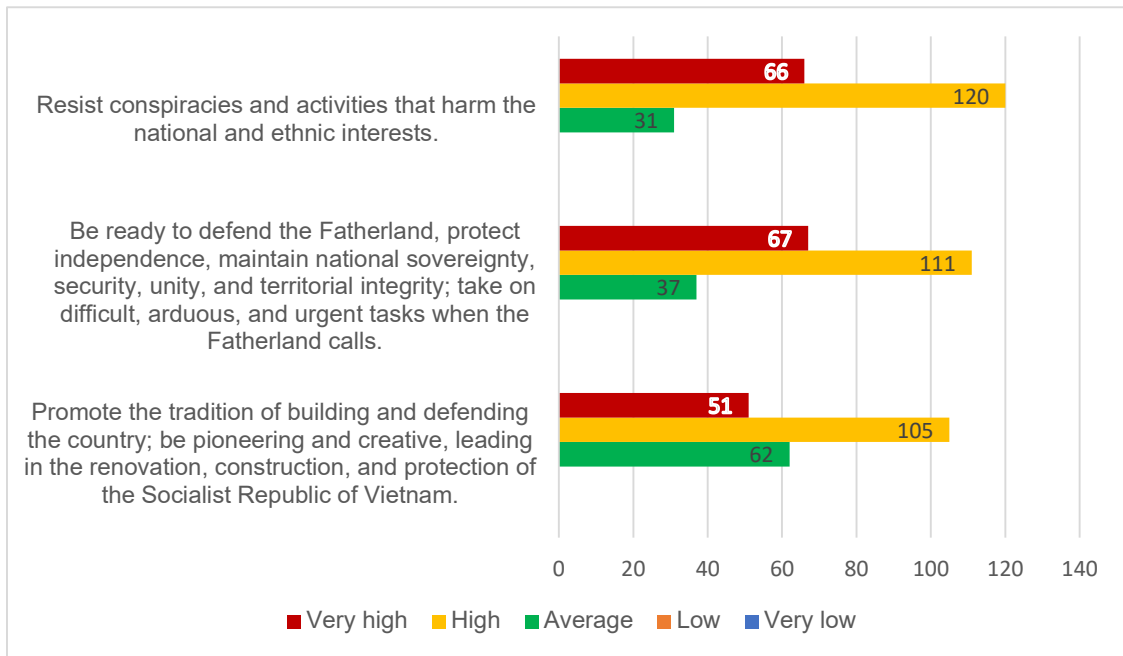


Chart 3. Pedagogical students' self-assessment of their performance in fulfilling their responsibilities to the country according to each indicator

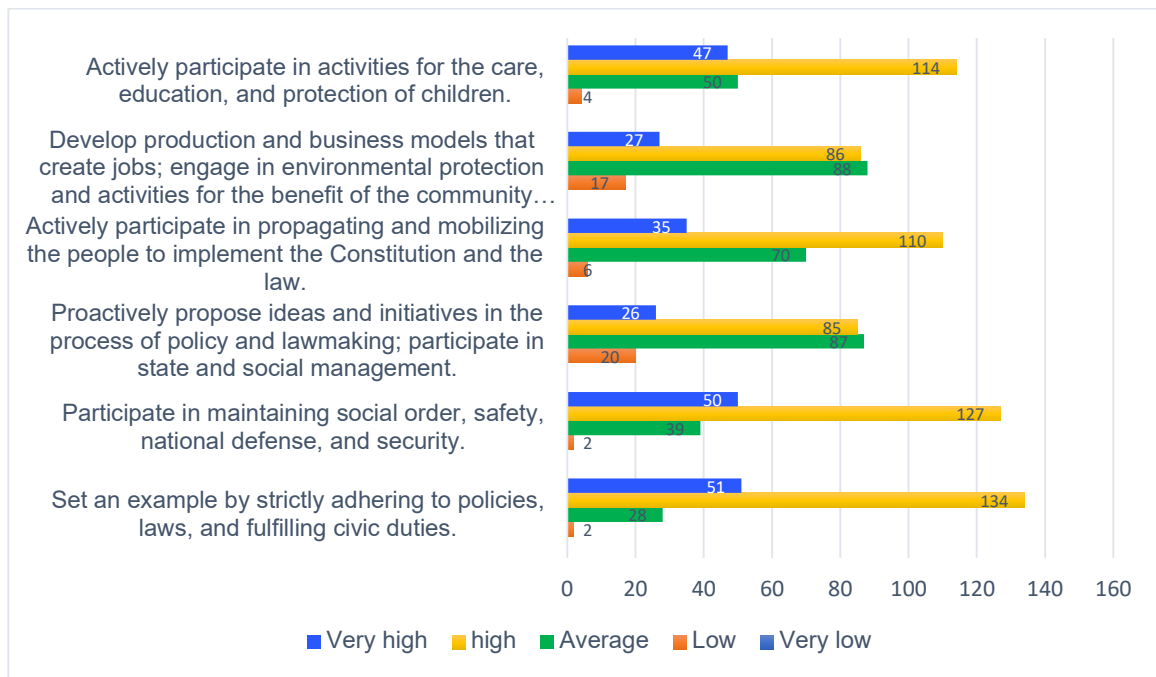


Chart 4. Pedagogical students' self-assessment of their performance in fulfilling their responsibilities to the State and society according to each indicator

Along with social responsibility to the country, the State, and society, a high proportion of students also rate themselves highly in their responsibilities to themselves and their families. This partly shows that pedagogical students have been fulfilling their social responsibilities.

For pedagogical students, in addition to fulfilling the general responsibilities of youth, they have also made preparations for fulfilling the responsibilities imposed by their future profession. Survey results show that most students have prepared the necessary elements to become teachers: specialized knowledge of the subject they will teach; pedagogical skills, teaching methods, a clear understanding of students' psychology, and teaching skills.

The students participating in the survey are all second-year students. After at least two semesters of study, they have already begun to orient themselves and prepare for their future careers. For third-year pedagogical students, they will participate in a practicum lasting about one month, followed by an internship of about two months (for fourth-year students). Identifying and preparing for these factors from the beginning is key to determining the effectiveness of teaching during the practicum and internship, as well as after graduation when they become teachers.

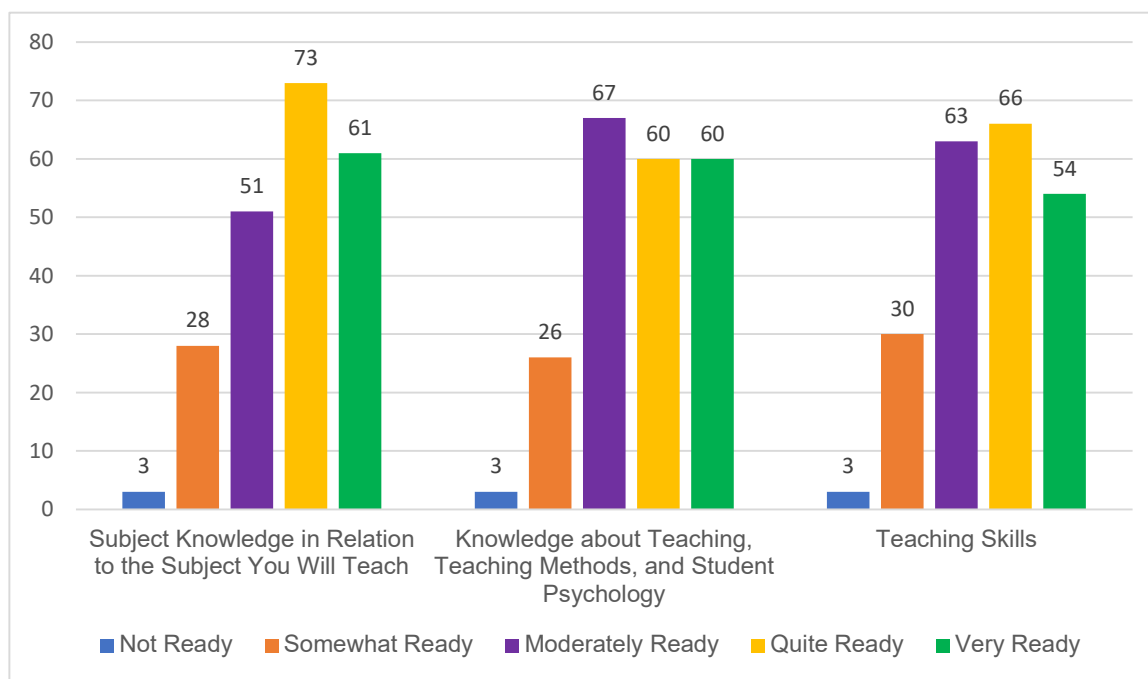


Chart 5: The extent to which pedagogical students have prepared the elements to become teachers after graduation

3. Recommendations to Enhance the Social Responsibility of Pedagogical Students in the Process of Educational Reform towards sustainable development goals

Based on the analysis of relevant aspects to conduct a survey on the awareness, attitudes, and behaviors of pedagogical students regarding social responsibility, the following recommendations are proposed to enhance the social responsibility of pedagogical students, contributing to educational reform aimed at achieving sustainable development goals:

Regarding the Party and the State: Along with educational reform, it can be observed that education has increasingly received attention from the Party, the State, and society. The work of standardizing the teaching staff has been invested in from the stage of selecting students into pedagogical fields. As a result, the quality of entrants to Pedagogical universities has steadily improved. In the recent university admission period in 2024, the entrance scores for pedagogical fields increased and ranked among the top universities with high admission scores. One of the reasons for this is the tuition fee incentive policy that has attracted many applicants. Attracting talent from the outset is an important step toward improving the quality of graduates. Moreover, in the draft Teacher Law, there is content prioritizing the salary of teachers as the highest compared to the administrative and public service system. This also shows that the Party and the State always care and seek practical solutions to retain teachers and increase their motivation to dedicate themselves to the noble teaching profession. During the process of educational reform, the Party continues to uphold the view that education and training are the top national policy, the cause of the Party, the State, and the entire people. Investment in education is investment in development, prioritized in all economic and social development programs and plans. Additionally, it is necessary to enhance the effectiveness of state management in education and training, appropriately train and utilize the teaching staff, and educational management personnel.

Regarding the Youth Union and Student Associations: The Youth Union works closely with the Vietnam Youth Union, the Vietnam Student Association, and cooperates closely with families, schools, and other organizations to care for and assist students in general and pedagogical students in particular. Through various movements, the Youth Union and Associations mobilize, gather, and unite young people, educating them to have good qualities and creative abilities. The Youth Union needs to innovate its content and operation methods to grasp students' thoughts, attract them to participate enthusiastically, and demonstrate a sense of responsibility towards themselves, the nation, the State, and society. Ho Chi Minh once reminded, "The Union's organization must be broader than the Party" to unite young people from all walks of life, including pedagogical students. It is necessary to develop plans, programs, establish clubs, teams, and charity classes related to the responsibilities of pedagogical students, providing them with a favorable environment to fulfill their social responsibilities.

Regarding the students themselves: Lenin once wrote, "For the workers themselves to gradually learn and then understand and see how and to what extent they should work" [Lenin, Complete Works, Volume 36, p. XXII]. If they-initially as objects and later as subjects of the educational reform process-do not understand their social responsibilities, it will be impossible to achieve the expectations set by society, and difficult to reach the goal of comprehensive educational reform. Students in general, and pedagogical students in particular, are at an energetic, enthusiastic, and inquisitive age. Therefore, they must continuously study and improve themselves, especially as global citizens, which further urges them to constantly upgrade themselves to meet new practical demands and fulfill social responsibilities for the benefit of society, not just themselves. Thus, it is essential to continue promoting the enthusiasm of youth, with each pedagogical student continuously studying and raising their awareness of social issues and the profession they have chosen, always remembering the motto "turning the training process into self-training." They should cultivate pure motives and feelings when performing their duties.

Only when there is emotion will participation in activities not become a burden, forced or constrained, achieving the desired effectiveness. Self-awareness and self-motivation are the highest stages in the process of awareness and action. If this level is not reached, the academic and professional activities of pedagogical students will be difficult to achieve the highest effectiveness. This is also something that each pedagogical student must recognize to train and improve themselves.

4. CONCLUSIONS

Article 2 of the Education Law states: “The goal of education is to train Vietnamese people to develop comprehensively, with morality, knowledge, health, aesthetics, and profession, loyal to the ideal of national independence and socialism; to form and nurture the character, qualities, and abilities of citizens to meet the requirements of building and defending the Fatherland, i.e., people loyal to the ideal of national independence and socialism” [National Assembly, Education Law]. Whether this goal can be achieved cannot be separated from the responsibility of pedagogical students—the future educators. However, to fulfill this mission, students must first educate themselves to become teachers with both “expertise” and “virtue” to carry out their “mission,” as President Ho Chi Minh said: “Teachers must pay attention to both talent and virtue, talent is culture, specialization, virtue is politics. To ensure that students have virtue, teachers must have virtue... Therefore, teachers must set an example, especially for children” [Ho Chi Minh, 2011, Volume 12]. “Youth is the spring of society,” understanding one’s social responsibility is the foundation for being proactive and positive in actions to fulfill that responsibility.

The American economist and Nobel laureate Gary Becker demonstrated that no form of investment yields greater returns than investment in education. Therefore, “for the benefit of ten years, plant trees; for the benefit of a hundred years, cultivate people.” Pedagogical students will be the actors working towards that “hundred-year benefit.” It can be said that this is the “most difficult but also the most noble task” because only by completing this task can we achieve the goal of sustainable national development.

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ENHANCING ACADEMIC AND PRACTICAL COMPETENCIES THROUGH DESIGN THINKING: A STUDY OF THE LEARNING EXPRESS PROGRAM

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ABSTRACT

This study investigates the impact of the 12-day Learning Express journey, which integrates Design Thinking methodology, on the academic and practical skills of 30 student participants. The students were immersed in one of three community projects: dairy production, coffee production, or cacao production, and worked collaboratively with peers from Singapore. The primary objective was to evaluate how the application of Design Thinking in real-world scenarios enhanced students' understanding of their academic coursework and contributed to their degree programs. Utilizing a comprehensive questionnaire, the study assessed the relevance of academic knowledge to project work, improvements in problem-solving and critical thinking skills, and the overall effectiveness of the Design Thinking process. The findings revealed that students found their academic knowledge highly relevant and were able to apply theoretical concepts effectively to solve practical problems. Additionally, significant improvements were reported in team collaboration, communication, and project management skills. The cultural exchange with Singaporean students enriched the learning experience, fostering a greater appreciation for diverse perspectives and collaborative efforts. The study concludes that the Learning Express journey significantly enhanced students' engagement and motivation, providing a valuable complement to their academic education and better preparing them for future career challenges. Recommendations for program improvements are also discussed.

Keywords: Design Thinking, Academic Integration, Practical Application, Student Engagement, Cultural Exchange.

1. INTRODUCTION

In today's fast-evolving educational landscape, the ability to bridge academic knowledge with practical application has become paramount. With the rise of interdisciplinary learning models, methodologies such as Design Thinking have gained traction as powerful tools to foster both critical thinking and innovation. The Learning Express Program, an initiative designed to integrate Design Thinking into real-world problem-solving, offers an experiential learning platform where students apply academic theories to address community-based challenges.

This study delves into the experiences of 24 student participants/respondents who embarked on a 12-day Learning Express journey, engaging in collaborative projects related to dairy, coffee, and cacao production. Working alongside their peers from Singapore, the students not only applied their theoretical understanding but also honed their communication, project management, and

teamwork skills. Through a comprehensive evaluation, this research aims to explore the academic relevance and practical benefits of Design Thinking, underscoring how it prepares students for complex, real-world challenges while fostering cultural exchange and global collaboration.

2. LITERATURE REVIEW

Design Thinking (DT) is a human-centered problem-solving approach emphasizing empathy, ideation, prototyping, and testing. Originating in design theory (Simon, 1969; Brown, 2008), it has evolved into a versatile methodology applicable in various fields, including education (Luka, 2020). Its core principles—empathy, ideation, prototyping, and testing—encourage understanding user needs and iterative learning to refine solutions. In education, DT promotes active engagement and critical thinking as students identify real-world problems and develop innovative solutions (Kim *et al.*, 2022). Research shows that integrating DT into curricula fosters collaboration and communication, preparing students to tackle complex societal challenges (Hashim *et al.*, 2019; Varianytsia *et al.*, 2022).

2.1. Integration of Design Thinking into Academic Programs

Integrating DT into academic programs has gained traction for enhancing learning outcomes across disciplines. While often associated with STEM (Science, Technology, Engineering, Mathematics), its principles also apply to non-STEM fields. For instance, in STEM education, DT encourages hands-on problem-solving and innovation, improving critical thinking skills (Kelley & Knowles, 2016; Hacıoğlu & Gülhan, 2021). DT's application extends to humanities, enhancing historical analysis through a design-based approach (Bunari *et al.*, 2023). Studies indicate that DT positively influences students' cognitive, affective, and practical competencies (Alashwal, 2020; Zainal *et al.*, 2022). By fostering a collaborative learning environment, DT prepares students for academic and professional success, emphasizing problem-solving, crisis management, and teamwork.

2.2. Experiential Learning and Community Engagement

Kolb's experiential learning cycle—concrete experience, reflective observation, abstract conceptualization, and active experimentation—aligns with DT's iterative, user-centered approach (Kolb & Kolb, 2012). Experiential learning emphasizes hands-on application, bridging the gap between theory and practice. Community engagement through service-learning allows students to apply theoretical knowledge to real-world contexts, developing essential skills like teamwork and problem-solving (Krüger *et al.*, 2015).

Despite challenges such as resource allocation and logistical issues, experiential learning and community engagement can significantly impact students' practical skills and foster social responsibility (Queen *et al.*, 2022). Integrating DT into service-learning programs enables students to translate academic concepts into tangible solutions, enhancing both their education and community welfare.

2.3. Cross-Cultural Collaboration and Learning

Cross-cultural collaboration enriches educational experiences by fostering a global perspective and cultural competence among students (Keehne *et al.*, 2018). DT, when applied in a cross-cultural context, highlights the importance of culturally responsive instruction and mutual respect. Engaging with diverse cultural perspectives enhances problem-solving capabilities and adaptability, vital for success in a multicultural world (Stadnichenko *et al.*, 2021; Dai *et al.*, 2019). International partnerships in education further enhance students' academic and practical competencies, equipping them to navigate complex, globalized environments (Psychouli *et al.*, 2020). The integration of cultural intelligence into DT frameworks emphasizes the significance of cultural diversity in educational settings.

2.4. Impact on Critical Thinking and Real-World Application

DT has emerged as a pivotal approach in enhancing critical thinking and problem-solving skills. The iterative processes of ideation, prototyping, and testing embedded in DT foster a structured framework for students to develop analytical capabilities (Guaman-Quintanilla *et al.*, 2022). Furthermore, DT motivates students to independently seek information, strengthening their problem-solving skills (Pujiastuti & Haryadi, 2023).

Incorporating DT into educational practices promotes collaborative learning, effective teamwork, and communication skills (Cook & Bush, 2018). The focus on real-world application enables students to translate theoretical knowledge into practical solutions, particularly in community-based projects (Rahman *et al.*, 2020). This experiential learning process not only solidifies academic concepts but also empowers students to address community challenges, demonstrating the relevance of their studies.

The literature consistently supports that Design Thinking enhances critical thinking, problem-solving, teamwork, and communication skills while facilitating the practical application of academic knowledge. Integrating DT into educational programs equips students with essential skills to navigate modern challenges, fostering a mindset of continuous learning, empathy, and innovation.

3. METHODOLOGY

The study used a google form to survey the university students who participated in the Learning Express program implementation last March 2024. Out of 30 participants, only 24 students responded to the survey. Questions relative to their experience and their perceptions about the impact of Design Thinking in their academic and personal development were asked. Responses were tabulated and the responses to open-ended questions were analyzed using thematic analysis.

4. RESULTS

There were equal number of male and female respondents in this study. In terms of project group, there were 9 students from the dairy group, 8 from the coffee group and 7 from the cacao group. Majority of the students rated their over-all experience as excellent. In terms of the

relevance of their academic courses in contributing to the solutions for the assigned project, more than half claimed it was highly relevant while 33% claimed it was relevant and 8.4 % chose neutral as their response.

Table 1. Improvement of Skills during Learning Express Implementation

Skills	Self-Rating of Improvement after LeX		
	5 Significant Improvement (%)	4 Moderate Improvement (%)	3 Little Improvement (%)
Critical Thinking	66.7	29.2	4.1
Team Collaboration	58.3	33.3	8.3
Communication Skills	70.8	25	4.2
Problem Solving	66.7	29.2	4.1
Creativity	50	41.7	8.3
Project Management	45.8	45.8	8.3

Table 1 revealed that majority of the students claimed that they have improved in most skills with communication skills being the highest in terms of improvement and project management as the lowest. This is in agreement with different studies that claimed design thinking to optimize critical thinking skills among students (Welsh & Dehler, 2012), allow them to exhibit distinct patterns of thinking and learning styles that enhanced their creative capabilities (Maturakarn & Moorapun, 2017) and improved their collaborative skills (Androutsos & Brinia, 2019) as well as enabling students to engage in shared understanding and problem-solving (Leinonen & Gazulla, 2014).

The thematic analysis conducted reveals several significant themes related to how the Learning Express (LeX) experience has impacted students' approaches to their academic studies. These are:

Application of Theoretical Knowledge to Real-World Problems

A key theme is the shift from theoretical learning to practical application. Many participants discussed how the LeX experience helped them see the relevance of their coursework in addressing real-world issues. This experience has made their studies more meaningful and motivated them to pursue knowledge with the intent of making tangible changes in society.

Critical Thinking and Problem-Solving

The experience fostered a more systematic and critical approach to problem-solving. Students noted that they now consider multiple perspectives when analyzing problems, moving beyond their own viewpoints to understand the needs of others.

Collaboration and Communication

The importance of collaboration was emphasized, as students learned to work with diverse groups, both locally and internationally. This exposure enhanced their communication and teamwork skills, making them more effective in group projects. The experience of consulting with others during LeX taught them the value of being open-minded and consultative in their academic work.

Empathy and User-Centric Focus

Many students highlighted the importance of empathy in their academic pursuits. LeX emphasized that understanding the needs and feelings of the community is crucial for creating effective solutions. This user-centric focus has transformed how they approach projects, prioritizing the end-users' needs in their research and academic undertakings.

Interdisciplinary Learning and Adaptability

The LeX journey underscored the value of interdisciplinary collaboration and adaptability. By working on real-world problems that required input from various fields, students learned to integrate knowledge from different disciplines, preparing them for future challenges.

Balancing Academic Responsibilities

A notable theme is the emphasis on balance and time management. Some participants expressed how the experience taught them to organize their work efficiently, especially when managing group projects. However, they also noted the challenge of catching up on missed academic activities upon returning to school, reflecting on the need for better balance and support.

Personal Growth and Professionalism

The program encouraged students to be more mature and resilient. They learned to handle academic challenges with a broader perspective, demonstrating increased motivation, professionalism, and a commitment to continuous improvement in their academic endeavors.

Practical Application and Hands-On Learning

LeX reinforced the significance of hands-on learning and active engagement. Participants mentioned conducting interviews, interacting with communities, and developing solutions as vital experiences that enriched their academic journey.

Motivation to Contribute to the Community

The experience instilled a sense of purpose in students, motivating them to use their academic knowledge to contribute positively to society. This motivation has driven some students to focus more on research topics that address community issues, indicating a shift in their academic priorities.

The Learning Express (LeX) journey provided students with key takeaways centered around empathy, collaboration, cultural awareness, and personal growth. Participants emphasized the importance of connecting with the community to understand their needs, highlighting that meaningful solutions stem from listening and observing rather than making assumptions. Collaboration with diverse groups, including international peers, enhanced creativity and problem-solving. Cultural immersion taught students to respect differences, which was vital for successful community engagement. The journey also challenged students to step out of their comfort zones, building resilience and self-awareness. Design thinking emerged as a significant tool, guiding them to iteratively refine solutions based on community feedback. Overall, the experience promoted practical, user-centered solutions, sustainable impact, and the value of teamwork and camaraderie.

In summary, the Learning Express experience significantly impacted students by transforming their approach to academic studies. It emphasized practical application, empathy, collaboration, critical thinking, and a community-focused mindset, all of which have enhanced their learning journey and professional development.

5. CONCLUSIONS

The Learning Express (LeX) journey has proven to be a transformative experience for student participants, significantly enhancing both academic and practical competencies. By integrating Design Thinking (DT) into real-world community projects, the program has facilitated a meaningful shift from theoretical learning to hands-on application. Students were able to see the relevance of their academic coursework in addressing real-world issues, particularly in the context of dairy, coffee, and cacao production. This approach not only increased their engagement and motivation in academic studies but also fostered a deeper understanding of how their knowledge can create tangible societal change.

The study highlights several critical impacts of the LeX experience. First, it fostered critical thinking and problem-solving skills as students learned to consider multiple perspectives, moving beyond their own viewpoints to address community needs effectively. Second, the program emphasized collaboration and communication, allowing participants to work in diverse teams and enhance their interpersonal skills. The cross-cultural interaction with Singaporean peers enriched their experience, promoting open-mindedness and cultural sensitivity. Furthermore, empathy and a user-centric focus were essential components of the students' learning process. The participants learned to prioritize the needs and feelings of the community, which transformed their approach to projects and academic research. The interdisciplinary nature of the LeX journey enabled students to integrate knowledge from various fields, equipping them to tackle complex challenges with adaptability. Personal growth was also a significant outcome, with students demonstrating increased resilience, professionalism, and a sense of responsibility toward societal issues.

However, challenges related to balancing academic responsibilities were noted, as some participants found it difficult to catch up on missed academic activities upon returning to school. This indicates a need for more structured support to help students manage their academic workload while engaging in immersive learning experiences like LeX.

Overall, the LeX program's integration of Design Thinking has effectively bridged the gap between theoretical knowledge and practical application. By promoting active engagement, empathy, and a community-focused mindset, the program has equipped students with the skills necessary for both academic success and professional development in a rapidly evolving world.

6. RECOMMENDATIONS

To improve the Learning Express (LeX) implementation, participants suggested several key changes: conducting comprehensive cultural orientation to enhance empathy and avoid misunderstandings, upgrading facilities like toilets and sleeping arrangements, and arranging pre-program activities to foster initial bonding between local and international students. Strict adherence to the buddy system, with active facilitator involvement in monitoring team dynamics,

was emphasized to ensure collaboration. A more holistic student selection process, focusing on personal qualities like empathy, was recommended, along with calls for equal treatment of all participants. While the overall experience was positive, these enhancements aim to create a more comfortable, culturally sensitive, and collaborative environment.

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EVALUATES THE IMPACT OF UNIVERSITIES-INDUSTRY LINKAGES ON THE QUALITY OF UNIVERSITIES

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ABSTRACT

The universities-industry linkages are not only plays a crucial role in enhancing students' ability to apply knowledge in practice, but also improve the quality of teaching as well as the university's brand value. Therefore, this study evaluates the impact of universities-industry linkages on the quality of universities. This universities-industry linkage activity is measured through three factors: (1) Research cooperation; (2) Technology transfer; (3) Knowledge transfer. University quality is measured through: (1) Tangible quality; (2) Intangible quality. Based on 150 questionnaires collected from lecturers and staff working at universities in the North-west Vietnam through Smart-PLS software, the results indicate that all three factors measuring universities-industry linkages have a positive impact on university quality. From these results, the authors provide several implications to enhance the effectiveness of universities-industry linkages. These implications will also help improve university quality through these linkages.

Keywords: universities-industry linkages, university quality, Smart-PLS, north-west Vietnam.

1. INTRODUCTION

As the demand for labor in society continues to rise, especially concerning the quality of the workforce (OECD, 2019), students gain a significant advantage in convincing employers if they have work experience even while still in school (OECD, 2019). Hiring students who are currently enrolled or have recently graduated but already possess relevant work experience and meet the company's requirements can save businesses considerable costs in training new personnel (OECD, 2019; Todeva & Knoke, 2005). Therefore, establishing a collaborative ecosystem between universities and businesses will enable students to work in a professional environment even while still in school (OECD, 2019). Simultaneously, businesses can strategize their talent acquisition according to their desired direction.

The collaboration between universities and businesses is a cooperative partnership in which both parties engage in activities related to education, research, and development, aimed at benefiting both sides. Universities can collaborate with businesses to offer training programs and workforce development tailored to the needs of the industry. This collaboration ensures that students are trained with the necessary skills to work in businesses, while companies can find highly qualified personnel. Universities may also partner with businesses in researching and developing new products and services (Abramo et al., 2011). Businesses can provide the necessary funding and infrastructure for research, while universities offer experienced experts and researchers in the relevant field (Sogolj & Tandır, 2023). University-industry collaboration also

creates internship and employment opportunities for students. Enterprises can offer internship programs and job opportunities to students, allowing them to gain practical experience and develop their skills (Abramo et al., 2011). Furthermore, universities can work with businesses to transfer technology and knowledge from academia to the industry. This helps companies develop new products and services and enhances their competitiveness in the market (Abramo et al., 2011; Sogolj & Tandır, 2023).

In the Northwest region of Vietnam, the collaboration between universities and industries has not yet developed as strongly as in other regions of the country. Several factors contribute to these limitations. First, there is a lack of resources, particularly in terms of high-level experts and experienced faculty in research and product development within both universities and industries. Second, there is insufficient government support to facilitate collaboration between universities and industries in the northern mountainous regions of Vietnam. Third, businesses in the northern mountainous region are mainly small-scale production facilities that lack the demand and capability to invest in research and development projects for new products. However, some universities have begun to collaborate with industries in the Northwest region of Vietnam in fields such as agriculture, food processing, tourism, and workforce training. These activities are being implemented to create new products and services, enhance the competitiveness of businesses, and promote local economic development. Given these factors, it is evident that there is a need to research and build a collaborative ecosystem linking universities and industries in the Northwest region. This study is conducted to assess the current state of collaboration between universities and industries, and on that basis, propose a suitable model of collaboration to enhance the quality of education at universities in the Northwest region.

2. LITERATURE REVIEW

2.1. The Universities-Industry linkage

The Universities-Industry linkage is a crucial factor in driving economic development and innovation. This collaboration benefits both parties, helping universities enhance the quality of teaching and research, while businesses can access high-quality human resources and advanced research initiatives. According to Etzkowitz and Leydesdorff (2000), the "Triple Helix" model emphasizes the role of the collaboration between three main components: universities, businesses, and the government in promoting innovation and economic development. This linkage can take many forms, from collaborative research projects, student internship programs, to the establishment of research and development (R&D) centers at universities. A study by Perkmann et al. (2013) also indicates that research collaborations between universities and businesses not only improve economic efficiency but also contribute to addressing social challenges. This highlights the importance of strengthening the connection between universities and businesses in the modern economic context.

2.2. Knowledge transfer and effective university-industry linkages

In the context of global economic integration, the relationship between universities and companies is becoming increasingly important, particularly in the field of knowledge transfer

(Brimble & Doner, 2007; Santoro, 2000). Some studies have shown that this collaboration not only helps improve the quality of education and meet the needs of the labor market but also contributes to the development of businesses through the application of new scientific research and technology (Geisler, 1995; Azaroff, 1982). By analyzing cooperation models such as internship programs, joint research projects, and resource sharing, many studies have emphasized the importance of building a solid bridge between theory and practice. Additionally, creating a flexible learning environment where students can access practical knowledge and professional skills is considered key to enhancing the competitiveness of both students and businesses in the digital era (Nonaka & Takeuchi, 1995). However, to achieve effective collaboration, flexibility, and a willingness to change from both sides, as well as supportive policies from the government, are necessary. The research hypothesis is as follows:

H1a: Knowledge transfer is positively related to tangible quality

H1b: Knowledge transfer is positively related to intangible quality

2.3. Research cooperation and effective university-industry linkages

Research cooperation plays an essential role in knowledge transfer, technological innovation, and enhancing competitiveness. The success of this relationship depends on trust, consensus on goals, and the ability to share risks and benefits among the parties (Brimble & Doner, 2007; Rothaermel & Deeds, 2004; Santoro, 2000). However, challenges such as cultural differences, intellectual property management, and research priorities need to be addressed through transparency, tight coordination mechanisms, and supportive legal frameworks. This collaboration model not only helps both universities and businesses optimize resources but also promotes innovation capabilities, requiring flexibility and a willingness to adapt from both sides, supported by national policies. The research hypothesis is as follows:

H2a: Research collaboration is positively related to tangible quality.

H2b: Research collaboration is positively related to intangible quality.

2.4. Technology transfer and the effectiveness of university-industry linkage

Technology transfer between universities and businesses is a crucial process that drives innovation and economic development, relying on long-term partnerships and a foundation of trust between the two parties. The effectiveness of this process also involves the management of intellectual property rights and the sharing of benefits, as well as supportive government policies. Creating clear agreements on ownership and benefit sharing, along with investments in research and development, are important factors for both universities and businesses to gain from newly developed products or services. This requires flexibility, a willingness to cooperate, and adaptability from both sides to maximize value and innovation from the technology transfer process (Betz, 1996; Cohen & Levinthal, 1990). Technology transfer programs leverage joint research between businesses and universities to integrate university-led research into initiatives aimed at the development and commercialization of new technologies. Specifically, technology transfer typically includes several key activities such as: (1) addressing specific research problems, (2) providing technical expertise to companies aiming to develop new products or processes, (3)

supporting entrepreneurs in starting new ventures, and (4) offering patent or technology licensing services. As discussed above, industrial companies and universities can collaborate through a range of diverse relationships with varying degrees of formality, monetary exchange, resource dependency, and commitment (Betz, 1996). The research hypothesis is as follows:

H3a: Technology transfer is positively related to tangible quality.

H3b: Technology transfer is positively related to intangible quality.

Therefore, the research model is presented in Figure 1.

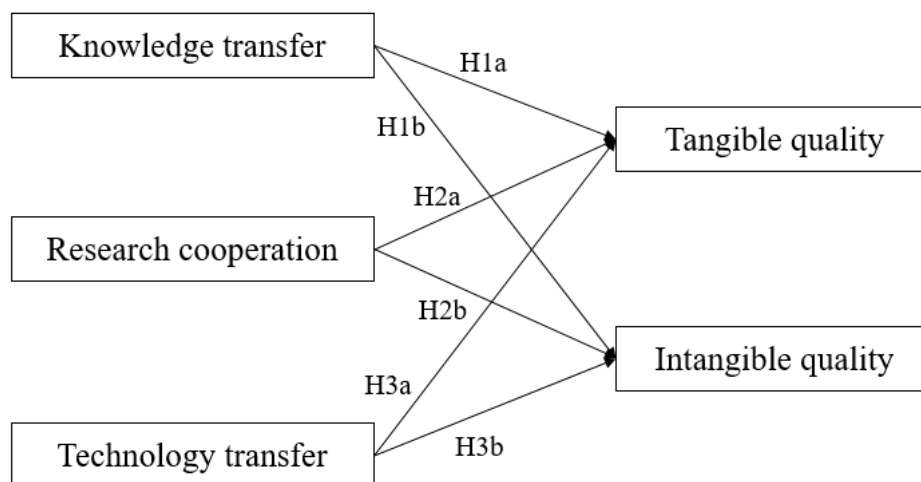


Figure 1. Research model

3. METHOD

3.1. Scale design

After establishing the factors in the research model, subsequent analysis steps are conducted according to a quantitative research process. Therefore, the measurement scales for each factor must be interval or ratio scales. A 5-point Likert scale is chosen to measure each aspect of the factors. Although, in principle, using more points on the scale can provide more precision, in some languages, the expressions of scales with too many levels can easily cause confusion for respondents. For example, using a 7-point Likert scale in Vietnamese can lead to confusion between levels 3 – partially disagree and 5 – partially agree. Therefore, to ensure clarity for research participants, a 5-point Likert scale is used, where 1 is strongly disagree and 5 is strongly agree. Distinctive signs for classification use nominal or ordinal scales depending on the specific type of categorical variable. The survey content is presented in Appendix 1.

The factors evaluating the quality of training as well as the effectiveness of the university-business linkage include tangible training quality and intangible effectiveness. The tangible training quality is referenced from the study by Santoro (2020) with 5 observed variables. Next, the intangible training quality is referenced from the studies by Bower (1993) and Santoro (2000) with 4 observed variables. The research collaboration factor is referenced from the studies by Brimble & Doner (2007) and Santoro (2000) with three observed variables. The technology

transfer collaboration factor is measured through 3 observed variables referenced from Brimble & Doner (2007) and Santoro (2000). The knowledge transfer factor between businesses and universities is referenced from Brimble & Doner (2007) and Santoro (2000) with three observed variables. Detailed descriptions are provided in Appendix 1.

Sample and data collection

The study population includes all individuals involved in university-industry linkage activities working with universities in the Northwest region. However, a comprehensive survey is impossible, so the study uses a sample survey. There are many different methods for sampling: According to Hair et al. (2006), the minimum sample size for quantitative studies is 100; For studies using regression analysis, Tabenick and Fidell (2007) give the sampling formula: $n \geq 50 + 8p$, where n is the sample size and p is the number of independent variables. Applying this rule, the minimum required sample size of the study is: $n = 50 + 8*5 = 90$. Comrey & Lee (2013) have proposed sample sizes with corresponding views as follows: 100 is bad, 200 is fair, 300 is good, 500 is very good, 1000 or more is excellent (Maccallum et al., 1999). In this study, the authors used the sampling method of Tabenick and Fidell (2007) with a minimum sample size of $50 + 8*3 = 74$ respondents.

The survey targets individuals involved in the university-industry linkage (in this study, only focusing on the perspective of individuals within the university). Data collection is conducted using two methods: 1) Direct survey; and 2) Online survey. The direct survey allows for immediate data collection from respondents, and any questions that respondents find difficult to understand can be clarified on the spot. The online survey is conducted via Google Docs by developing a sample frame. The survey is conducted from June 2024 to July 2024, and the study obtained 150 valid responses for analysis.

Data analysis

The study used multivariate analysis techniques such as testing the reliability of the scale through the Cronbach's Alpha coefficient index, the composite reliability coefficient is greater than 0.7 and the average variance extracted (AVE) must be above 0.5 (Ringle et al., 2020; Sarstedt et al., 2017). The convergent value of the observed variables in each factor is checked through the factor loading coefficient, which must be greater than 0.7 (Hair et al., 2019). At the same time, the scales or factors need to ensure discrimination when the square root of the AVE is greater than the corresponding correlation coefficient (Fornell & Larcker, 1981).

4. RESULT

4.1. Description of survey participants

Based on the survey data, there were a total of 150 participants. Of which, 36% were male and 64% were female. Regarding department classification, 60.7% belonged to specialized departments and faculties, 38% belonged to functional departments, and only 1.3% belonged to other groups. About affiliated area, 72.7% had affiliated with businesses in provinces outside the Northwest region, while 27.3% had affiliated with businesses inside. Regarding experience, 34% had no experience as a liaison, while 66% had experience as a liaison.

Table 1. Descriptive

		Number	%	% accumulation
Gender	Male	54	36.0	36.0
	Female	96	64.0	100.0
Position	Department, Faculty of Specialization	91	60.7	60.7
	Other	2	1.3	62.0
	Functional Department	57	38.0	100.0
Affiliated area	Outside	109	72.7	72.7
	Inside	41	27.3	100.0
Experience	No	51	34.0	34.0
	Yes	99	66.0	100.0
	Total	150	100	

4.2. Reliability test results

Table 2. Reliability test result

	Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CGCN1	0.945			
CGCN2	0.952			
CGCN3	0.936	0.94	0.961	0.892
CGKT1	0.875			
CGKT2	0.932			
CGKT3	0.94	0.904	0.94	0.839
HTNC1	0.933			
HTNC2	0.937	0.924	0.952	0.868
HTNC3	0.925			
CLVH1	0.94			
CLVH2	0.925	0.921	0.95	0.864
CLVH3	0.923			
CLHH1	0.884			
CLHH2	0.875			
CLHH3	0.84	0.926	0.944	0.772
CLHH4	0.881			
CLHH5	0.911			

The authors used multivariate data analysis methods to test and confirm the hypotheses. In this study, they applied the linear structural model with the partial least squares Structural Equation

modeling (PLS-SEM). To assess the reliability and suitability of the research variables, they used the measurement model. The criteria for assessing reliability include Cronbach's Alpha coefficient, the composite reliability coefficient must be greater than 0.7, and the average variance extracted must be above 0.5 (Ringle et al., 2020; Sarstedt et al., 2017). The convergent value of the observed variables in each factor is checked through the factor loading factor, which must be greater than 0.7 (Hair et al., 2019).

The analysis results show that all Cronbach's Alpha coefficients and composite reliability coefficients of the factors in the model exceed 0.7, and the average variance extracted is greater than 0.5, which indicates that the items have high internal consistency and are reliable scales. Furthermore, the analysis results confirm that the factor loading coefficients of the observed variables in each factor are mostly greater than 0.7, indicating that the items achieve convergent validity for the factors in the model.

4.3. Discriminant validity test

The discriminant validity of the research variables was assessed by the criterion of the square root of the average variance extracted being greater than the correlation coefficients (Fornell & Larcker, 1981). To assess the moderating effect, the authors used standardized factor analysis. The statistical significance level was taken as usual at 5%. The analysis results showed that the corresponding correlation coefficients were all smaller than the square root of the AVE (the range of the correlation coefficient was from 0.697 to 0.877, while the square root of the AVE was from 0.878 to 0.945). Therefore, the scales all achieved discriminant validity.

Table 3. Discriminant validity test

	CGCN	CGKT	CLHH	CLVH	HTNC
CGCN	0.945				
CGKT	0.697	0.916			
CLHH	0.827	0.800	0.878		
CLVH	0.780	0.813	0.828	0.93	
HTNC	0.800	0.787	0.877	0.805	0.932

4.4. Result of hypotheses test

The results of the PLS-SEM model analysis show that the knowledge transfer factor also has a positive impact on tangible quality (beta coefficient = 0.236 and is statistically significant at 1%). Therefore, hypothesis H1a is accepted. The knowledge transfer factor also has a positive impact on intangible quality (beta coefficient = 0.419 and is statistically significant at 1%). Therefore, hypothesis H1b is accepted. The research collaboration factor also has a positive impact on tangible quality (beta coefficient = 0.449 and is statistically significant at 1%). Therefore, hypothesis H2a is accepted. The research collaboration factor also has a positive impact on intangible quality (beta coefficient = 0.3234 and is statistically significant at 1%). Therefore, hypothesis H2b is accepted. Technology transfer has a positive impact on tangible quality (beta coefficient = 0.303 and is statistically significant at 1%). Therefore, hypothesis H3a is accepted.

Technology transfer factor also has a positive impact on intangible quality (beta coefficient = 0.301 and is statistically significant at 1%). Therefore, hypothesis H3b is accepted.

Table 4. The PLS-SEM

	Beta	Standard Deviation	T	P Values
CGCN -> CLHH	0.303	0.048	6.356	0.000
CGCN -> CLVH	0.301	0.069	4.347	0.000
CGKT -> CLHH	0.236	0.069	3.426	0.001
CGKT -> CLVH	0.419	0.063	6.665	0.000
HTNC -> CLHH	0.449	0.069	6.530	0.000
HTNC -> CLVH	0.234	0.074	3.180	0.002

The regression results show that knowledge transfer has a positive relationship with university quality, indicating that effective knowledge transfer from external sources to universities has a positive impact on training quality. When universities actively receive and apply new knowledge, this not only enriches the curriculum content but also improves the skills of lecturers, thereby improving teaching quality. Nonaka and Takeuchi's (1995) study shows that knowledge transfer and application are important factors in improving organizational capacity and operational efficiency. In addition, Tidd et al. (2005) study also shows that integrating new knowledge into training programs helps universities maintain updates and improve training quality. This result confirms that knowledge transfer not only affects the development of the curriculum but also contributes to improving the overall quality of education.

The regression results show that technology transfer from enterprises to universities has a positive relationship with the quality of university training in the joint activities with enterprises, indicating that the transfer of technology from enterprises to universities has a positive impact on the quality of training. When universities receive advanced technology from enterprises, this not only helps to update and enrich the teaching content but also improves the practical and research capabilities of lecturers and students. The study of Cohen and Levinthal (1990) shows that the ability to absorb and apply new technology is an important factor in improving the capacity of educational institutions. Similarly, the study of Perkmann and Walsh (2007) emphasizes that the cooperative relationships between universities and enterprises, especially in technology transfer, play an important role in improving the quality of teaching and research. This result confirms that actively transferring technology from enterprises to universities not only supports in improving training programs but also promotes innovation and improvement in the field of education.

The regression results indicate that research collaboration with enterprises has a positive relationship with the quality of university training in the joint activities with enterprises, indicating that research collaboration between universities and enterprises has a positive impact on the quality of training. When universities participate in research projects with enterprises, they not only have

the opportunity to access advanced research technologies and methods but also accumulate valuable practical experiences. This enriches the curriculum and improves the capacity of lecturers, thereby improving the quality of training. Research by Rothaermel and Deeds (2004) indicates that research collaboration between enterprises and universities can increase the quality of research and education through sharing resources and knowledge. Similarly, Bozeman and Corley (2004) study confirmed that research collaboration helps educational institutions update new trends and technologies, improving the quality of teaching and research. This result emphasizes that research collaboration not only creates value for the participants but also has a positive impact on the quality of training in joint activities with enterprises.

5. CONCLUSION AND IMPLICATIONS

The content of the topic focused on analyzing the current status of linkage between universities and enterprises in the Northwestern provinces. The results of the assessment of the impact of linkage activities on training quality showed that: Knowledge transfer has a positive relationship with tangible training quality; Knowledge transfer has a positive relationship with tangible training quality; Research cooperation has a positive relationship with tangible training quality; Research cooperation has a positive relationship with tangible training quality; Technology transfer has a positive relationship with tangible training quality; Technology transfer has a positive relationship with intangible training quality. From the results of this study, the authors also put forward some implications. Firstly, the study helps to test the theory of the positive relationship between university and enterprise linkage. Secondly, the study will help universities to develop appropriate policies in linkage activities with enterprises to improve the quality of universities.

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Appendix 1. SURVEY FORM

Symbol	Content
<i>I</i>	<i>Knowledge transfer</i>
CGKT1	Businesses have many specialized activities in universities
CGKT2	Students can easily practice directly at the facilities of affiliated businesses
CGKT3	Students regularly visit affiliated businesses to learn practical knowledge
<i>II</i>	<i>Research collaboration</i>
HTNC1	Attracting more funds for research from businesses
HTNC2	Businesses are always ready to support university research activities
HTNC3	Enterprises regularly participate in university research activities
<i>III</i>	<i>Technology transfer</i>
CGCN1	Solve specific problems together
CGCN2	Provide experts for both parties to develop products/services
CGCN3	Support for start-up entrepreneurs
<i>IV</i>	<i>Tangible quality</i>
	There are many cooperation and linkage programs between universities and businesses
CLHH1	
CLHH2	Exchange activities between universities and businesses take place regularly
CLHH3	The number of students graduating is higher
	There are many scientific projects with cooperation between universities and businesses
CLHH4	
CLHH5	Many inventions/copyrighted software are increasing in universities
<i>V</i>	<i>Intangible quality</i>
CLVH1	Students meet the needs of businesses after graduation
CLVH2	Students are easily recruited by affiliated businesses
	Lecturers improve professional knowledge updated according to business requirements
CLVH3	
CLVH4	Increase the university's brand in society

IMPROVING STUDENTS' COMPETENCE OF FOREIGN LANGUAGE TO MEET LEARNING OUTCOMES AT TAN TRAO UNIVERSITY

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ABSTRACT

The students' competence of foreign language to meet the learning outcomes is always a top concern in many universities in Viet Nam. The research is conducted to assess the current situation of students' competence in foreign language at Tan Trao University, thereby serving as the basis for proposing plans to improve the quality of foreign language teaching and learning, especially in improving students' competence in foreign language to meet the learning outcomes. The research results contribute to clarify the causes and factors affecting students' competence of foreign language as well as solutions to improve the quality of foreign language teaching and learning to increase the rate of meeting the foreign language learning outcomes of students upon graduation. The research results can be used as a reference for university leaders and department leaders in professional management to develop foreign language projects for the period 2025-2030.

Keywords: Foreign language project; competence standard of foreign language; standard outcomes; foreign language teacher; teaching and learning foreign language .

1. INTRODUCTION

In the general development of the world, the trend of globalization and cooperation for development is inevitable. Vietnam is a developing country and English is a powerful tool to support integration and cooperation to access the world's advanced working environment and technology. Realizing the importance of English, the Prime Minister signed Decision No. 1400/QĐ-TTĐ on approving the Project "Teaching and learning foreign languages in the national education system for the period 2008 - 2020" with the goal of "By 2020, the majority of Vietnamese youth who graduate from vocational schools, colleges and universities will have sufficient foreign language skills to use independently and confidently in communication, study and work in an integrated, multilingual and multicultural environment; Foreign languages are used as a strength of the Vietnamese people to serve the industrialization and modernization of the country." The project was then adjusted and supplemented in Decision No. 2080/QĐ-TTĐ dated February 22, 2017 with the new name "Project on teaching and learning foreign languages in the national education system for the period 2017-2025". The goal of the project is to innovate the teaching and learning of foreign languages in the national education system, to continue to implement new foreign language teaching and learning programs at all grades and training levels, to improve the capacity of using foreign language to meet the needs of study and work; enhance the competitiveness of human resources in the integration period, contribute to the cause of building and developing the country; ... by 2025.

Tan Trao University is one of the universities in the North with the mission of training human resources with university and postgraduate degrees, conducting scientific research and transferring

technology, supporting development to meet the needs of human resources for the ethnic groups in the Northern mountainous region. The current training scale of the school is more than 4,000 students, mainly students of ethnic minorities are from the Northern mountainous provinces. The university always attaches importance to improving the quality of foreign language teaching in the university as well as standardizing English proficiency for students as a prerequisite, an effective means to contribute to improving the quality of output standards of each industry and improving the competitiveness of students in the labor market after graduation, meeting the needs of employers.

However, there is a worrying reality that at Tan Trao University, the regular assessment of foreign language proficiency of students shows that the rate of students meeting the required output of foreign language proficiency standards is not high. For that reason, we conducted a study on "Improving foreign language proficiency of students at Tan Trao University to meet the output standards of the training program" with the aim of surveying the current situation of foreign language proficiency of students in the past 5 years of implementing the mandatory output standards for students of Tan Trao University according to the National Foreign Language Project 2020, assessing the factors affecting foreign language proficiency of students and propose some solutions to improve foreign language proficiency to meet the output standards of students to increase the rate of students meeting the output standards and graduating on time with foreign language certificates, as well as making recommendations on related issues to promote the quality of foreign language teaching and learning improve foreign language proficiency of students.

2. LITERATURE REVIEW

Theories Related to Language Input and Output

Currently, all universities and colleges nationwide impose English language certificates as a prerequisite for graduation for students. This means that students must have a sufficient level of foreign language before completing their course. English language certificates, therefore, become an important tool to support students in the process of ensuring that they meet the requirements for graduation.

The concept of "standard output English" is a minimum criterion of knowledge and English proficiency that a learner must achieve after completing a training program at a training institution. Normally, universities clearly commit to students about the English output standard and publicly announce it on the website, along with conditions to ensure that this output level will be achieved.

In Vietnam, English output standards are currently widely applied in most universities. Most schools require foreign language-related certificates such as TOEIC, IELTS or TOEFL with scores depending on the standards of each school.

Currently, about 127 universities in Vietnam use the 6-Vsteps English certificate and TOEIC, IELTS certificates as graduation criteria for students. Students who do not meet the university's English output standards will face a "suspended degree" situation and have to retake the exam until they meet the standards.

English output standards – the key to help students confidently step into the future

The door to studying abroad is wide open, Meeting English output standards helps you easily open the door to studying abroad. The IELTS certificate is currently one of the prestigious English certificates recognized by many countries around the world. This is a necessary condition when you want to immigrate, study abroad or find a job in English-speaking countries. Currently, most universities require IELTS English certificates to help students have more opportunities when graduating. With an IELTS certificate in hand, you can use it to hunt for scholarships and study abroad at prestigious universities around the world much easier or can continue to study higher programs, as well as be more confident when applying for jobs with an IELTS certificate in hand.

Wide open job opportunities. It is undeniable that an English degree will help you find a job much easier in the current era of national integration. With this degree, you will be given priority when graduating and have the opportunity to work with international companies. Foreign units often require a high level of English proficiency to be accepted to work for these companies. In addition, foreign companies often have much higher salaries. You will have the opportunity to learn and have a brighter future than working at small companies that do not require an English degree.

Job opportunities and settle abroad. Meeting English output standards not only helps you find a job in the country or study abroad, but also gives you the opportunity to work and settle abroad. IELTS or TOEIC are important certificates required to test your language proficiency when you want to settle abroad. This is considered a passport to help you reach out to the world more easily, increasing your chances of career advancement. Many countries such as the UK, US, Canada... all require an English certificate when foreigners want to settle in their country. Depending on the regulations of each country, the IELTS certificate level will be different.

3. METHODOLOGY

3.1. Methods

To improve English proficiency to meet output standards, We apply a combination of the following methods:

- Theoretical research method (teaching English in a communicative oriented way).
- Investigation and survey method: used to verify information about the current status of English teaching and learning at Tan Trao University of two hundred freshmen.
- Expert method: used to collect expert opinions on teaching English to Vietnamese students.

3.2. Results of foreign language output standards assessment for students of Tan Trao University, period 2020 - 2024

The university has developed a foreign language project and built a separate test organization plan to assess foreign language competence standards for students since 2020 and organized the test periodically every year. The results of achieving foreign language output standards assessment in the 5 years from 2020 to 2024 are as follows (see Tables 1 and 2).

Table 1. Results of foreign language output standard assessment for students

Year	Graduated students	Number of students meeting foreign language proficiency standards	
	Total students	Total	Percent
2020	86	82	95,3 %
2021	93	90	96,7 %
2022	98	95	96,9 %
2023	104	100	96,1 %
2024	111	108	97,2 %

Based on the above statistics, it can be seen that, the rate of students meeting the output foreign language proficiency standards upon graduation over 5 years has always been approximately 90% compared to the total number of graduates. That means that there are still about 10% of students who have not met the standards, leading to delayed graduation. Compared with other universities in the same Tan Trao University, it can be said that this is a fairly high rate. However, with the desire for 100% of students to meet the output foreign language proficiency standards as well as improve foreign language proficiency in professional practice, it is necessary to find out the causes, factors affecting the foreign language proficiency standards of students and propose solutions to further increase the rate of students meeting the output foreign language proficiency standards.

Table 2. Results of foreign language output standard assessment for students according to each skill

Year	Listening skill			Speaking skill			Reading- Writing skill		
	< 15	15<20	20-25	<5	5<10	10-15	<40	40<50	50-60
2020	30%	32%	38%	1%	28%	71%	10%	78%	12%
2021	36%	24%	30%	0%	34%	66%	13%	71%	16%
2022	32%	33%	35%	0%	33%	67%	8%	73%	19%
2023	39%	25%	36%	3%	25%	72%	11%	75%	14%
2024	27%	38%	35%	1%	38%	61%	7%	68%	25%

According to a random survey of 200 tests of 4 skills including Listening, Speaking, Reading, Writing in 5 years from 2020 to 2024, the weakest skill of students is Listening, when the rate of students achieving less than 15 points accounts for 30% compared to the total required score of Listening is 25 points, the number of students achieving is also only over 30%. With the two skills Reading and Writing. The rate of students achieving from 40 points to the maximum of 60 points is quite high, with only about 10% of students achieving a score below 40. Thus, it can be seen that the

weak skill of students is listening skill. In addition, speaking skill also needs to be improved as the rate of students achieving the required score is not really high, there are still approximately 30% of students achieving a score below 10 out of a total score of 15 for speaking skill.

4. FACTORS AFFECTING STUDENTS' FOREIGN LANGUAGE OUTPUT

4.1. Objective factors

Firstly, on the part of the departments involved in organizing foreign language training courses. The teaching conditions have not met the requirements of foreign language teaching and learning in the trend of integration and innovation, lacking equipment, class size with over 60 students/class. The learning environment has not met international standards, has not created motivation for students to actively study foreign languages. It can be said that with courses of about 60 students per class, it is very difficult for lecturers to organize effective teaching of foreign language skills, especially speaking skills, and pay attention to each student, especially students who are weak or slower than other students in the class. According to a study conducted in 2019 by the Foreign Languages Department, more than 50% of students were dissatisfied and completely dissatisfied with the facilities for foreign language learning, specifically the library lacking rich and diverse reference materials for the subject, the number of students in the classroom is still large, there is no multifunctional computer room to serve learning, equipment for the subject or online utility applications - internet access, websites are limited. The fact that students come from mountainous provinces, many of whom have difficult family circumstances, so they do not have their own personal learning tools such as computers, laptops, ... also leads to difficulties in implementing online teaching by lecturers or online self-study by students at home, especially equipment for teaching and learning as well as implementing listening skills exams.

Second, student counseling is ineffective, leading to a lack of strict control over the student's study load based on learning outcomes. Many students register for more than the study load or do not focus on retaking unfinished English courses, resulting in not having time to improve and consolidate knowledge and skills for the standardized foreign language proficiency assessment exam.

4.2. Subjective factors

Firstly, on the part of the professional department: In addition to proactively changing the curriculum and teaching curriculum to conform to the 6-level foreign language proficiency assessment framework issued by the Ministry of Education and Training (MOET), the Department has not yet developed a plan to organize training classes to improve foreign language proficiency for weak input students or those who do not have the necessary skills during their studies at the university. keep up with the progress due to problems related to current legal documents at the university. The supervision of the department over the self-study and self-improvement of students outside of class hours has not been implemented due to the lack of regulations on the overtime work regime of lecturers.

Secondly, lecturers have uneven foreign language proficiency. The number of people trained abroad is small, while the cost of taking the exam and obtaining an international English certificate is quite high and time is limited. On the other hand, due to the limited English proficiency of teachers and students, teaching in English is slower than teaching in Vietnamese. Lecturers are also confused when building a 6-level exam question bank for Vietnam...

Thirdly, on the student side, most students come from the northern mountainous provinces, remote areas (accounting for more than 60%) with difficult conditions, the "input" English foundation is still quite low, and there is little exposure to means for learning foreign languages. Therefore, teaching English at university almost starts from the most basic knowledge. According to statistics from the school's Training Department, the national high school graduation exam scores in English in 2020 of freshmen entering the university had more than 68% of students scoring below average and average. In particular, most students come from mountainous provinces, remote areas where foreign languages are not yet focused on. In addition, more than 70% of surveyed students showed a lack of motivation to study, passive interaction during class, and a lack of awareness of the importance of learning a foreign language, but only studying to pass the subject and graduate because they consider it a secondary subject. Students study foreign languages not for the purpose of communication, research, or service after graduation. Not only that, students' ability to self-study foreign languages is quite low, lacking initiative in learning, and most of them are still familiar with the way of studying at high school level. The lack of confidence and fear of communication in learning English is also one of the main reasons leading to ineffective learning. Students do not have a suitable environment to practice, train, and develop English skills continuously and effectively... Therefore, it is very difficult for students to achieve the "output" standard level on schedule.

4.3. Factors affecting English learning of freshmen of Tan Trao University

After more than 15 years of teaching English, I have found that most students believe that speaking skills in activities are appropriate to their abilities and because class members actively participate. However, many students still have the fear of making mistakes, many students are still afraid of making mistakes when participating in speaking reflexes, this prevents students from participating in reflexes in activities.

Although students study English, they still have the habit of thinking in Vietnamese before responding. A number of students have not received much support from teachers when participating in responses while most students tend to support each other in activities. In addition, the results show that a large number of students think that their vocabulary, grammar, pronunciation, and ideas are not really good, in addition, students have not really spent time practicing speaking English after class. This proves that English knowledge, social knowledge (expressed through speaking ideas) and practice play an important role in students' speaking responses.

Linguistic and social knowledge. Linguistic and social knowledge is one of the most influential factors on the speaking reflexes of first-year students of Tan Trao University. Many students said that they still have many difficulties such as: lack of vocabulary, lack of ideas, poor

pronunciation, students do not using a variety of grammatical structures... To have good reflex skills, students need to have a diverse vocabulary, rich ideas, and be flexible in using grammatical structures... If students do not have a good foundation in linguistic and social knowledge, they will encounter many obstacles in the process of participating in English speaking reflexes: not having enough vocabulary to express, lacking ideas to answer questions, not conveying the correct meaning and content to be exchanged, affecting the process of expressing information in communication, even being difficult to understand and easily causing misunderstandings.

Fear of making mistakes, passivity. Psychological factors have a direct impact on students' English speaking reflexes, especially in the communication process. This factor is often expressed in many different ways by the students themselves: through the level of active participation in tasks assigned by teachers, through students' practice, anxiety (or hesitation, confusion) every time they participate in speaking reflexes. The fear of making mistakes and not creating for themselves the habit of actively participating in reflexes and interacting in activities leads to less speaking practice time, affecting students' reflex speed.

Learning environment. Learning environment factors have a significant influence on students' English speaking reflexes. Along with observing the classroom and interviewing, the research team found that students tend to be influenced by the members in the classroom and the online learning environment. Classes with many active students will motivate other members to participate in interacting, practicing reflexes, or students tend not to participate in reflexes when group members do not participate. In addition, the online learning environment also makes it difficult for teachers to manage and control the entire class, leading to students turning off the camera, doing their own work, not paying attention, being distracted and not actively participating in reflexes, leading to interruptions in performing activities and difficulty developing speaking reflexes for students. This significantly affects students' speaking reflexes during class hours.

The appropriateness of the activity to the ability The research results have shown that most students are concerned with the level of the activity, so students will tend to participate in speaking when the activity is suitable for their ability. Occasionally, when encountering difficult activities, or beyond their ability, students will not immediately respond but will take time to think to come up with ideas and will not participate actively or even not participate in the reflex.

4.4. Solutions to improve foreign language proficiency to meet the output standards of students of Tan Trao University in the current situation

Building confidence and interest in learning English for students, enhancing ideological education and awareness for students about the importance of English for professional practice and international integration

Author Hanafi Syahrozi et al (2016) believes that creating motivation for students to be self-motivated, voluntary and passionate about learning foreign language, helping students to learn foreign languages well, meet the output standards of the industry and apply them in professional practice is extremely necessary to spread the foreign language learning movement throughout Tan Trao University and the whole society, specifically as follows:

Through political activities at the beginning of the course to disseminate to students about the English program framework applied to teaching and learning in the school, at the same time, also disseminate to students about the output competency standards of each major, from which students can determine the foreign language learning path to meet the output competency standards. In addition, organizing live seminars or online consultations to answer students' questions during the learning process also helps students have a clearer orientation and better learning methods, thereby helping students have more motivation in studying foreign languages. In particular, for students to realize the importance of foreign languages for professional practice, the role of lecturers is indispensable. Each lecturer will be a bridge connecting students with foreign language learning through organizing rich lectures that create interest for students, such as letting students review English-language video conferences in some other universities, or organizing students to participate in international seminars held at the university. Lecturers need to make students clearly see the effects of English in the new era and the direct benefits for students. For example, when students are good at English, students can watch movies, listen to music, read newspapers in English, can look up professional documents in English, etc. Especially in the future, good English is a favorable condition for students to easily find a good job after graduation. In fact, a number of students currently study English only to pass exams because they are not aware of the importance of English for their future work. Lecturers need to better orient students about the importance of English for their daily life and future work, and to be aware of self-improvement, thereby building appropriate motivation and learning methods to be able to improve their level. This includes: clear learning attitudes, motivations, effective learning methods, specific goals and plans, and reasonable allocation of study time. In addition, students need to actively and proactively participate in the training process at school as well as extracurricular activities about foreign languages inside and outside university; Be ready to adapt to modern educational methods, strive to master learning activities to explore and experience on your own, proactively arrange self-study time and access online English learning software and websites on the Internet, proactively contact foreign language teachers and lecturers when there are any problems or difficulties in the learning process.

Pay attention to creating a foreign language learning environment for students

Create a foreign language learning environment for students, encourage students to learn foreign languages outside the classroom, anywhere, anytime, specifically as follows: Develop students' English self-study capacity through classroom library: Implementing a classroom library project to support students in developing their English self-study capacity through extensive reading is a positive, long-term and comprehensive solution. The multidimensional source of knowledge in the book catalogs of the library system has created conditions to help students self-study better and more deeply than the knowledge in textbooks.

In a study on the application of the English self-study program management system at King Mongkut University Thonburi (Thailand), Sanprasert (2010) affirmed that it is necessary for lecturers to build a positive attitude towards foreign language learning for students, thereby contributing to improving foreign language learning behavior - especially the self-study process. The ability to self-study and research according to the system of books, stories, and magazines

helps students develop their language and use them to communicate more naturally. Topics on vocabulary, phonetics, grammar, listening, speaking, reading, and writing will be improved. This system of documents both provides content and guides for testing and assessment. Through self-study documents, students will grasp more in-depth knowledge than in class lessons that teachers have not fully conveyed.

The second solution to create a foreign language learning environment for students is to learn through daily conversation videos. To maximize students' ability to acquire knowledge and language, we must ensure that students have access to all 4 learning methods: Observation; listening; activities and reading, writing. Watch videos and reproduce sentence patterns used in specific situations such as English at restaurants, airports, greetings, asking for directions, renting an apartment, applying for a job... Video lessons for speaking skills from basic to advanced are easily found on the Internet and are completely free. Teachers only need to prepare the content, come up with ideas and activities for the parts before, during and after watching the video to be effective. The third solution is to regularly organize extracurricular activities of the English club in the university and projects. J.W. Thomas (2011) argues that the advantages that English clubs bring to members with the same passion and direction have been recognized by many universities and organizations. Club activities are places for students to express themselves in English through activities such as acting, organizing presentation competitions on environmental projects, technology, health protection, etc. An important part of the club's activities is sharing experiences about English proficiency tests as well as such as reviewing the necessary skills for exams. By creating such a learning environment, the effectiveness of students' English learning will certainly be improved.

Focus on training to improve the qualifications of foreign language lecturers and improve the quality of foreign language teaching and learning

The university needs to strengthen training to improve the professional capacity as well as pedagogical methods for the teaching staff by sending lecturers to participate in professional training courses and attend professional seminars at home and abroad, regularly organizing seminars or workshops to discuss English teaching methods as well as developing English teaching materials used in teaching at the school so that lecturers in the school have more opportunities to interact with foreign people. Foreign language lecturers need to actively update their professional knowledge and current active and modern teaching methods to apply in their lectures to increase students' interest in learning, flexibly combine teaching methods in a lesson to make the lecture more in-depth and achieve the desired effectiveness, change the assessment method to focus on developing students' abilities. In addition to influencing the content and methods, the form of teaching organization, establishing a good positive cooperative relationship between lecturers and students, between students and students will also create interest for students. An attractive teaching organization form along with a friendly, pleasant atmosphere during class will create interest for both teachers and students. This is important to make students love the subject and the lesson. In addition, lecturers need to improve their capacity in organizing, advising and guiding students in their studies; pay more attention to students' motivations and attitudes toward learning, helping

students correctly assess the need for English for their future so that students can determine their motivations, positive learning attitudes, and effective learning strategies.

Pay attention to investing in facilities and learning equipment to serve foreign language teaching and learning

Modern facilities and teaching equipment are one of the important factors contributing to improving the quality of teaching and learning. Therefore, to improve the quality of English teaching and learning and enhance students' English proficiency, one of the important solutions is to increase investment in modern facilities and teaching equipment. Schools need to have an investment mechanism to upgrade and expand facilities and equipment: functional classrooms, modern equipment serving teaching and learning, classrooms must ensure the specific learning needs of English, including ensuring that they are equipped full teaching facilities, loudspeaker systems, computers, projection screens, etc. for lecturers to apply teaching methods to promote students' initiative and creativity; The library must be large enough in quantity and diverse in terms of English for teaching to satisfy students' needs for reference, study and research; Learning materials for teaching and learning for lecturers and students need to be equipped to meet different learning needs, focusing on developing open learning resources so that learners and teachers can exploit conveniently. At the same time, the university needs to upgrade the Internet connection, improve the website to meet the large number of students' login needs to e-learning, especially during the time of taking the Pre-test and registering for courses.

Management work of relevant functional departments

The school needs to continue to issue, review, supplement and perfect regulations and rules related to teaching, learning and organizing foreign language proficiency tests in accordance with regulations: policies/remuneration regimes for lecturers who meet foreign language proficiency standards as required, foreign language proficiency standards of students and regulations on organizing foreign language proficiency tests, creating all favorable conditions for lecturers and students to complete their teaching and learning tasks, increasing the rate of students who meet foreign language proficiency standards on time for graduation, having appropriate emulation and reward policies, increasing encouragement and motivation for lecturers with good achievements in innovating foreign language teaching methods as well as organizing activities to promote foreign language learning movements among students, paying more attention to teaching and learning equipment, meeting the requirements Require innovation in teaching methods, implement small class sizes (30-35 students/class) so that students have more opportunities to practice communication.

5. CONCLUSION

The study has presented the current situation of foreign language proficiency meeting the output standards of students in the university, contributing to clarifying the causes and factors affecting the foreign language proficiency of students, thereby proposing solutions to improve foreign language proficiency for students, meeting the output standards of the industry and the

needs of society in the context of integration and development. Therefore, in order to effectively implement the proposed solutions, the implementation process requires each staff member, lecturer and student of the university to constantly strive to gradually achieve the set goal of improving foreign language proficiency for students, increasing the rate of students meeting foreign language proficiency standards on time to graduate at the highest level. The research results can be used as reference documents for university leaders and department leaders in professional management, building and developing the Foreign Language Project for the period 2020 - 2025.

* This study is supported by Tan Trao University, Tuyen Quang, Vietnam.

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UNDERSTANDING AND FACTORS INFLUENCING LAW COMPLIANCE ON ENVIRONMENTAL PROTECTION AMONG STUDENTS AT HANOI PROCURATORATE UNIVERSITY, VIETNAM

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ABSTRACT

This study investigates the level of understanding and the factors influencing the compliance with environmental protection laws among students at Hanoi Procuratorate University, Vietnam. The research aims to assess the students' knowledge of environmental legislation and identify the socio-demographic and psychological factors that may affect their adherence to these laws. The results reveal significant variations across different aspects of knowledge and application, highlighting inconsistencies in students' comprehension and compliance with environmental protection laws (mean = 3.36; SD = 1.13 and mean = 3.35, SD = 1.06). The findings provide insights into how legal education at the university level can be improved to enhance students' compliance with environmental laws, contributing to broader environmental sustainability efforts in Vietnam.

Keywords: Environmental protection, Compliance, Legal education, University students, Vietnam.

1. INTRODUCTION

In recent years, environmental protection has emerged as a pressing global concern, driven by the alarming consequences of climate change, resource depletion, and environmental degradation. As these issues continue to intensify, there is an urgent need to foster a culture of environmental responsibility and law compliance, especially among the younger generation. In Vietnam, where rapid urbanization and industrialization have significantly impacted the environment, promoting adherence to environmental laws and regulations has become a critical priority. Understanding the factors influencing law compliance on environmental protection among university students, future leaders and professionals, becomes particularly significant in this context.

At Hanoi Procuratorate University, where students are trained to become future legal professionals, understanding their knowledge, attitudes, and behaviors toward environmental laws is crucial. These students will play an essential role in enforcing, interpreting, and promoting environmental laws in their future careers. Their level of understanding and compliance with these laws today will shape their effectiveness as future legal practitioners and their capacity to contribute to Vietnam's sustainable development goals. Therefore, examining the factors influencing law compliance on environmental protection among this specific group of students is very necessary.

2. LITERATURE REVIEWS

A growing body of literature underscores the importance of legal education in fostering environmental compliance among students. According to Ana et al. (2014), comprehensive legal education, particularly that which incorporates environmental laws, is crucial in developing awareness and understanding among students regarding their environmental responsibilities. This study emphasizes the role of formal education in enhancing the legal knowledge base, which directly influences students' attitudes and behaviors toward environmental law compliance. Similarly, Annamaria et al. (2017) argue that curriculum-integrated courses on environmental legislation positively impact students' knowledge and readiness to engage in environmental protection activities.

Research by George Geothals (1999) further highlights that when environmental education is embedded in the university curriculum, it leads to a deeper understanding of both the theoretical and practical aspects of law compliance. The authors suggest that integrating environmental law education at multiple stages of the academic journey allows students to better grasp the complexity of environmental issues and the legal frameworks governing them. This approach ensures that future legal practitioners are adequately prepared to address environmental challenges in their professional roles.

Several studies explore the impact of peer influence and social dynamics on law compliance behavior. Hazwan Jusoh et al. (2024) found that students who actively engage with peers in discussions about environmental issues are more likely to exhibit behaviors that comply with environmental laws. This finding is supported by Jovie (2024), who demonstrate that peer-led initiatives, such as group projects and peer mentoring on environmental topics, significantly enhance awareness and compliance among university students.

Moreover, Mary et. Al. (2014) investigate the role of social norms in influencing environmental law compliance. They found that when students perceive that their peers value and adhere to environmental regulations, they are more likely to conform to these norms. The study underscores the importance of creating a supportive social environment that promotes collective responsibility for environmental stewardship.

Extracurricular activities related to environmental protection have also been identified as critical factors in fostering law compliance among students. According to Rafael et. al. (2018), participation in environmental clubs, workshops, and volunteer activities significantly enhances students' practical understanding of environmental laws and their applications. This practical engagement helps bridge the gap between theoretical knowledge and real-world application, making compliance more likely.

Sarah et. al. (2020) found that students who are actively involved in environmental extracurricular activities tend to have a stronger sense of responsibility towards environmental laws and are more motivated to comply with them. The authors argue that these activities provide valuable experiential learning opportunities, which help students internalize the importance of compliance and develop a deeper commitment to environmental protection.

Studies have also highlighted the importance of keeping students informed about recent changes and updates in environmental laws. Research by Tamaulina et. al. (2022) suggests that continuous updates and refresher courses on environmental legislation are essential in maintaining high levels of compliance. The study found that students who regularly receive information about new laws and policy changes are more likely to remain compliant and adapt to new regulations effectively.

Moreover, Taylor and Evans (2021) suggest that the dynamic nature of environmental laws requires ongoing education and engagement. They recommend that universities establish regular seminars, workshops, and online platforms to disseminate updated information to students, thereby enhancing their ability to stay informed and compliant with current laws.

Psychological factors, including students' attitudes towards the environment and their perceived importance of law compliance, play a significant role in influencing behavior. According to Johnson et al. (2019), students who perceive environmental protection as crucial for community sustainability are more likely to adhere to environmental laws. This finding is echoed by Kumar and Gupta (2020), who show that fostering a positive attitude toward environmental stewardship can significantly enhance compliance rates.

Furthermore, Liao et al. (2021) identify a direct correlation between students' awareness of the consequences of violating environmental laws and their compliance behavior. The study suggests that raising awareness about the social and legal repercussions of non-compliance can be an effective strategy to promote adherence to environmental regulations among students.

3. METHODOLOGY

The study employed a quantitative research approach, using a structured questionnaire to collect data from a sample of students at the Hanoi Procuratorate University. The questionnaire included sections on demographic information, knowledge of environmental laws, and factors influencing compliance, such as social influence, awareness of consequences, and personal attitudes toward environmental protection. The study uses a questionnaire survey method to assess students' understanding and awareness of legal regulations in cyberspace. The data was collected through a questionnaire survey of students studying at Hanoi Procuratorate University in the 2023-2024 academic year. The questionnaire is designed according to the Likert scale of 5 levels from 1 point (Completely disagree); 2 points (Disagree); 3 points (Confusion); 4 points (Agree) and 5 points (Totally agree). In addition, a number of in-depth interview questions about the causes and solutions were also asked to further explain the respondent's choice. Prior to the official survey, a small test of 50 questionnaires was conducted and showed good reliability with Cronbach's Alpha coefficient of 0.84, which showed that reliability was guaranteed. After that, a survey was conducted in the form of random sampling with 780 students at the Hanoi University of Procuracy and 617 valid votes were obtained. The data collected from the survey process was analyzed using descriptive statistical methods and multivariate analysis to gain a deeper understanding of students' level of understanding and awareness of cyber legislation.

Of the total 617 samples of analysis sheets, there were 497 males, accounting for 80.6%; 120 females accounted for 19.4%, the majority of students rented dormitories or a room. The study conducted a survey of first-year (49.6%), second-year (31.4%) and third-year (19.0%) students studying at the school in the 2023-2024 academic year. Because the 4th year students are in the internship process, they are not subject to the survey. The characteristics of the survey sample are described in Table 1.

Table 1. Survey Sample Characteristics

Characteristics of the survey sample (n=617)		Quantity (N)	Percentage (%)
Gender	Female	120	19.4%
	Male	497	80.6%
School Year	First year	306	49.6%
	Second year	194	31.4%
	Third year	117	19.0%
Accommodation	Dormitory	182	29.5%
	Rent an room	298	48.3%
	Private house	137	22.2%

Source: Hanoi University of Procuracy Student Survey in 2024

Data were analyzed using statistical methods to identify correlations between the students' understanding of the law and their reported compliance behaviors. Additionally, regression analysis was conducted to determine the most significant factors influencing compliance.

4. RESULTS

Table 2. Knowledge and application of environmental protection laws

No.	Level of Understanding	Mean	Std.
1	I have knowledge of environmental protection laws	3,98	1,02
2	I have been trained or received information about these laws from school or other sources.	4,01	0,97
3	I know about the latest environmental protection laws	3,13	0,91
4	I have updated with new changes and adjustments in environmental protection laws	3,07	1,01
5	I understand my rights and responsibilities when participating in environmental protection activities	3,39	0,93
6	I understand the prohibited acts in environmental protection laws	3,01	1,07
7	I have applied relevant legal regulations in real-life situations regarding environmental protection	2,92	1,13
	Average	3,36	1,13

Source: Hanoi University of Procuracy Student Survey in 2024

The result in Table 2 provide an overview of students' knowledge and application of environmental protection laws, with an overall average score of 3.36 (SD = 1.13), reflecting a

moderate level of understanding and engagement. However, the results also highlight significant variations across different aspects of knowledge and application.

The highest mean scores are observed in general awareness of environmental protection laws (mean = 3.98, SD = 1.02) and in having received training or information about these laws from school or other sources (mean = 4.01, SD = 0.97). These findings indicate that most students have a good foundational knowledge of environmental laws and have been exposed to relevant educational content. However, there is a drop in understanding when it comes to the latest laws (mean = 3.13, SD = 0.91) and keeping up-to-date with new changes and adjustments (mean = 3.07, SD = 1.01), suggesting that the current educational efforts might not be sufficient to keep students informed of recent updates in legislation.

Lower scores are particularly evident in areas related to the practical application of these laws, such as understanding prohibited acts (mean = 3.01, SD = 1.07) and applying relevant legal regulations in real-life situations (mean = 2.92, SD = 1.13). These results highlight a critical gap between theoretical knowledge and practical application, underscoring the need for more experiential learning opportunities that allow students to engage with the laws actively and apply them in real-life contexts.

The moderate scores on understanding personal rights and responsibilities in environmental activities (mean = 3.39, SD = 0.93) suggest that while students are aware of their roles, there is room for improvement in empowering them to take a more active part in compliance efforts.

Overall, the findings point to the importance of enhancing the educational curriculum to provide more up-to-date information and practical training on environmental laws. Increasing opportunities for experiential learning and real-world application could help bridge the gap between knowing the laws and effectively applying them, thereby fostering a more comprehensive understanding and compliance among students. This approach could contribute significantly to raising a generation of environmentally responsible citizens who are well-prepared to advocate for and adhere to environmental protection laws.

Table 3. Level of understanding and compliance with environmental protection laws

No.	Level of Understanding	Mean	Std.
1	I have a clear understanding of the specific regulations on environmental protection in current laws.	3,95	1,74
2	I have been taught and trained in environmental protection laws in my curriculum.	3,71	1,09
3	I believe that compliance with environmental protection laws is very important for the sustainable development of the community.	3,52	0,96
4	Extracurricular activities related to environmental protection have helped me better comply with environmental regulations.	3,59	1,01
5	I regularly discuss issues related to environmental protection laws with my friends.	3,97	0,99
6	I feel responsible for complying with environmental protection laws when participating in social activities.	2,91	0,87
7	I regularly update my knowledge about changes in environmental protection laws.	2,69	1,04
8	I am influenced by my friends in complying with environmental protection regulations.	2,78	0,94
9	I believe that education about environmental protection laws in schools is necessary to raise awareness of law compliance.	3,17	1,02
10	I have applied knowledge about environmental protection laws in my daily life.	3,25	0,91
	Average	3,35	1,06

Source: Hanoi University of Procuracy Student Survey in 2024

The data presented in Table 3 provide insights into the various factors influencing students' understanding and compliance with environmental protection laws. The overall average score is 3.35 (SD = 1.06), indicating a moderate level of understanding and adherence among students. However, there are notable variations across different aspects of environmental law compliance.

The highest mean scores are associated with students' perceived understanding of specific regulations (mean = 3.95, SD = 1.74) and their engagement in discussions about environmental protection laws with peers (mean = 3.97, SD = 0.99). These findings suggest that while students feel they have a strong grasp of regulatory details and frequently discuss these issues, there might be overconfidence or a gap between perceived and actual knowledge, given the relatively high standard deviations.

On the other hand, lower mean scores are observed in areas such as feeling a personal responsibility to comply with environmental laws during social activities (mean = 2.91, SD = 0.87), regularly updating knowledge about changes in environmental laws (mean = 2.69, SD = 1.04), and the influence of peers on their compliance behavior (mean = 2.78, SD = 0.94). These results highlight gaps in ongoing learning and the need for stronger social reinforcement of compliance behaviors. The lower scores on these items suggest a need for increased efforts to foster a sense of personal accountability and peer influence in promoting environmental law adherence.

Interestingly, the relatively moderate scores on the belief in the importance of compliance for sustainable development (mean = 3.52, SD = 0.96) and the perceived necessity of education about environmental protection laws in schools (mean = 3.17, SD = 1.02) indicate that while students recognize the significance of these laws, there is room for deeper engagement and education to solidify these beliefs.

The findings also reveal that while extracurricular activities related to environmental protection positively impact compliance (mean = 3.59, SD = 1.01), there remains a disparity in the practical application of this knowledge in daily life (mean = 3.25, SD = 0.91). This points to a potential gap between theoretical understanding and practical implementation, suggesting that more experiential learning opportunities and active engagement in real-world environmental practices may be needed to bridge this gap.

Overall, the results underline the importance of enhancing both formal and informal educational approaches to improve students' understanding and compliance with environmental protection laws. By addressing these gaps, universities can play a critical role in preparing a generation of students who are not only aware of the laws but also capable of actively contributing to sustainable development in their communities.

The results indicate that while the majority of students are aware of the basic principles of environmental protection laws, there are gaps in their detailed knowledge, particularly concerning specific regulations and their practical applications. Compliance with these laws is influenced by several factors, including the level of legal education received, peer influence, and the perceived importance of environmental issues.

Students who participated in extracurricular activities related to environmental protection demonstrated higher levels of compliance. Furthermore, those who had received formal instruction on environmental laws as part of their curriculum were more likely to adhere to these laws.

5. CONCLUSIONS

This study reveals several important insights into the current state of knowledge and compliance behaviors of students concerning environmental laws. Firstly, while the majority of students possess a basic understanding of environmental protection laws, there are notable gaps in their knowledge, particularly regarding recent updates, specific legal provisions, and the practical application of these laws. This gap between theoretical knowledge and real-world application indicates a need for more comprehensive and practical education on environmental law. The findings suggest that students are generally aware of the fundamental principles and consequences of violating environmental laws but lack detailed knowledge of specific regulations and legal measures available for enforcement. Secondly, the research highlights the influence of various factors on law compliance among students, including the level of formal legal education, peer influence, and engagement in extracurricular activities related to environmental protection. Students who received formal instruction and participated in activities promoting environmental awareness showed higher levels of compliance. This underscores the importance of integrating environmental education into the broader university curriculum and fostering a campus culture that emphasizes environmental responsibility.

Moreover, the study indicates a moderate awareness of the consequences of environmental law violations, with higher awareness levels of general legal and social impacts than specific preventive and remedial measures. This suggests the need for targeted educational interventions focusing on practical skills, such as waste management, pollution prevention, and environmental advocacy. Enhancing practical training can help bridge the gap between knowledge and behavior, empowering students to act as effective advocates for environmental protection.

Overall, the findings highlight the critical role of universities in shaping students' understanding and compliance with environmental laws. By addressing the identified gaps in knowledge and leveraging influential factors such as peer dynamics and extracurricular engagement, universities can play a pivotal role in fostering a generation of environmentally responsible legal practitioners. Enhanced legal education, combined with a supportive campus environment, can significantly improve students' adherence to environmental protection laws, contributing to Vietnam's broader sustainability efforts. These conclusions underscore the necessity for ongoing research and the development of targeted strategies to strengthen environmental law education at Hanoi Procuratorate University and similar institutions across Vietnam.

ACKNOWLEDGEMENT

The author thanks Hanoi Procuratorate University for funding this research.

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MODERATING EFFECT OF PEDAGOGICAL BELIEFS WITH PERFORMANCE EXPECTANCY ON THE BEHAVIORAL INTENTION OF PHILIPPINE UNIVERSITY EDUCATORS

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ABSTRACT

This study examines the moderating role of pedagogical beliefs on the relationship between performance expectancy (PE) and behavioral intention (BI) to integrate technology tools into teaching among science and technology university lecturers in Mindanao, Philippines. Utilizing a descriptive-predictive research design, the sample comprised 300 purposively selected lecturers. The research instrument included adapted versions of Venkatesh's UTAUT questionnaire for PE and BI and Liu *et al.*'s instrument for pedagogical beliefs (PB). Data analysis involved moderation analysis, with demographic profiles considered. Results indicated that PE significantly predicts BI ($B = 0.665$, $SE = 0.044$, $t(298) = 15.17$, $P < 0.001$), but PB does not significantly moderate this relationship ($B = -0.065$, $SE = 0.048$, $t(298) = 1.37$, $P = .172$). The study concluded that enhancing lecturers' perceptions of technology's usefulness is crucial for promoting technology integration, regardless of their pedagogical beliefs. Future research should explore other moderating factors and include a more diverse sample to improve generalizability. Curriculum designers should focus on technology training and continuous support for effective technology integration.

Keywords: Behavioral intention, pedagogical beliefs, performance expectancy, technology adoption, university Lecturers

1. INTRODUCTION

The COVID-19 pandemic has significantly altered education globally, compelling educators to integrate digital technologies into their teaching practices, often without sufficient preparation (Dhawan, 2020). This abrupt transition underscores the need to explore the factors influencing technology adoption among educators, particularly in science and technology universities in the Philippines. In this context, understanding how educators' pedagogical beliefs shape their effective use of educational technology tools is crucial (Ertmer, 2005; Namoco & Zaharudin, 2020; Namoco & Rozniza, 2021). The aim of this study is to examine the moderating role of pedagogical beliefs on technology integration in higher education.

Globally, educational agendas emphasize integrating technology into education, as it has been shown to enhance student learning experiences and improve academic performance (Ertmer & Ottenbreit-Leftwich, 2013; Nair *et al.*, 2018). In the past two decades, rapid technological advances have spurred the development of new approaches to education, particularly through the use of educational technology tools. These tools have become central to fostering competitiveness and innovation in educational settings, particularly in 21st-century learning environments (Chow,

2013; Xing & Marwala, 2017). Therefore, technology integration has become a priority for higher education institutions globally.

2. LITERATURE REVIEW

2.1. Educational Technology Tools

Educational technology tools have immense potential to enhance the learning experience by promoting active student participation in knowledge creation and sharing (Vrettaros & Argiri, 2008). These tools facilitate the use of innovative teaching methods that encourage a more interactive and personalized approach to learning, allowing educators to tailor their instructional strategies to meet diverse student needs (Choudhury, 2014; Khanzode & Sarode, 2013). By leveraging these technologies, educators can foster a more engaging learning environment that stimulates student creativity and collaboration, ultimately contributing to improved educational outcomes (Bingimlas, 2017). Despite these benefits, however, the integration of technology into education has not been fully realized, with adoption rates varying significantly across institutions and regions.

Research shows that the implementation of technology in education remains inconsistent and often underdeveloped (Konstantinidis *et al.*, 2013; Namoco, 2021; Lagunero & Namoco, 2022). Various factors influence whether educators choose to adopt educational technologies, and these factors must be better understood to improve technology integration. While the potential of these tools is clear, their successful adoption relies heavily on educators' acceptance and willingness to incorporate them into their teaching practices. Therefore, it is crucial to examine the factors that shape educators' attitudes and behaviors towards technology use in the classroom, as doing so will provide insights into how to enhance technology adoption and, ultimately, improve educational outcomes.

2.2. Performance Expectancy

Performance expectancy (PE) is widely acknowledged as a key predictor of behavioral intention to adopt technology, reflecting the belief that using a system will enhance job performance (Venkatesh *et al.*, 2003). Numerous studies have confirmed the positive correlation between PE and technology adoption, such as those by Quinn and Tan (2013) and Khechine *et al.*, (2014) which found that individuals are more inclined to adopt technology when they perceive it as improving efficiency and effectiveness at work. Similarly, (Baptista & Oliviera, 2015) and Khechine *et al.*, (2016) reaffirmed the importance of PE in influencing technology use, especially in educational settings. Tarhini *et al.*, (2016) and Salfaraz, (2017) further demonstrated that individuals with higher PE are more likely to exhibit behavioral intentions toward adopting technological tools. However, the relationship between PE and behavioral intention is not always consistent, as studies by Attuquayefio and Addo (2014) and Boonsiritomachai (2019) reported that PE did not significantly influence behavioral intention in certain contexts, suggesting that other factors may mediate or moderate this relationship. These mixed findings point to the necessity of examining variables such as pedagogical beliefs, which shape educators' attitudes and practices, potentially altering the strength or direction of PE's influence on technology use. This underscores

the need for further research into how these beliefs might moderate the impact of PE on educators' intentions to integrate technology into their teaching practices.

2.3. Pedagogical Beliefs as a Moderating Variable

Pedagogical beliefs (PB) in educational technology are typically categorized as either constructive or traditional, with various scholars offering similar conceptualizations using different terms. Meirink *et al.*, (2009) describe these as learner-centered (constructive) versus teacher-centered (traditional) beliefs, while Chan and Elliot (2004) discuss knowledge-construction versus knowledge-transmission in teaching. Similarly, Deng *et al.*, (2014) and Ertmer *et al.*, (2015) distinguish between traditional pedagogical beliefs, which focus on teacher-directed instruction, and constructive beliefs that emphasize student-centered learning. The common thread in these frameworks is that traditional beliefs prioritize knowledge transmission and teacher authority, whereas constructive beliefs encourage student discovery and active learning. In this study, Liu *et al.*'s (2017) transmissive pedagogical belief questionnaire is used to assess adherence to traditional teaching practices, such as teacher-centered instruction and the passive acceptance of knowledge.

Pedagogical beliefs also function as a moderating variable that influences the relationship between performance expectancy (PE) and behavioral intention (BI) to use technology in teaching. Namoco and Zaharudin (2020) provide empirical evidence suggesting that PB either facilitates or hinders technology adoption based on its alignment with the perceived usefulness of technology. Kenny (2018) explains that a moderating variable affects the strength of the relationship between an independent variable, such as PE, and a dependent variable, like BI. In this context, PB can either amplify or weaken the impact of PE on educators' intention to integrate technology, depending on whether their beliefs are more traditional or constructive. Understanding this moderating role is essential for developing strategies to enhance technology adoption in education, ensuring that educators' beliefs align with the perceived benefits of technological tools.

2.4. Pedagogical Beliefs and The Use of Educational Technology Tools

Several studies have highlighted the influence of pedagogical beliefs on educators' technology integration practices. For instance, Kim *et al.*, (2013) found that educators with student-centered, constructivist teaching beliefs were more likely to incorporate technology into their pedagogy. Similarly, Ertmer and Ottenbreit-Leftwich (2013) emphasized that educators with constructive pedagogical beliefs are more inclined to use technology to develop students' 21st-century skills, such as critical thinking and collaboration. These findings underscore the importance of aligning professional development initiatives with educators' pedagogical beliefs to foster effective technology integration.

2.5. Behavioral Intention

Behavioral intention (BI) is a crucial predictor of actual technology use in several theoretical models, including the Unified Theory of Acceptance and Use of Technology (UTAUT), the Technology Acceptance Model (TAM), and the Theory of Reasoned Action (TRA). These

frameworks assert that a higher intention to use educational technology increases the likelihood of its adoption. UTAUT highlights that BI is influenced by factors such as performance expectancy, effort expectancy, and social influence, with stronger intentions leading to action when facilitating conditions like institutional support are present (Venkatesh *et al.*, 2003). TAM similarly posits that perceived usefulness and ease of use drive BI, meaning educators who find technology beneficial and easy to implement are more likely to use it (Davis, 1989). In TRA, behavioral intention is shaped by attitudes and subjective norms, where positive attitudes and social encouragement increase the likelihood of technology adoption (Fishbein, 2008). Across all models, the strong link between BI and actual use underscores the importance of fostering positive intentions to improve technology integration in educational settings.

2.6. Statement of the Problem

The rapid integration of digital technology in education underscores the need to understand factors influencing its adoption, particularly among educators. While UTAUT highlights performance expectancy as a key determinant, the role of pedagogical beliefs remains underexplored, especially in a science and technology university in Southern Philippines. This study investigates whether pedagogical beliefs significantly moderate the relationship between performance expectancy and educators' behavioral intention to use digital technology tools in their teaching practices.

3. METHODOLOGY

3.1. Research Design

The research design employed in this study is descriptive-predictive (Creswell & Creswell, 2017). Descriptive-predictive research is appropriate for this study as it enables the detailed description of the educators' pedagogical beliefs and their performance expectancy, and subsequently predicts how these factors influence their use of educational technology tools. This design is particularly suitable for educational research where the goal is to understand the current practices and forecast future behaviors based on specific predictors.

3.2. Research Sample

The sample consists of 300 university lecturers from a Science and Technology University in Mindanao, Philippines. These participants were purposively selected based on predetermined inclusion criteria: they must be employees of the university and actively teaching in any course. Non-teaching employees were excluded from the study. Purposive sampling is ideal for this study as it allows for the intentional selection of participants who meet specific criteria relevant to the research question (Patton, 2002). The inclusion and exclusion criteria ensure that the sample is homogenous in terms of their teaching roles, which is critical for examining the interaction between pedagogical beliefs and performance expectancy. Table 1 shows the demographic profile of the respondents.

Table 4. Demographic profile of the respondents (n=300)

Characteristics	Values	Frequency	Percentage
Sex	Female	157	52
	Male	143	48
Age	Below 25 years old	39	13
	26 to 35 years old	130	43
	36 to 45 years old	76	25
	46 to 55 years old	39	13
	56 to 65 years old	14	5
	Above 65 years old	2	1
	Educational Qualification	Bachelor's Degree	97
Masters Units/On-Going		40	13
Master's Degree		107	36
Doctoral Unit/On-Going		12	4
Doctoral Degree		41	14
Post-Doctoral		3	1
Academic Rank		Instructor	213
	Assistant Professor	47	16
	Associate Professor	34	11
	Professor	6	2

3.3. Research Instrument

Table 5. Assessment of Internal Consistency of the Constructs

Construct	Items	Loadings	CA	rho_A	CR	AVE
Behavioral Intention (BI)	BI1	0.88	0.850	0.851	0.909	0.769
	BI2	0.88				
	BI3	0.87				
TPedagogical Beliefs (PB)	TPB1	0.78	0.850	0.850	0.899	0.689
	TPB2	0.61				
	TPB3	0.75				
	TPB4	0.84				
	TPB5	0.76				
Performance Expectancy (PE)	PE1	0.90	0.858	0.896	0.904	0.706
	PE2	0.89				
	PE3	0.89				
	PE4	0.66				

The research instrument used in this study consists of adapted versions of Venkatesh's (2003) UTAUT questionnaire, focusing on performance expectancy and behavioral intention, and an instrument for measuring pedagogical beliefs adapted from Liu *et al.*, (2017). Each item across the three constructs was measured using a five-point Likert scale, where 1 indicated “Strongly Disagree” and 5 indicated “Strongly Agree.” Prior to administering the survey, the instrument underwent pre-testing to ensure clarity and comprehensibility for respondents. According to Hulland *et al.*, (2018), it is essential that surveys are thoroughly pre-tested before being launched,

as this process helps identify whether the questions are understood as intended (Willis, 1999; Memon *et al.*, 2017). For the pre-testing phase, this study employed the cognitive interview technique as recommended by Memon *et al.* (2017). The reliability and validity of the instruments were evaluated using convergent validity test with SmartPLS (Namoco, 2020). The results for convergent validity, presented in Table 2, revealed that the reliability of the research instrument was confirmed through internal consistency measures for all constructs, exceeding the 0.70 threshold, indicating strong reliability (Hair *et al.*, 2017). Additionally, Average Variance Extracted (AVE) values above 0.50 further support satisfactory convergent validity, demonstrating the constructs' reliability and consistency in measuring the intended variables.

3.4. Data Collection

Data collection was conducted online. To ensure that only qualified respondents participated, two filtering questions were incorporated into the survey, which helps to screen out unqualified participants and enhance the validity of the data (Krosnick & Presser, 2010). The survey was distributed via Google Forms, with links sent through emails and Facebook Messenger. This method ensures wide reach and convenience for respondents, facilitating higher response rates.

3.5. Data Analysis

Partial Least Squares-Structural Equation Modelling (PLS-SEM) was utilized to predict the influence of performance expectancy on behavioral intention, and interaction effect analysis to evaluate the moderation effect of pedagogical beliefs on this relationship. Ethical considerations were strictly adhered to, including informed consent, confidentiality of responses, and the right to withdraw from the study at any time (Creswell & Creswell, 2017). The analysis was conducted using SmartPLS version 4 (Ringle *et al.*, 2024).

4. RESULTS AND DISCUSSION

The Influence of PE to BI and the Interaction Effect of PB with PE on PB

The study, presented in Table 3, assessed the moderating role of pedagogical beliefs (PB) on the relationship between performance expectancy (PE) and behavioral intention (BI) among Science and Technology university lecturers in Mindanao, Philippines. Initially, without the inclusion of the moderating effect, PE accounted for 44.5% of the variance in BI ($R^2 = 0.445$). With the inclusion of PB, the explained variance in BI increased slightly to 45.8% ($R^2 = 0.458$), showing an increase of 1.3%. However, the analysis revealed that the moderating impact of PB on the relationship between PE and BI was not significant ($B = -0.065$, $SE = 0.048$, $t(298) = 1.37$, $P = .172$). This indicates that PB does not significantly influence the strength or direction of the relationship between PE and BI.

The moderation analysis (Figure 1) aimed to determine whether pedagogical beliefs influence the relationship between performance expectancy and the behavioral intention to integrate technology in the teaching process. The sample included a balanced distribution of sexes (52% female, 48% male) and a predominance of younger lecturers (43% aged 26-35). The results

showed a significant positive effect of PE on BI ($B = 0.665, SE = 0.044, t(298) = 15.17, P < 0.001$), suggesting that lecturers who believe technology will enhance their teaching performance are more likely to intend to use it.

Table 3. The Effect of PE to BI and the Moderation Analysis of PB with PE on BI

Relationships of Constructs	Beta value	Standard deviation	CI		T statistics	P-values
			2.50%	97.50%		
Pedagogical Beliefs -> Behavioral Intention	-0.078	0.049	-0.181	0.012	1.60	0.111
Performance Expectancy -> Behavioral Intention	0.665	0.044	0.574	0.748	15.17	0.000
Pedagogical Beliefs x Performance Expectancy -> Behavioral Intention	-0.065	0.048	-0.152	0.034	1.37	0.172

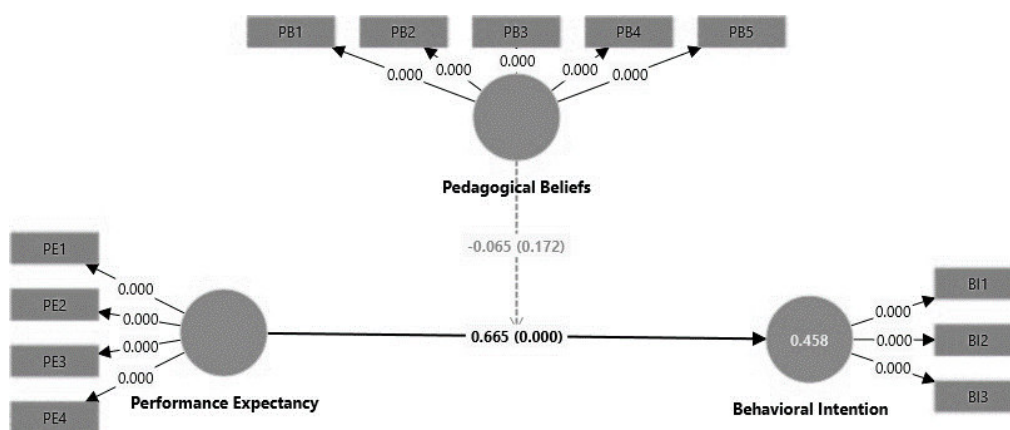


Figure 3. The Hypothesized Model of the Interaction Effect of the PB with PE on BI

It is noteworthy to point out, however, the direct effect of PB on BI was not significant ($B = -0.078, SE = 0.049, t(298) = 1.60, P = .111$), which might be attributed to demographic variations such as age and sex, which have been shown to impact technology adoption (Teo, 2011). Importantly, the interaction term (PB x PE) also showed a non-significant effect on BI ($B = -0.065, SE = 0.048, t(298) = 1.37, P = .172$), indicating that PB does not significantly moderate the relationship between PE and BI. The demographic analysis suggests that younger lecturers might be more adaptable to integrating technology, potentially explaining the strong influence of PE on BI. These findings align with recent studies indicating age-related differences in technology adoption (Baker *et al.*, 2007). Overall, the results highlight the pivotal role of performance expectancy in shaping behavioral intentions to integrate technology, suggesting that efforts to promote technology integration should focus on enhancing lecturers' perceptions of the usefulness and benefits of technology in their teaching.

5. CONCLUSION

The study aimed to assess the moderating role of pedagogical beliefs on the relationship between performance expectancy and the behavioral intention of Science and Technology university lecturers in Mindanao, Philippines, to integrate technology into their teaching. The

findings revealed that while performance expectancy significantly predicts behavioral intention, pedagogical beliefs do not significantly moderate this relationship. Additionally, the direct effect of pedagogical beliefs on behavioral intention was not significant. These results underscore the critical role of performance expectancy in shaping lecturers' intentions to adopt technology, suggesting that perceptions of technology's usefulness are paramount in influencing behavioral intentions, regardless of pedagogical beliefs.

6. RECOMMENDATIONS

Future researchers are recommended to explore additional moderating factors that might influence the relationship between performance expectancy and behavioral intention, such as institutional support, technological self-efficacy, and access to resources. Moreover, longitudinal studies could provide deeper insights into how these relationships evolve over time. Considering the limitations of the current study's methodology, future studies should include a more diverse sample from different regions and universities to enhance the generalizability of the findings.

Curriculum designers may focus on enhancing lecturers' performance expectancy by integrating technology training and demonstrating the practical benefits of technology in teaching. Professional development programs should be tailored to address specific needs and promote the effective use of digital tools. Additionally, curriculum implementation should incorporate continuous support and resources to ensure that lecturers can successfully integrate technology into their teaching practices.

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PREDICTIVE ASSOCIATION BETWEEN ACADEMIC PERFORMANCE AND ADMISSION TEST

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ABSTRACT

This research paper examined the predictive value of two aptitude tests, the Kuhlmann Anderson Test (KAT) and a teacher-made web-based test, on the academic performance of first-year students of a Science and Technology University in the Philippines. A standardized test assessed the cognitive skills related to the learning process, while the web-based test measured an individual's ability in science, English, and math. The study utilized data from the actual test takers and enrolled first-year students from 2019-2020. The sample was selected using Slovin's Formula, and academic performance was measured using the general weighted average (GWA), verified through the school grading portal. The multiple linear regression results $F(4, 340) = 12.396$, $p = 0.001$, $R^2 = .127$ indicated that both Kuhlmann Anderson Test and English were statistically significant to the prediction, $p < .05$, having Kuhlmann Anderson Test predicted academic performance, $p = 0.008$. Likewise, English showed prediction to academic performance, $p = 0.003$. Standardized tests, therefore, proved to have better predictive performance over teacher-made tests forwarding the recommendation that standardization of tests in the universities can better place students in their career paths.

Keywords: Academic performance, aptitude tests, cognitive skills, predictive value, standardized tests

1. INTRODUCTION

The advances of technology abounding the web have made pursuing higher education possible and accessible. Additionally, free college law and available scholarships have bolstered this possibility. In the Philippines, for example, the government has implemented RA No. 10931. This is known as the 'Universal Access to Quality Tertiary Education Act'. This act, which provides free tuition and other school fees in state universities and colleges, has significantly increased the number of high school students and parents considering college studies. With this, every school year, a new group of student applicants fill in applications to grab the opportunity given and with all hope of getting into college.

Because of the influx of college entrants, public universities have made selection rigid to ensure that only academically qualified students are accepted. For one, they have used aptitude tests more in their admission criteria, which is also commonly practiced in many countries (Curtis *et al.*, 2007). Standardized testing has played an increasingly prominent role in higher education admission decisions, including the assistance testing plays in selecting applicants and identifying educational strengths and weaknesses (Gawthrop, 2014).

Various studies have supported conducting admission tests as a ground for selection among college entrants. For instance, the study by (Rigney, 2003) showed a positive correlation between aptitude and achievement tests. It was found that students with high scores on standardized tests performed better. Ferguson, James, and Madeley (2002) supported this claim as they found out that there was a reasonably good association between academic performance and training.

In this study, academic performance was illustrated through the overall performance of students, which was termed the general weighted average (GWA). As used in the study context, the weighted average reflected the student's class participation, activities, assignments, performance, innovative tasks, competitions, and examinations. Given this, the paper examined whether aptitude tests used during college admission predicted the academic performance of first-year students at the University of Science and Technology.

2. REVIEW OF RELATED LITERATURE

Concepts used in this study are derived from the General Intelligence Theory, which explains the associations between aptitude tests and academic performance.

The General Intelligence theory hypothesizes that a general intelligence factor is the foundation of all cognitive abilities and affects how well someone performs in various mental tasks. It was developed by Spearman in 1904 and validated by several studies, including the study of Coyle (2015), which found that general intelligence (*g*) has a substantial linear relationship with college GPAs. In this study, two types of admission tests were used in order to determine their influence on academic performance. Academic success is primarily measured by tasks requiring cognitive abilities supposedly identified during admission as the basis of selection.

Several other studies have supported the association between academic achievement and cognitive abilities. Gallacher (2005) and Golding & Donaldson (2006) found that aptitude tests and prior academic achievement were commonly used as admission criteria because they have shown positive correlations with future academic success. Likewise, Sulphery MM *et al.* (2018) claimed that the wide use of Standardized Admission Tests commonly predicted students' academic performance. In particular, the study identified admission tests as having a solid general predictive variable widely used to measure students' qualifications.

Khan and Zubaidy (2017) used the multiple regression model to predict the adequacy of student's academic performance in the military environment regarding their aptitude scores. They found that predictive measures of validity on the use of aptitude tests moderately dictated the students' academic performance. Another study by Mengash (2020) found that the Scholastic Achievement Admission Test scores can most accurately predict college applicants' early university performance.

Similarly, Golding & McNamara (2005) and Camara & Croft (2020) found that aptitude test scores can predict academic performance. However, Golding & Mc Namarah (2005) have also identified prior school achievement as another factor.

Gallacher (2005) pointed out that despite the usefulness of admission tests in predicting performance success, their predictive power could be better. Several other theorists posit that

indeed, multiple factors can have an impact on academic performance. For instance, performance in first-year courses is identified as a significant predictor of overall academic success (Golding & Donaldson, 2006).

Hence, Dagdagui (2022) recommended developing predictive models using regression analysis to improve student selection and provide early interventions for at-risk students. These findings have implications for admission policies and the identification of optimal admission indicators in higher education institutions (Golding & McNamara, 2005).

3. METHODOLOGY

The aptitude tests used to select prospective students at the university are the Kuhlmann Anderson Test and teacher-made web-based tests, which consist of Science, English, and Math. The Kuhlmann-Anderson Test (KAT) measures an individual's academic potential by assessing cognitive skills related to the learning. Likewise, a web-based test measures an individual's ability at a Science and Technology University.

The data used in this paper was based on the actual takers of the school year 2019-2020 and enrolled first-year students in USTP in the same year. The sample was selected using Slovin's Formula. Slovin's formula is a sampling technique used to determine the proportion of a population to a given sample. This method was chosen for its ability to provide a representative sample while minimizing bias. The school's online learning portal gathered and verified students' general weighted average (GWA) to measure academic performance. Test scores were also converted to percentages, and data were then analyzed.

4. RESULTS

Table 1 depicts the overall result of the regression model used to predict students' academic performance (GWA) from the aptitude test scores (Math, English, Science, and Kuhlmann Anderson Test [KAT]). The table shows that the R-value of 0.356 suggests a weak to moderate positive correlation between admission tests and academic performance. The result indicates that the GWA also tends to increase as aptitude test scores increase, but the relationship is not particularly strong. The R Square value of 0.127 indicated that only 12.7 percent of the academic performance can be influenced by the the admission tests and that other factors (around 87%) can be considered. The adjusted R Square of 11.7% confirms the given result.

Table 1. Summary of Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.356 ^a	.127	.117	4.30535

Note: a. Predictors: (Constant), Math, English, Science, KAT.

Table 2 shows that aptitude test scores statistically significantly predict the General Weighted Average (GWA), $F(4, 340) = 1.236, p < .0005$. A further look at the table shows that the F-value of 12.36 indicates that the model significantly improves the prediction of GWA over

using just the mean GWA (i.e., using no predictors). The p-value of less than 0.0005 confirms that the overall model is statistically significant, meaning that at least one of the independent variables (aptitude test scores) is a significant predictor of academic performance. This study's finding reinforces that the combination of Kuhlmann—Anderson Test, Math, English, and Science test scores helps predict a student's general weighted average (GWA).

Table 2. ANOVA

Model	Sum of Squares	Df	Mean Square
Regression	916.124	4	229.031
Residual	6302.265	340	18.536
Total	7218.388	344	

Note: a: Predictors: (Constant), Math, English, Science, KAT; b : Dependent Variable: GWA.

Table 3 exhibits the multiple regression results from the university aptitude tests to predict academic performance (GWA). The coefficients table breaks down the contributions of each aptitude test, KAT, Math, English, and Science, in predicting the GWA. The constant value of 75.734 suggests that if all aptitude test scores were zero, the expected GWA would be 75.734. The Kuhlmann Anderson Test (KAT) has a positive coefficient of 0.039 and a p-value of 0.008, indicating a statistically significant predictor of GWA; for every one-point increase in the KAT score, the GWA is expected to increase by 0.039 points. Also, the English score is shown to predict the GWA significantly, with a coefficient of 0.083 and p-value of 0.003, meaning that higher English test scores are associated with higher GWA.

Table 3. Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	75.734	1.460		5.187E1	.000	72.862	78.606
KAT	.039	.014	.172	2.690E0	.008	.010	.067
Science	.019	.027	.042	.708	.479	-.034	.071
English	.083	.028	.170	2.968E0	.003	.028	.137
Math	.047	.031	.085	1.519E0	.130	-.014	.108

Note: a. Dependent Variable: GWA

In contrast, the Math and Science scores are not statistically significant predictors (p-values of 0.130 and 0.479, respectively). The figure indicated that these test scores do not have a reliable effect on academic performance. Therefore, while KAT and English scores have a significant result, the Math and Science scores do not contribute significantly to the prediction of GWA.

5. CONCLUSION

The result showed that the aptitude test, specifically the Kuhlmann-Anderson Test (KAT), can predict students' academic performance better than the teacher-made web-based test. As

mentioned, the Kuhlmann-Anderson Test is a standardized test designed to measure an individual's academic potential by assessing cognitive skills. Hence, standardized tests were likely to predict better.

Nevertheless, the results of web-based tests were considered. As such, researchers found a slight predictive association between academic performance and the English subtest. Each college designed these tests to ensure that takers had acquired an adequate foundation in core academic courses.

6. RECOMMENDATIONS

The use of evaluation forms after the admission test to learn the insights of the takers after taking the examination may be a reasonable basis for describing the academic performance of each student in the future; insights such as the level of difficulty per subtest in the admission test may have a relationship with predicting the scores from the teacher-made tests.

Conducting interviews regarding the current status of the student's academic performance may also be a reasonable basis for the student's aptitude scores, as it goes into the detailed gathering of data and does not only rely on numerical values. Interview questions include how admission and teacher-made tests differ, how the admission test accurately measured aptitude level, and how the student improved over time). Given the current pandemic, conducting interviews during the production of this study is prohibited.

Considering the student's academic program as an indicator in identifying the subjects where they excel, or lack knowledge may be associated with their aptitude test scores. (For example, an engineering student excels in mathematics, so his aptitude score in quantitative reasoning during the admission test was a good qualifier.) Standardizing the web-based test might improve the level of prediction.

Acknowledgment

This work is supported by the Testing Unit of the Admission and Scholarship Office and the Office of the Vice Chancellor for Research and Innovation of the University of Science & Technology of Southern Philippines, Cagayan de Oro campus. With the support of these offices, smooth gathering of data was facilitated.

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DIGITAL GAME SIMULATION IN CIVIL TECHNOLOGY TEACHING: IMPACT ON STUDENT LEARNING BEHAVIOR

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ABSTRACT

This study examines the use of digital game simulations in teaching civil technology to Technology Teacher Education students and its effect on student behavior over a semester. A mixed-methods approach was employed, involving 120 MSU-MSAT students. Quantitative data was collected through pre- and post-test evaluations to measure academic achievement and engagement, while Behavioral observations were analyzed using thematic analysis to identify recurring patterns and themes.

The quantitative results showed post-test scores increasing by 40.63% on average which means students being more motivated and engaged due to the interactive and immersive nature of digital games. Additionally, Behavioral observations during game-based activities highlighted increased collaboration and problem-solving, with majority of students actively participating in group discussions and tasks. Qualitative findings further revealed that students appreciated the immersive and practical aspects of digital games, which they felt enhanced their critical thinking and application skills. However, challenges such as the need for sufficient technological resources and technical difficulties were noted. A few students also mentioned difficulties adapting to different game interfaces.

Overall, the study concluded that integrating digital game simulations in civil technology education improves student behavior, engagement, and academic performance by creating a more dynamic and productive learning environment. It emphasizes the need to support digital tools and provide teacher training to fully realize the benefits of this innovative teaching approach.

Keywords: digital game simulation, civil technology, student behavior, learning process, engagement, motivation

1. INTRODUCTION

In recent years, digital game-based learning (DGBL) has emerged as a powerful tool to enhance student engagement and improve learning outcomes across various educational contexts (Li & Gao, 2019; Patel, Ward, & Smith, 2021). Civil Technology, an essential subject within Industrial Technology programs, requires students to grasp complex concepts and apply them in practical scenarios. However, traditional teaching methods often struggle to fully engage students or address the diverse learning styles present in the classroom (Tan, Teo, & Tan, 2021). As a result, educators are increasingly turning to digital games as a means to enrich the learning experience, especially in technical disciplines like Civil Technology (Chen & Zhang, 2022).

Numerous studies have demonstrated the positive impact of DGBL on both cognitive and affective learning outcomes, showing that students are more motivated and perform better academically when digital games are incorporated into the curriculum (Kim, Lee, & Cho, 2020; Wang & Wang, 2022). Game-based learning environments provide interactive and immersive experiences that foster critical thinking, problem-solving, and collaborative skills (Hung, Chu, &

Wang, 2023). However, implementing DGBL comes with challenges, including the need for adequate technological infrastructure and teacher training (Alsawaier, 2019).

This study aims to assess the impact of integrating digital game simulations into Civil Technology education on the learning behaviors and outcomes of Technology Teacher Education students at MSU-MSAT. By exploring both quantitative and qualitative data, this research seeks to contribute to the growing body of literature on DGBL in technical education (Smith & Johnson, 2024).

Specifically, this aims to:

1. Determine the effect of digital games simulation on student engagement in Civil Technology.
2. Evaluate changes in academic performance as a result of digital game integration.
3. Assess the influence of digital games simulation on students' behavioral patterns in the learning process.

Significance of the Study. This study is significant as it offers valuable insights into the role of digital game simulations in enhancing the learning experiences of Industrial Technology students. By examining how these interactive tools impact student engagement, comprehension, and skill development, the research provides evidence-based guidance for curriculum developers and educators. The findings have the potential to shape more innovative and effective teaching methodologies in technical education, particularly by addressing diverse learning styles and fostering critical thinking and collaboration. Moreover, this study contributes to the growing body of knowledge on integrating technology in education, encouraging the adoption of digital tools in other technical and vocational fields.

2. LITERATURE REVIEW

Digital Game-Based Learning (DGBL) in Education. Digital Game-Based Learning (DGBL) has gained traction as an effective method for enhancing student engagement and improving academic performance across various educational settings. Li and Gao (2019) conducted a meta-analysis of DGBL in science education, demonstrating its significant impact on both student motivation and academic outcomes. Similarly, Patel, Ward, and Smith (2021) reviewed game-based learning in higher education, highlighting its potential to transform traditional pedagogical approaches by promoting interactive and experiential learning environments. These studies underscore the relevance of DGBL in addressing the limitations of conventional teaching methods, which often fail to engage students or adapt to diverse learning preferences (Tan, Teo, & Tan, 2021).

DGBL in Technical and Vocational Education. In technical and vocational education, where hands-on experience and the application of complex concepts are critical, DGBL has proven especially useful. Civil Technology, a subject that involves intricate technical skills, can benefit from the immersive nature of game-based learning. Chen and Zhang (2022) explored the impact of DGBL on academic achievement in technical education, finding that students were better able to apply theoretical knowledge in practical scenarios through game-based simulations. This interactive approach not only improves content mastery but also enhances students' problem-solving abilities, a key component of technical disciplines (Wang & Wang, 2022).

Cognitive and Affective Outcomes of DGBL. Several studies have emphasized the positive cognitive and affective outcomes associated with DGBL. Kim, Lee, and Cho (2020) conducted a meta-analysis that revealed improved student performance in both cognitive and affective domains when digital games were integrated into the curriculum. Specifically, the immersive nature of digital games enhances critical thinking, creative problem-solving, and knowledge retention. Additionally, the affective benefits include increased motivation, engagement, and positive attitudes toward learning. Hung, Chu, and Wang (2023) found that DGBL not only supports knowledge acquisition but also promotes collaboration and teamwork, crucial skills in technical fields like Civil Technology.

Challenges of Implementing DGBL. Despite its many advantages, the implementation of DGBL presents certain challenges. Alsawaier (2019) noted the need for adequate technological infrastructure, including access to digital devices, reliable internet connectivity, and appropriate software. Without these, the effectiveness of DGBL can be limited. Furthermore, teachers need proper training and support to effectively incorporate digital games into their lessons. A lack of familiarity with these tools can lead to inefficiencies or underutilization, reducing the potential benefits of DGBL in the classroom. Singh and Sharma (2022) pointed out that successful integration of DGBL depends on educators being well-equipped to manage and facilitate game-based learning environments.

DGBL in Civil Technology Education. Integrating DGBL into Civil Technology education has shown promise in enhancing students' learning behaviors and academic outcomes. Smith and Johnson (2024) argue that digital games foster a more dynamic and engaging learning environment, which can lead to better academic performance, particularly in disciplines requiring practical application of theoretical knowledge. By providing students with virtual platforms to practice and refine their skills, digital games simulate real-world challenges, making learning more relevant and effective. This is particularly important in technical fields where traditional methods may not provide sufficient hands-on opportunities for skill development (Liu, Zhao & Wang, 2023).

3. METHODOLOGY

Research Design. This study utilized a quasi-experimental design with a pre-test and post-test approach to measure the impact of digital games simulation on student behavior and learning outcomes.

Participants. The respondents of this study were first-year to fourth-year Industrial Technology students majoring in Civil Technology at MSU-MSAT. A total of 80 students participated, selected through stratified random sampling to ensure representation across all year levels.

Instruments. The study employed a combination of questionnaires, behavioral observation checklists, and academic performance records to gather data. The questionnaire was designed to measure student engagement, motivation, and perceived learning effectiveness, while the observation checklist focused on tracking changes in student behavior during the learning process.

The research instrument was adapted to the study of G.Lyn Morgan last 2008 entitled “*Use Of The Interactive Whiteboard As An Instructional Tool To Improve Engagement And Behavior In The Junior High School Classroom*” and modified according to the context of this study. It was pilot tested to the other school offering the same program.

Procedure. The study was conducted over one semester. The students were divided into two groups: the experimental group, which received instruction through digital game simulation, and the control group, which was taught using traditional methods. Both groups were given a pre-test to assess their initial knowledge and behavior. Throughout the semester, the experimental group participated in digital games designed to simulate real-world Civil Technology scenarios. At the end of the semester, both groups took a post-test, and their behavioral changes were recorded and analyzed.

Data Analysis. Data were analyzed using descriptive and inferential statistics. Paired t-tests were conducted to compare pre-test and post-test results within groups, while independent t-tests were used to compare the results between the experimental and control groups. Behavioral observations were analyzed using thematic analysis to identify recurring patterns and themes.

Table 1. Five-point Likert Scale for Student Engagement and Motivation

	Question	5	4	3	2	1
Student Engagement	1. I actively participated in class discussions and activities.					
	2. I was able to maintain focus and attention throughout the class sessions.					
	3. I felt fully involved in the learning activities during the lessons.					
	4. The class activities increased my interest in Civil Technology.					
	5. I frequently interacted with my classmates during group tasks and discussions.					
	6. I engaged with the teaching materials (digital games or traditional methods) throughout the class.					
	7. I felt motivated to contribute my ideas during class.					
	8. I collaborated effectively with my peers on group projects.					
	9. I found the digital games relevant to my learning.					
	10. I expressed my thoughts and questions openly during class.					
Student Motivation	1. I felt motivated to complete assignments and tasks during the course.					
	2. I had a strong desire to learn more about the subject outside of class time.					
	3. I enjoyed the learning process and found it rewarding.					
	4. I put in considerable effort to perform well in class activities.					
	5. I felt confident in my ability to succeed in the class tasks.					
	6. I believe that the skills I learn in this class will be valuable for my future career.					
	7. I was excited to attend class and learn new things.					
	8. I sought additional resources (books, articles, online materials) to enhance my understanding.					
	9. I often reflected on what I learned after class.					
	10. I felt that my contributions were valued by my classmates and teacher.					

Source: “*Use Of The Interactive Whiteboard As An Instructional Tool To Improve Engagement And Behavior In The Junior High School Classroom*” by G.Lyn Morgan, 2008

Table 2. Checklist for Behavioral Changes

Behavioral Change	Description	Observed		Comments
		Yes	No	
Improved Collaboration	Students demonstrate enhanced teamwork and support in group tasks.			
Enhanced Problem-Solving	Students show greater creativity and effectiveness in solving problems.			
Increased Participation	Students are more willing to contribute to class discussions.			
Proactive Engagement	Students take the initiative to lead discussions or group activities.			
Positive Peer Interaction	Students interact respectfully and supportively with classmates.			
Confidence in Group Settings	Students express their ideas and opinions with confidence during group work.			
Adaptability	Students demonstrate flexibility in approaching tasks and challenges.			
Curiosity and Inquiry	Students show interest in asking questions and exploring topics further.			
Persistence in Learning	Students exhibit determination to overcome challenges and complete tasks.			
Shared Responsibility	Students contribute equally and share roles during group projects.			

Source: “Use Of The Interactive Whiteboard As An Instructional Tool To Improve Engagement And Behavior In The Junior High School Classroom” by G.Lyn Morgan, 2008

4. RESULTS

Student Engagement and Motivation. The results showed a significant increase in student engagement and motivation in the experimental group compared to the control group. The mean engagement score in the experimental group increased from 3.2 to 4.5 on a 5-point Likert scale, indicating that students were more actively involved in the learning process when digital games were used.

Table 3. Five-point Likert Scale Result on Student Engagement and Motivation

Group	Pre-test Engagement Score	Post-test Engagement Score	Mean Increase
Experimental	3.2	4.5	+1.3
Control	3.1	3.3	+0.2

Academic Performance. The post-test scores revealed that students in the experimental group outperformed those in the control group, with an average score increase of 20% compared to a 10% increase in the control group. This suggests that digital games simulation not only enhances engagement but also improves academic performance.

Table 4. Pre-test and Post-test Score of students

Group	Pre-test Average Score	Post-test Average Score	Score Increase (%)
Experimental	60	80	+20
Control	60	70	+10

Behavioral Changes. The thematic analysis of behavioral observations indicated that students in the experimental group demonstrated improved collaborative skills, problem-solving abilities, and a greater willingness to participate in class discussions. These behavioral changes were less pronounced in the control group, highlighting the positive impact of digital games on student behavior.

Table 5. Thematic analysis on Behavioral Aspect of students

Behavioral Aspect	Experimental Group	Control Group
Collaborative Skills	Significant improvement in group work and teamwork	Minimal improvement in collaboration
	Active participation in group tasks and peer support.	Group activities depended on individual efforts.
	Frequent, productive group discussions.	Less structured collaboration.
Problem-Solving Abilities	Enhanced problem-solving, with more creative and effective solutions	Limited improvement in problem-solving
	Multiple solutions proposed and trial-and-error approach utilized.	Reliance on standard methods with less creativity.
	Improved adaptability and innovation in solving challenges.	Passive approach to problem-solving.
Willingness to Participate	Increased active participation in class discussions and activities	Slight increase in participation
	Students confident in expressing ideas and leading discussions.	Reluctance to lead discussions, participation prompted by teacher.
	Interactive games fostered curiosity and excitement.	Participation levels inconsistent, with many passive students.

5. DISCUSSION

The findings of this study align with existing literature that supports the use of digital games in education to enhance student engagement and learning outcomes. The significant improvements in academic performance and positive behavioral changes observed in the experimental group suggest that digital games simulation is an effective tool for teaching complex subjects like Civil Technology. This approach caters to diverse learning styles and encourages active participation, making the learning process more interactive and enjoyable for students.

Implications for Teaching. The integration of digital games in the curriculum could revolutionize the way technical subjects are taught, making them more accessible and engaging for students. Educators should consider incorporating digital games into their teaching strategies to enhance student learning and motivation.

6. CONCLUSION

The integration of digital games simulation in teaching Civil Technology has a positive influence on student behavior and learning outcomes. The findings suggest that this approach enhances engagement, improves academic performance, and fosters positive behavioral changes among students. Future research could explore the long-term effects of digital games on learning and expand this approach to other technical disciplines.

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AN INVESTIGATION ON THE IMPACTS OF GOOGLE TRANSLATION ON THE WRITING SKILLS OF ENGLISH-MAJORED STUDENTS

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ABSTRACT

The purpose of the study was to determine how Google Translation affected the writing abilities of students majoring in English by using quantitative methods, including a Likert scale questionnaire to measure students' perceptions as well as to explore the impacts that Google Translate has. With 99 English-majoring students participating in the research, the findings revealed three positive impacts: providing synonyms and alternative words, helping students' vocabulary increase, and helping them self-study. The data also uncovered four negative impacts: cultural struggles, references, idiom understanding, word-for-word translations, and complex sentences. The findings simultaneously indicated three major strategies that students used to mitigate the negative impacts: translating a part of a paragraph, revising by comparing and correcting, and using reliable resources. From the findings above, the study would have a significant contribution to teachers and students by offering some viewpoints on the process of instructing and acquiring writing abilities, especially for academic programs to improve students' performance.

Keywords: Google Translation, Writing Skills, Impacts, Strategies.

1. INTRODUCTION

English has become a global language in both communication and academic aspects. Proficiency in English will help people gain advantages at the workplace, in schools, or at universities. The demand to learn English is considered a necessity for everyone, especially university students. In Vietnam, the four essential language skills—listening, speaking, reading, and writing—that are essential for successful English language acquisition are developed in youngsters because English is one of the required topics. Learning a new language may change the brain, affect the brain for memory, boost awareness, and can enhance creativity. In the English learning process, every skill has a certain level of difficulty. Meanwhile, Richards (2015) reveals that writing in English is thought to be the hardest skill for non-native speakers to acquire, as this skill requires diverse characters of writing, which include many components like grammar, vocabulary, and spelling. Each of these elements requires a thorough understanding and mastery for effective writing. Additionally, another factor is that writers are unable to understand other people's body language or expressions as if they were speaking to them (Wilson, 2014). With the rapid technological development of today's era, there are many tools that can support students in the English learning process. Groves & Mundt (2015) proves that second language learners would rely on machine translation to complete their homework. Indeed, almost all students use machine translations when learning English. Actually, there have been some tools popular with students at Thu Dau Mot University (TDMU), such as Tflat, Google Translation, Cambridge, and iTranslate. However, it seems that students give their first priority to Google Translation (shortened as GT). Additionally, according to Groves & Mundt (2015), GT is the most popular translation tool in the

field of language acquisition that students prefer to utilize when translating texts from one language to another. Garcia and Pena (2011) discover that participants communicate more effectively using machine translation when they write directly in their foreign language. At Thu Dau Mot University, GT is a popular tool for not only English majors but also non-English ones. They use it as part of their learning process to get better at English and even to perform better in school, particularly in writing. Thus, the goal of this study is to investigate how Google Translate affects English majors' writing abilities.

2. LITERATURE REVIEW

2.1. Theoretical background

Crystal (1994) defines “writing is not language but simply a way of recording language by means of visible signs.”

Google Translation is a service that translates written texts between languages, according to Ghasemi and Hashemian (2016). Google Translation can translate a word, a sentence, a section of text, or a webpage in 90 different languages. According to Kharbach (2011), Google Translation offers a range of functionalities, such as verbal pronunciation of translated words, text translation from images or photographs, voice-based translation, handwriting translation, complete document translation, and the option to save translations in a personalized phrasebook.

When using GT in the English learning process, English-majored students cannot avoid the effects of this type of technique, in which positive and negative impacts are included.

2.2. Positive impacts

Google Translation has significantly transformed the landscape of self-study, especially for English learners. Instead of translating complete sentences or paragraphs, students typically used GT as an online dictionary to seek up words (Chandra & Yuyun, 2018). Obviously, its immediate translation capabilities provide students with an effective tool for improving their writing skills. Furthermore, the application encourages language practice by allowing students to create phrases and paragraphs while receiving quick feedback on grammar and syntax. Pratama & Utami (2022) emphasize that online dictionaries make it easier for students to comprehend vocabulary. This means it is useful if GT is employed when English learners do their vocabulary practice, as the more they own English words, the faster they can master them. According to Alqahtani (2015), students must save many words and be judicious in communicating the meaning or concept of vocabulary knowledge. Furthermore, Google Translation promotes active vocabulary learning by providing synonyms and alternative word options, allowing students to explore subtleties in meaning and broaden their word connections. Google Translation can facilitate students with writing by correcting mistakes in simple structures, basic grammar, and word spelling. As highlighted by Fredholm (2015), GT not only is a useful tool for reading assistance, but also plays a crucial role in facilitating writing in a foreign language.

2.3. Negative Impacts

Case (2015) asserts that Google Translation will increase the students' dependency. When students repeatedly use Google Translation for translations without actively participating in the

learning process, they may grow reliant on technology to understand and generate material in a foreign language. This dependence might stymie their language development since they may not put up in the necessary effort to achieve their language targets. Moreover, they can be inefficient in terms of accuracy. According to Herlina (2019), Google Translate is helpful in providing students with a comprehensive understanding of texts for reading comprehension, but it is ineffective in providing grammatical fixes. Additionally, the technology may struggle to grasp linguistic subtleties and idiomatic phrases, producing translations that may not entirely reflect the intended meaning. Moreover, Bojar et al. (2016) indicate that Google Translation is known for its rapid translation abilities, yet it frequently produces translations with an unnatural writing style. The tool prioritizes word-for-word translations, which might produce phrases that seem odd or stiff in the target language. This unusual writing style may make the translated text difficult to understand and may overlook the nuances of conventional language use.

2.4. Strategies for improvement

English majors frequently participate in manual translation to improve their language and writing abilities. It is said that those who are concerned with manual translation have a better understanding and memory of vocabulary than those who only use automated translation tools. Another method that enables English learners is to make comparisons and corrections. Agreeing with this view, Baker (2018) emphasizes the role of comparative analysis in translation studies, noting its utility in identifying translation strategies and linguistic patterns. By actively engaging with translated texts and critically evaluating their correctness and integrity to the original, students gain a better comprehension of the target language and its customs. Summers (2014) shows students augment their knowledge of translated literature using reliable dictionaries, grammar guides, and language learning websites, rather than depending only on machine translation. By consulting these resources, students will gain a better understanding of appropriate word usage, grammar rules, idiomatic expressions, and contextual nuances. Ferdouse (2012) demonstrated that students can learn from their mistakes by carefully examining them and adopting a positive perspective rather than dismissing them. Google Translation is tough to translate a single word since some words contain context; however, it may assist students with diction and word choice. Chandra & Yuyun (2018) stated that, using GT to translate a single word yields greater results than having students interpret entire phrases. Therefore, by using Google Translation for partial translation, students can understand how to use words in each context and how to use words to create a sentence.

2.5. Previous studies on the impacts of GT in writing skills.

The extent to which GT affects students' writing skills may be in aspects such as vocabulary, sentences, paragraphs, texts, and composing their sentences (Fibriana, 2021). With multiple functions, GT offers students a number of benefits, including the ability to fix spelling mistakes, translate words, understand the text's overall meaning, and discover vocabulary they haven't come across before. It also helps students with inaccurate translation, meaning that is out of context, sentence structure, and some difficult-to-understand words. In support of the idea that translation improved students' writing, Van Nguyen, M. (2023) shows that students' writing improved when

they used Google Translation. Also, regarding the impacts of GT in the writing process, Tesya Savera Ariyanto & Antonina Anggraini Setiamunadi (2023) declare that Google Translation is very useful for students in reading and writing journal articles and expanding their vocabulary because it can remind them of what they have learned during the lectures or English words and sentence structures they have encountered.

Supporting the benefits of GT, Andi Wirantaka & Mahdiana Syahri Fijanah (2021) confirm that by using GT during writing lessons, it can significantly increase students' vocabulary, making them better spelling speakers, pronunciation checkers, and grammatical solvers. Tuan Pham (2022) claims that because GT can be used to practice speaking, drill vocabulary, or practice sentence structures in writing learning, it can offer students a number of benefits, including multilingual translation. Additionally, with its help, students can improve their writing abilities by leveraging their prior information to guarantee its success while utilizing it during the educational process.

Referring to another impact, when using GT, learners deal with the trends of negativity, including incorrect grammar, inaccurate translation, meaning that does not match the context, incorrect sentence structure, and some words that are difficult to understand (Fibriana, 2021). These effects may make learners mislead because GT also has several defects, such as inaccurate grammar and semantics. According to Van Nguyen, M. (2023), by using GT, although learners' writing skills have improved, problems still exist, namely coherence, vocabulary, and grammar. According to Susanto (2017), the majority of respondents to another survey believed that GT was considered cheating, depending on how it was used.

2.6. Methods and participants

To carry out the research, quantitative methods were employed to find out the impacts on students' writing skills and strategies to mitigate the negative impacts. According to Richard (2013), the quantitative research approach is often regarded as the more "scientific" method in social science. Sukkwan (2014) adds quantitative approaches are suitable for gathering data from groups or individuals to obtain a comprehensive overview of their opinions.

To collect data for the survey, participants were selected randomly among English majors at Thu Dau Mot University. Students who actively use Google Translation as a tool to help them improve writing skills are the specific focus of the selection. The study's goal was to find out how Google Translation affected the writing skills and methods of university-level English learners by focusing on this particular group. This purpose ensures that selected participants represent a variety of backgrounds and experiences within the designated population, enhancing the generalizability and validity of the study findings. 99 English majors at Thu Dau Mot University, who used GT to assist them in writing tasks took part in the survey. Through this survey, the researchers can discover the advantages and disadvantages of GT that affect their writing skills, as well as strategies to mitigate the negative impacts.

To test the measurement and make any necessary adjustments, a sample of TDMU University students was given a pilot survey. After that, as part of the data collection process, participants were given Google Forms to fill out with surveys.

The purpose of the 12-questionnaire consisting of 12 Likert scale questions with values ranging from 1 to 5 (Strongly disagree, Disagree, Neutral, Agree, and Strongly Agree) was to obtain information on the participants' perceptions of the effects of GT on their writing learning and explore how to overcome the situation at the same time.

3. RESULTS/FINDINGS AND DISCUSSION

3.1. The Impacts of Google Translation on students' writing skills

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Positive impacts					
1. I like using Google Translation for English writing	2 (2.02%)	7 (7.07%)	31 (31.3%)	44 (44.4%)	15 (15.1%)
2. I am able to self- study through Google Translation	1 (1.01%)	6 (6.06%)	36 (36.4%)	46 (46.4%)	10 (10.1%)
3. I can enrich vocabulary through Google Translation	3 (3.03%)	8 (8.08%)	27 (27.2%)	47 (47.4%)	14 (14.1%)
4. I can easily find synonyms and alternative word options	3 (3.03%)	10 (10.1%)	26 (26.2%)	43 (43.4%)	17 (17.1%)
Negative impacts					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5. Google Translation cannot deal with complex sentences	1 (1.01%)	6 (6.06%)	21 (21.2%)	55 (55.5%)	18 (18.1%)
6. Google Translation prioritizes word for-word translations	1 (1.01%)	7 (7.07%)	29 (29.3%)	40 (40.4%)	24 (24.2%)
7. Google Translation struggles with cultural references	1 (1.01%)	7 (7.07%)	27 (27.2%)	47 (47.4%)	19 (19.2%)
8. Google Translation struggles with idiomatic expressions	1 (1.01%)	4 (4.04%)	23	50 (50.5%)	23 (23.2%)
Strategies to improve the negative impacts					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
9. I use Google Translation for partial translations	2 (2.02%)	3 (3.03%)	38 (38.3%)	46 (46.4%)	12 (12.1%)
10. I improve my writing with resources through Google Translation	4 (4.04%)	12 (12.1%)	39 (39.3%)	33 (33.3%)	13 (13.1%)
11. I compare and correct mistakes after using Google Translation	3 (3.03%)	12 (12.1%)	39 (39.3%)	33 (33.3%)	14 (14.1%)
12. I learn from mistakes to improve my writing skills	2 (2.02%)	4 (4.04%)	29 (29.3%)	41 (41.4%)	25 (25.2%)

To begin with the positive impacts, the statistics of the research reveal that a majority of 59.59% of students express a positive attitude towards using Google Translation for English writing when they confirm their Liking for Google Translation, with only a small minority disliking the tool. Regarding self-Study, 56.56% of students believe they can effectively use Google Translation for self-study, although a significant 36.36% remain neutral, suggesting varied levels of confidence in the tool's utility for independent learning. Vocabulary Enrichment accounts for 61.61% of students agree that Google Translation aids in enriching their vocabulary, indicating that it is perceived as a valuable resource for learning new words, despite some students preferring additional resources. Finding Synonyms is up to 60.60% of students find Google Translation useful for identifying synonyms and alternative word choices, highlighting its role in helping students diversify their language use, although some reservations remain about its effectiveness.

Regarding the negative impacts, the data indicates that a significant 73.74% of students believe that Google Translation cannot adequately handle complex sentences, underscoring the tool's limitations in dealing with intricate language structures. This suggests a widespread recognition among students of the tool's limitations when dealing with more intricate sentence structures, which may lead to inaccurate or awkward translations. Next comes Word-for-Word Translations, 64.64% of students perceive Google Translation as prioritizing word-for-word translations, which can result in translations that lack context and fluidity. Concerning cultural references, 66.66% of students agree that Google Translation struggles with the problem, which can lead to misinterpretations or loss of meaning in translations involving culturally specific content. This highlights a critical limitation of the tool, especially for students dealing with texts that include culturally specific terms. Idiomatic Expressions come up with a substantial 73.73% of students who acknowledge that Google Translation is ineffective in translating idiomatic expressions, a common challenge for machine translation tools.

In terms of the strategies for improving students' writing skills, the results show that most students (58.58%) use GT for partial translations, indicating a preference for maintaining control over the translation process while leveraging the tool's capabilities. For students' Improving Writing with Resources, 46.46% of students use resources provided by Google Translation to enhance their writing, suggesting that the tool's suggestions are valued by many but not universally relied upon. Nearly half of the students (47.47%) actively compare and correct mistakes after using GT, reflecting a critical approach to improving translation accuracy. The last item on the Likert scales questionnaire is about Learning from Mistakes, a strong majority (66.66%) of students acknowledge that they learn from mistakes to improve their writing skills, highlighting the tool's role in the learning process, despite its limitations.

3.2. Discussion

This research examined the impacts of GT on students' writing skills. Most participants, 60%, hold the belief that GT has significant impacts on their writing skills.

Google Translation actually offers synonyms and alternative word options, which can benefit learners looking to diversify their vocabulary and improve their writing. According to Chouliaraki (2016), online translation tools like GT provide users with a range of word choices, enabling them to enhance the precision and effectiveness of their written communication. The data show that with 60.60% of students finding GT useful for identifying synonyms and alternative word options, this demonstrates the tool's effectiveness in enhancing vocabulary variety. Next, using GT, students can enrich their vocabulary. The finding that 61.61% of students agree that GT enriches their vocabulary further supports the tool's role in expanding lexical knowledge. Chouliaraki (2016) also notes that students often rely on GT to diversify their vocabulary and explore synonyms, making it an effective resource for vocabulary building. However, some students still prefer using additional resources to supplement their learning. Actually, those who regularly use GT in their learning activities can enrich their vocabulary and have a better grasp of language usage Chouliaraki (2016). This may give a comprehensive overview of how GT contributes to expanding students' vocabulary by offering a wide range of word choices and synonyms. Additionally, the provision of alternative word options encourages students to consider

different linguistic nuances and expand their lexical knowledge. Moreover, GT enables learners to self-study. According to the research, almost 60% of participants thought it was a necessary tool to improve this aspect by utilizing its features to promote their language study outside of the classroom. Jin and Deifell (2013) emphasizes “The use of GT software is an important milestone for learners, as it promotes a shift in their cognitive approach.” Furthermore, the tool's audio playback feature allows students to listen to translations, facilitating spoken language practice and speech acquisition. These findings provide a comprehensive overview of how students perceive the impact of GT on various aspects of their English writing skills.

The negative impacts of GT are also recorded. Most participants admitted that GT struggles with cultural references, which bring them several nuisances when doing their writing tasks. The data indicates that 66.66% of students acknowledge GT's struggles with cultural references, which can lead to misinterpretation of context-specific content. Supporting this view, Braun (2017) highlights the limitations of GT when dealing with cultural references, as cultural nuances play a vital part in understanding language, and it can struggle to capture these nuances accurately. Without a deep understanding of the cultural background and context, Google Translation may not accurately interpret and convey the intended meaning of these references. In terms of idioms and expressions, GT cannot deal with these terms, as stated over 70% of respondents. This means that GT may have difficulty conveying the intended meaning of idioms, leading to inaccurate or meaningless translations. Another concern is word-for-word translations and complex sentences. Over half of the respondents believed that GT frequently prioritizes word-for-word translations, which can lead to errors and misinterpretations. Approximately 64.64% of students believe that GT tends to prioritize word-for-word translations, which often results in loss of meaning and poor fluency. This method, while beneficial for simple and literal translations, may miss the deeper meanings and nuances inherent in the language. Furthermore, word-for-word translations can ignore contextual cues and linguistic nuances, leading to mistranslations or misunderstandings of the source text (Garcia, 2018). The findings highlight critical areas where GT falls short, particularly in handling complex, culturally nuanced, or idiomatic language. Although GT can be a helpful tool for simple translation projects, these limits imply that students should be aware of its drawbacks and take into consideration supplemental resources.

The findings revealed how learners deal with the constraints that GT causes. Most of them utilize GT for partial translation. A majority of 58.58% of students prefer using GT for partial translations rather than relying on it for full text translations. This method allows them to focus on specific words or phrases, improving translation accuracy. It is true to say that when GT is used to translate a word separately, the results will be more accurate than translating entire phrases. This means this approach allows students to quickly obtain translations for individual passage, providing immediate assistance in understanding unfamiliar linguistic elements. Agreeing with reliable resources to use appropriate words, Summers (2014) states that students deepen their knowledge of translated literature by using trusted dictionaries, grammar guides, and language learning websites, rather than relying solely on machine translation. Moreover, authentic resources support students' autonomy and self-directed learning by providing them with tools and guidance to expand their vocabulary independently. By actively searching for appropriate words from

reliable sources, students develop critical thinking skills, linguistic competence, and awareness of the conventions of language use. When students recognize the limitations of Google Translation, they also employ various strategies to mitigate these issues to improve their English writing skills.

3.3. Implications for Teaching Practices

The results show a number of tactics teachers can use to overcome Google Translation's drawbacks and successfully incorporate the technology into their lesson plans.

Use GT as a Supplementary Tool: Teachers should stress that GT should not be utilized as a primary learning resource, but rather as an additional tool. Along with other language learning resources like dictionaries and grammar tools, students should be encouraged to use GT for simple translation.

Teach Critical Use of GT: Teachers should give advice on how to use GT critically, emphasizing how to spot and fix mistakes, particularly when employing idioms and cultural allusions. Students will be able to identify the tool's advantages and disadvantages through assignments that compare GT translations with manual translations or peer-reviewed work.

Partial Translation Techniques: By emphasizing certain words or phrases, teachers can encourage students to use GT for partial translations. This gives students the opportunity to take advantage of GT's advantages while still having command of context and sentence structure. Instructors can include tasks that ask students to translate brief passages of text and evaluate how GT responds to each translation.

Incorporate Cultural and Idiomatic Awareness: Since GT struggles with cultural nuances and idiomatic expressions, teachers should incorporate lessons that emphasize these linguistic features. Classroom activities that explore the differences between literal and idiomatic meanings can help students understand why GT may not always be reliable for these types of translations.

Encourage Reflection and Error Correction: Teachers ought to urge pupils to consider and fix the errors that GT has produced. Students can gain a deeper comprehension of grammar and syntax through assignments that require them to examine and edit GT outputs, which will ultimately enhance.

4. CONCLUSION

This study provided insights into the impacts of GT on the learning writing process. One significant finding was that the great majority of students majoring in English view GT as a tool to help them achieve their goals. They all hold the thought that GT is crucial for them in their language learning process. They use it for the Marco skills, especially writing skills. With the various functions of GT, English majors found it useful for several specific goals, such as vocabulary increase and self-study improvement. Based on the Internet, learners can use GT to make the learning process better. However, while using this type of technique, students should take it into deep consideration due to its negative effects mentioned in the above sections, namely cultural struggles, references, idiom understanding, word-for-word translations, and complex sentences.

Moreover, this study also presents strategies that can enable students to master their English writing skills, including partial translation instead of a whole one, post-correcting by comparing and correcting, and reliable resource use such as dictionaries, grammar guides, and language learning websites.

By and large, the utilization of GT in writing struggles with both positive and negative effects. The most concerning is how to overcome the nuisances it has. When learners can tackle these challenges, it is better for them to become proficient in the language they are pursuing.

Furthermore, the findings reveal several strategies educators can implement to effectively integrate Google Translation into their teaching practices.

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FURTHER DISCUSSION ON HIGHER EDUCATION HUMAN RESOURCES IN VIETNAM DURING THE 4.0 INDUSTRIAL REVOLUTION

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ABSTRACT

The period of the 4.0 Industrial Revolution, characterized by the breakthrough development of science and technology, has profoundly impacted every field in social life. The demand for high-quality human resources is increasing, while the demand for low-skilled labor is decreasing. This creates significant pressure on the labor market, and developing countries will face an excess of low-skilled labor, leading to rising unemployment rates. Innovating higher education to improve the quality of human resources in the 4.0 Industrial Revolution is an urgent issue in Vietnam. This article focuses on the necessity of improving the quality of human resources, the current state of higher education, and several solutions for innovating Vietnamese higher education to enhance the quality of human resources during the 4.0 Industrial Revolution.

Keywords: Quality of human resources, 4.0 Industrial Revolution, innovation, higher education.

1. INTRODUCTION

The 4.0 Industrial Revolution creates long-term training opportunities for the younger generation while requiring those already working, from workers to engineers, to change and update their knowledge and skills to a higher level. The domestic and international labor market will see a significant differentiation between low-skilled and high-skilled workers, requiring a human resource capable of meeting the demands for knowledge, skills, and qualities related to changes in the new labor environment. This is an urgent requirement for the education system, especially higher education. In the context of the 4.0 Industrial Revolution, each student, with different needs and learning capacities, will have a customized learning plan that suits their level. The new teaching model focuses on how students learn, think, and handle situations in life, thereby developing autonomous problem-solving capabilities. Education must shift from enhancing cultural knowledge to a system that helps develop competencies, fostering innovation and creativity in learners. To meet the human resource demands of the modern economy, it is necessary to change university training activities, from innovating curricula, teaching methods, student management, and assessment methods to reinforcing information technology. Given the increasing demands of the labor market, university training activities must be closely linked with organizations and enterprises to bridge the gap between training, research, and application. Promoting enterprise-based training and developing schools within enterprises to train human resources suitable for the technology and organization of the enterprise is crucial. Developing human resources, especially high-quality human resources, is one of the important solutions for creating a useful and sustainable human resource pool in Vietnam during the current innovation

process. To achieve this, Vietnam needs to implement various suitable solutions, including restructuring the network of higher education institutions, linking higher education with socio-economic development planning, and planning for human resource development.

2. RESEARCH OVERVIEW

Discussions on higher education human resources in Vietnam in recent decades have garnered significant interest from the scientific community, as evidenced by several notable works: The scientific conference “Quality of Education and Teacher Training” (Vietnam National University, Hanoi, 2004), with numerous reports addressing teacher training and development amidst new requirements, highlighting many limitations and challenges in this work over time; The ministerial-level project “Scientific Basis for Proposing Policies for Education Development to Serve the Cause of Promoting Industrialization and Modernization of the Country in the Context of Deep and Comprehensive International Integration” (Nguyễn T. B, 2008) provided reliable arguments for proposing education development policies in the context of international integration in the early decades of the 21st century; The ministerial-level project “Building a Model for Forecasting the Development of Higher Education in Vietnam” (Phạm Q. S, 2010) presented a comprehensive view of higher education development, an overview of global higher education development trends in recent decades, identifying key factors (political, social, economic, educational) impacting higher education development, and developing and testing several models for forecasting the scale and structure of higher education in Vietnam by 2020; The work “Innovating the Management of Vietnamese Education: Some Theoretical and Practical Issues” (Phan V. K, 2014) specifically analyzed the roles, issues of planning, recruitment, selection, use, training, fostering, and professional ethics for the teaching staff to meet new requirements. Other notable works include: Nguyễn Văn Trung (2009) with the work “Training and Fostering Civil Servants in Some Countries”, Ngô Thành Can (2014) with the work “Reforming the Process of Training and Fostering Civil Servants to Improve Public Service Capacity”, and Đặng Thị Hà (2017) with the work “Discussing the Training and Fostering of Cadres in Response to State Management Requirements during the Fourth Industrial Revolution”, etc. These studies show that the issue of human resources in education in general and higher education in particular in Vietnam is of significant concern and is described from various perspectives. These works provide important references for us to complete this article.

2.1. Research Methods

The article primarily employs two main research methods: Historical and Logical, to analyze and evaluate the perception process regarding the training and development of human resources in higher education in Vietnam. The Historical method is applied to explore the developmental stages, changes, and the formation process of human resource training and development over different periods. The Logical method is used to delve deeper into the relationships, causes, and effects related to improving the quality of teaching staff in the context of the Fourth Industrial Revolution. In addition, some interdisciplinary research methods, such as statistics and sociology, are also used to collect data, analyze figures, and assess factors impacting the training and development of lecturers. These methods provide the article with a comprehensive and detailed

view of the current situation, while also offering scientific, objective, and practically valuable analyses.

2.2. Research Results

2.2.1. The Current State of Higher Education Innovation in Vietnam during the 4.0 Industrial Revolution

Research anywhere and anytime: Since the implementation of educational socialization, the system of universities has rapidly expanded in terms of the number of educational institutions, the number of students enrolled, and the number of teaching staff. By 2023, the number of colleges and universities increased to 14, accounting for 19.1%. Previously, universities primarily trained in economics, foreign languages, and a few fields with limited laboratory equipment. Currently, these universities have expanded to train in technical and technological fields to meet social needs. As of June 30, 2023, Vietnam had 121 higher education institutions and 3 pedagogical colleges meeting the standards for higher education quality accreditation in Vietnam, accounting for 51% of all universities and academies nationwide (Ministry of Education and Training, 2024).

In the innovation of the faculty team: From the academic year 2021-2022, the total number of university lecturers was 78,190, an increase of 2.11% compared to the academic year 2020-2021. Among them, 23,956 lecturers had doctoral degrees (an increase of 5.89%) and 46,062 had master's degrees (an increase of 1.91%) (Ministry of Education and Training, 2024). However, the current university teaching staff is not yet sufficient to meet the country's innovation and international integration needs. The proportion of professors and associate professors in 2022 was only 5.17%, with doctoral lecturers at 12.06% and master's lecturers at 46.41% (Ministry of Education and Training, 2024). These figures show that the quality of university teaching staff in Vietnam is still very low (only 12.06% of lecturers are doctorates, which is only 48.24% of the current educational development strategy target) (Ministry of Education and Training, 2024). The foreign language and IT proficiency of university lecturers are also still low.

In innovating methods, curricula, and higher education content: Teaching methods, exams, and assessments have not met innovation requirements. The teaching content is still heavy on theory and textbooks, not suitable for the specific characteristics of different types of educational institutions, regions, and student groups; training is not closely linked with development and economic-social life; it is not specialized according to social needs; it does not focus on life skills education, soft skills training (teamwork, comprehensive IT skills, improving foreign language proficiency, and social activities), and does not promote students' creativity and practical abilities.

In the innovation of methods, programs, and higher education content: Many universities have not yet applied high technology in training, still using traditional teaching tools like projectors and the internet. 3D virtual reality technology is not yet widespread. The application of 3D virtual reality technology is not only developed on computer platforms but also on mobile device versions. With such devices, students can study and research anywhere and anytime.

In the innovation of university autonomy: By the end of the academic year 2022-2023, 23 public higher education institutions had their pilot autonomy proposals approved by the Prime

Minister (Resolution No. 77, 2014). However, there are still some issues with university autonomy, such as: i) Although revenue has increased significantly, it has not yet created a substantial advantage for the development of schools, with revenue still mainly from tuition fees and fees, and revenue from service activities and technology transfer research is not yet significant. ii) Employee income has increased significantly but is still not commensurate with the work position and individual contributions. iii) Expenditures have increased but remain constrained by legal regulations such as civil law and public property management law, thus not stimulating schools to invest heavily in infrastructure for their training missions.

In the innovation and autonomy of universities: By 2023, Vietnam had 35 advanced programs at 23 institutions; 16 high-quality engineering programs meeting French Association standards at 4 institutions; 50 career-oriented higher education programs (POHE); and over 200 high-quality programs at other institutions. Additionally, universities had over 500 international joint training programs with universities worldwide (Nguyen Duc, 2023).

2.2.2. Issues Regarding Higher Education Human Resources in Vietnam During the Transition to the Fourth Industrial Revolution

The Fourth Industrial Revolution is a period marked by the increasing development of digitalization and automation technologies, requiring human resources not only with deep professional knowledge but also with adaptability and creativity. The Fourth Industrial Revolution is leading to significant transformations in the economy, particularly in the labor structure across various industries. Traditional industries, where labor accounts for a large proportion, will gradually decline, and new industries will emerge. This transition is comprehensive and entails a growth model not only in breadth (enhancing investment, exploiting advantages and resources, low-cost labor) but also in depth (increasing labor productivity, production efficiency, and competitiveness of economic sectors).

In the era of Industry 4.0, labor skills become more essential than ever. Besides basic and technical skills (intermediate and advanced levels), which include professional knowledge and technical skills for performing tasks, skills such as creative thinking and proactivity, computer and internet usage, foreign languages, teamwork, safety and labor discipline, problem-solving, time management, and focus are also crucial. However, the current labor force in Vietnam is undergoing significant changes, but it is still primarily low-skilled labor, easily replaceable by machines. Simple, repetitive jobs that have not been properly trained in Vietnam may be replaced by machines in the future.

Overall, the current higher education human resources in Vietnam are still limited and weak: “Many officials, including senior ones, lack professionalism, work outside their expertise and strengths; foreign language proficiency, communication skills, and the ability to work in an international environment are still limited” (Central Executive Committee, 2018). Some leadership and management officials, including strategic-level officials, lack exemplary conduct, have low prestige, and do not possess the competence and qualities needed for their tasks. They exhibit bureaucracy, individualism, corruption, wastefulness, negativity, and group interests (Central Executive Committee, 2018).

The low quality of higher education human resources currently can be attributed to several reasons:

First, the development of training and retraining programs for officials has not been closely linked with the training and retraining needs of officials and the necessary job requirements. Many programs are inadequate, lacking, and inefficiently implemented. After implementing some programs and materials as per government regulations, the training and retraining programs for higher education human resources show obsolescence, failing to meet new era demands, being overly academic, lacking practicality, and not closely linked with the job positions of learners. Some programs are currently being revised (National Academy of Public Administration, 2018).

Secondly, the training and development of human resources in higher education currently rely little on actual job needs or the requirement to enhance knowledge and skills essential for individual tasks. Instead, it mainly focuses on meeting the standards for certificates and degrees required for lecturers. This results in many individuals participating in training courses, but upon completion, they still do not fully meet the specific job requirements.

Thirdly, the teaching staff at educational institutions are not regularly updated with knowledge, and opportunities for improving their capacity, qualifications, and teaching methods are limited. Mobilizing guest lecturers, including experienced leaders or skilled experts capable of combining theoretical knowledge and practical skills to share their management and organizational experiences, remains challenging for some universities (Nguyen M. P, 2018).

Fourthly, there are no policies or mechanisms to encourage staff to actively participate in learning or self-study to improve their qualifications and skills for performing assigned tasks. The responsibility of leaders in creating and maintaining a positive learning environment within state agencies has not been emphasized.

Fifthly, the assessment of the quality of training and development of human resources in higher education mainly relies on collecting feedback from learners after completing the course. This evaluation method does not effectively help the trainees improve their knowledge and skills compared to before undergoing the training.

2.2.3. Solutions for Innovating Higher Education in Vietnam to Improve Human Resources Quality During the Fourth Industrial Revolution

Firstly, it is necessary to raise awareness and renew the mindset and development of higher education within the overall national development strategy to meet the demands of the Fourth Industrial Revolution. To effectively take advantage of opportunities and overcome challenges posed by the Fourth Industrial Revolution, universities need to enhance awareness of its significance, the changes in the job market, and the crucial role of universities in preparing high-quality human resources and participating in the labor market structure. The overall development of higher education should clearly identify the training of a workforce with specialized skills, soft skills, creative thinking, and the ability to adapt to the continuous changes in the global labor market. With a long-term vision, the higher education system must actively innovate and integrate comprehensively with the global higher education system.

Secondly, there needs to be innovation in the processes, content, and methods of higher education. A scientific training process in higher education should address key questions such as: the necessary knowledge and skills for job positions; the existing knowledge and skills of the faculty; and the gaps in knowledge and skills that need to be filled. This requires that programs and materials be closely aligned with the needs of the learners, and that instructors continue to understand these needs to guide training and continuously fill competency gaps for learners. In terms of training content, it is important to distinguish two levels of curriculum innovation: innovating programs to be selective, practical, and closely aligned with the target audience and training objectives, reducing general and theoretical knowledge, and increasing the guidance of skills, experience, and new knowledge. Courses should be designed to integrate practical modules at government agencies, businesses, non-governmental organizations, or even include studying and interning abroad. Institutions responsible for training faculty must meet standard conditions in terms of facilities with modern equipment and have a qualified and experienced teaching staff. Training programs must be competitive, quality-assured, and ensure continuity to avoid overlap within and between programs. The training content must be up-to-date, practical, balanced between theory and practice, and relevant to the current and future job positions of the learners.

Thirdly, there needs to be innovation in models, diversifying programs, and training methods to suit students' learning needs. Training objectives should shift towards fostering creativity and personal development. Entrepreneurship-oriented training can be implemented through various high-level interdisciplinary programs and programs linked with 4.0 technology. The training goals should focus on enabling graduates to think creatively, innovate, analyze and synthesize information, work independently, and make decisions based on data analysis. Changing the teaching and learning mindset to new methods will help students gain robust knowledge and apply creativity in practice. Combining traditional methods with new approaches (problem-solving, case-based learning, action-oriented learning) is necessary.

Fourthly, there needs to be innovation in the model of collaboration between universities and enterprises. The state should encourage enterprises to link and support universities through "ordering" mechanisms. It is essential to balance the training quotas between different fields and ensure long-term needs are met. This extends the training model through shared funding mechanisms between the state and enterprises, closely coordinating educational institutions, vocational training, and science and technology organizations. Sending university lecturers to intern at businesses to update their knowledge, technology, skills, teaching methods, and employing adjunct lecturers from businesses are necessary steps. Increasing interaction between lecturers and businesses, designing specialized training courses as per business requirements, and involving business partners in developing curricula and investing in infrastructure to meet business needs are crucial.

Fifthly, there needs to be an enhancement in the quality of teaching staff and management personnel. Ensuring the autonomy of higher education institutions in selecting and approving qualified faculty for doctoral and master's training is essential. Policies should attract scientists and qualified individuals to serve as lecturers. Programs and materials to enhance the management

capacity of key administrators should be developed. Faculty must be trained to grasp and participate in advanced training methods, online learning, and distance education to enhance their expertise and access new teaching models. University autonomy is necessary for implementing advanced university governance methods to improve and enhance training quality.

3. CONCLUSION

The Vietnamese economy is rapidly transitioning to digitalization, making the quality of human resources an urgent issue. In this context, solutions to improve the quality of higher education human resources must address the following pillars: Innovating Mindset. This involves renewing teaching and learning methods to adapt to the continuous changes in the labor market. Innovating Models, Programs, and Training Methods. This includes adjusting and diversifying training programs, integrating new technologies and essential skills needed to work in the Industrial Revolution 4.0 environment. Technology Application and Transfer. This involves promoting the application and transfer of new technologies, especially digital technologies, artificial intelligence, and big data, into the training and scientific research process. Innovating University-Enterprise Connection Models. This encourages and develops close links between universities and enterprises, helping to train human resources that meet the actual needs of the labor market. Improving the Quality of Lecturers and Management Staff. This ensures the autonomy of higher education institutions, enhances management capacity, and renews the faculty to adapt to new trends and challenges in education. By implementing these efforts, higher education in Vietnam will gradually meet the requirements of the Fourth Industrial Revolution, improving the quality of training and preparing for the significant changes in the global economy and society.

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A STUDY ON THE APPLICATION OF PSYCHOLOGICAL STRATEGIES AND PRACTICAL METHODS IN DEVELOPING ENGLISH SKILLS FOR CHILDREN

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ABSTRACT

This research paper emphasizes the crucial role of psychological strategies and practical methods in enhancing English language skills in children. The study aims to examine how confidence, passion, and interest key positive psychological factors alongside practical methods such as games, hands-on activities, and technology, impact children's English learning. The research methodology involved a mixed-methods approach, combining interviews and classroom observations to collect qualitative data on student engagement, motivation, and progress. Additionally, quantitative data was obtained by experimenting with specific teaching methods across various learning environments. Results reveal that fostering passion and interest significantly boosts children's confidence and participation in English learning, while practical methods like games and technology enhance engagement and comprehension. The study concludes that integrating positive psychological strategies and practical methods can maximize children's language development, suggesting these approaches be widely implemented in English language teaching to unlock their full learning potential.

Keywords: Language development, children's English, psychological strategies, practical methods, learning through play, passion, confidence, practical application, educational technology.

1. INTRODUCTION

1.1. Problem Statement

In today's world, developing English language skills in children has become an urgent necessity for integration and globalization, not just an educational goal. However, many children face challenges in learning English due to a lack of interest, confidence, and effective, practical learning methods (Lightbown & Spada, 2013).

Psychological strategies and practical methods offer potential solutions to these issues by encouraging children to engage more naturally and actively in the learning process. Yet, optimizing the application of these strategies to foster English skills in children remains a concern, warranting further research (Dörnyei, 2001; Krashen, 1982). This study emphasizes all four essential English skills: listening, speaking, reading, and writing.

Through research and evaluation of psychological strategies such as building passion and confidence and practical methods like learning through games and technology, a strong

educational foundation can be built to develop children's English language skills effectively and sustainably (Vygotsky, 1978; Gardner, 1983).

In this context, "psychological strategy" refers to the use of psychological factors to enhance and optimize the learning process. These factors include fostering children's passion for learning English, building their confidence, and promoting active engagement in learning activities (Deci & Ryan, 2000). Psychological strategies also help children develop resilience, enabling them to overcome challenges in the language-learning process. Thus, applying these strategies not only supports English learning but also contributes to children's overall development, better preparing them to communicate and adapt in an increasingly globalized society (Piaget, 1964; Brewster, Ellis, & Girard, 2002).

1.2. Research aims and objectives

This study aims to explore how psychological strategies and practical methods can enhance children's English language skills. Specifically, it focuses on fostering confidence, passion, and interest in English learning, combined with practical methods like games, hands-on activities, and technology. The objective of the research is to identify the most effective methods and strategies that support children's English skills development in a natural, efficient, and long-lasting manner. Additionally, this study seeks to provide an experimental basis for assessing the importance of positive psychological factors in language learning.

1.3. Literature review

The literature review examines previous studies on the application of psychological strategies and practical methods in language education, with a focus on how these approaches develop English skills in children. Research consistently shows that psychological factors, including confidence, motivation, and self-efficacy, play a crucial role in language acquisition, especially for young learners (Dörnyei, 2001; Lightbown & Spada, 2013). These factors contribute to creating a supportive learning environment that fosters language growth and reduces anxiety, making children more receptive to new information (Krashen, 1982).

In terms of psychological strategies, studies emphasize the importance of building children's confidence through positive reinforcement, encouragement, and setting achievable goals (Dörnyei, 2001; Deci & Ryan, 2000). For instance, providing constructive feedback and recognizing small accomplishments have been shown to enhance motivation and persistence in language learning. Additionally, fostering intrinsic motivation is highlighted in the literature as a key driver for sustained interest. Techniques like goal-setting, self-reflection, and making learning personally relevant are explored as ways to increase a child's sense of agency, helping them take ownership of their learning journey (Deci & Ryan, 2000).

Practical methods are also essential in language education. Interactive techniques such as games, role-playing, group activities, and technology use are widely cited as effective tools for engaging children and making learning enjoyable (Brewster, Ellis, & Girard, 2002; Vygotsky, 1978). Studies indicate that children learn more effectively through hands-on, playful activities

that contextualize language concepts, enhancing both engagement and comprehension (Gardner, 1983; Nation & Newton, 2009). Games and group activities, in particular, are beneficial for developing communication skills and teamwork, while technological tools like educational apps and interactive videos provide fun avenues for practicing English (Lightbown & Spada, 2013).

Challenges in applying these strategies and methods are also noted in the literature. Teachers and parents often face obstacles such as limited time, resources, and lack of materials tailored to children's developmental stages (Piaget, 1964; Slavin, 1995). Moreover, balancing enjoyable activities with educational value can be difficult. Age-appropriate approaches are critical, as different developmental stages require specific techniques and levels of complexity. For example, younger children may benefit more from play-based learning, while slightly older children may find structured activities and self-directed learning more suitable (Piaget, 1964; Vygotsky, 1978).

In summary, the literature highlights the effectiveness of combining psychological strategies with practical methods to develop English skills in children. By addressing both emotional and cognitive aspects of learning, these approaches provide a holistic framework that supports language acquisition and fosters a lifelong love for learning (Dörnyei, 2001; Krashen, 1982). This review underscores the importance of a tailored, child-centered approach in language education, which maximizes each child's learning potential by accommodating their unique needs and preferences (Gardner, 1983).

2. RESEARCH METHODS

2.1. Field Research

The research was conducted through a series of structured interviews and direct field visits to four educational institutions: Language Link, Hoa Hong Kindergarten, Tan Dan Primary School, and CLC Hung Vuong School. This fieldwork involved careful planning, selecting specific survey locations, identifying key interview participants (including parents, teachers, and students), and designing a set of relevant questions. Five main question categories were crafted, focusing on learning needs, current limitations, both objective and subjective factors influencing children's English learning, and the perspectives and expectations of parents, teachers, and students. The goal was to gather comprehensive, detailed data from diverse perspectives, ensuring a broad and accurate representation of factors influencing English learning in children.

2.2. Survey Research Method

Systematic observation and detailed recording techniques were applied to assess learning environments and teaching methods. The study observed two groups of classes: one group was exposed to psychological strategies, and the other followed traditional methods. Observations focused on various aspects of teaching, such as daily learning activities, teacher-student interactions, and specific teaching methods used by educators. These observations provided insight into practical dynamics in English teaching and learning, allowing comparisons of the impact of psychological strategies on students' engagement, motivation, and English language abilities.

Interviews were organized with parents, teachers, education experts, and knowledgeable individuals to gain a deeper understanding of challenges and opportunities in children's English development. These interviews were conducted after implementing psychological strategies, providing feedback on their effectiveness from the perspectives of parents and teachers. This comprehensive approach allowed the research to capture real-life responses to psychological strategies and practical methods, aligning with the study's goal of identifying effective approaches for improving children's English skills.

2.3. Tools

Various tools were employed to enhance data collection quality. Observation sheets were used to document specific details during classroom observations, such as the effectiveness of communication and the development of English skills across different groups of students, which aligns with recommended practices for detailed educational data collection (Gillham, 2008). Voice recorders were utilized to capture interview responses, ensuring that all exchanged information was recorded accurately and could be analyzed comprehensively, a method often noted for enhancing data reliability (Kvale & Brinkmann, 2009). Additionally, cameras documented learning activities and classroom environments, providing visual evidence that complemented both observation and interview data and supported a richer analysis of classroom dynamics (Flick, 2018). Together, these tools ensured diversity, accuracy, and completeness in the collected data.

2.4. Document analysis

The study included a review of relevant studies, reports, and documents related to the application of psychological strategies in education, with a particular focus on developing English language skills in children. This document analysis provided a theoretical foundation, supporting the selection and application of psychological and practical strategies in the study.

2.5. Data analysis

Data from interviews, observations, and documents were systematically compiled and analyzed. The analysis process aimed to identify trends, draw conclusions, and develop well-founded proposals on effective psychological strategies and practical methods for teaching English. Content analysis techniques were employed to reveal common patterns in the collected data, facilitating an understanding of how specific strategies and methods enhance children's engagement and language skills.

3. RESEARCH RESULTS AND DISCUSSION

3.1. Awareness of requirements and challenges

Regarding the requirements, both parents and teachers emphasize the importance of equipping children with English skills from an early age. In an increasingly globalized world, English serves not only as a language of communication but also as a gateway to future opportunities. Early English learning helps children integrate into international environments and

access global knowledge, as English has become a fundamental skill in education and career development (Lightbown & Spada, 2013).

This need is also viewed as a broader societal requirement. One parent of a seven-year-old shared, "Our era is changing rapidly, and English is not just a language but a necessary tool for the development and success of children in the future." Despite this awareness, parents and teachers face numerous challenges in educating children in English.

One major challenge is creating a positive learning environment and implementing effective teaching methods. Classroom observations revealed that some children struggled to participate due to boredom or lack of stimulation. For example, in an English vocabulary lesson, some children found it difficult to focus on group activities because the lesson lacked interaction and engagement. This emphasizes the need for creative methods that make learning enjoyable and encourage active participation (Dörnyei, 2001).

To further explore these issues, a survey of parents revealed that 74% believe children face difficulties in both pronunciation and grammar, with motivation often lacking. Understanding these requirements and challenges is essential in the educational process (Deci & Ryan, 2000).

To address these challenges, diverse and creative activities are needed to foster a positive and motivating learning environment. According to the survey, 77% of parents believe that developing English skills at home can be supported by various methods, such as early exposure to English or enrolling children in classes. These combined measures help children make faster, more comprehensive progress (Krashen, 1982; Nation & Newton, 2009).

To understand these issues better, we conducted a survey of parents' opinions:

Table 1. Parents' opinions on children's English learning

No	Parents' Perspectives	Number of Respondents	Yes		No	
			No.	%	SL	%
1	Do you think English is important for children?	130	50	38	80	62
2	Can you use English?	130	12	9	118	91
3	Does your child like learning English?	130	120	92	10	8
4	Do you participate in English learning activities with your child?	130	96	74	34	26
5	Is your child having difficulty learning English?	130	122	94	8	6
6	Is your child learning English at an English center?	130	81	62	49	38
7	Do you use English learning applications or software for your child?	130	94	72	36	28
8	Do you notice your child's progress in using English?	130	88	68	42	32
9	Is your child's English learning effective?	130	78	60	52	40
10	Do you expect an effective English teaching method for children?	130	130	100	0	0

In terms of teaching methods, many parents and teachers also face difficulties in finding suitable and interesting teaching methods to stimulate children's interest and participation. For example, in an interview with an English teacher, Teacher 01 (an English teacher at Language Link Center) shared: "I often feel stuck because I don't know which activities to use to make the lesson interesting and suitable for the children's interests."

We also gathered parents' opinions on children's difficulties in learning English:

Table 2. Parents' opinions on children's difficulties in learning English

No.	Children's Difficulties in Learning English	Number of Respondents	Yes		No	
			No.	%	SL	%
1	Does your child have difficulty pronouncing English words?	140	105	75	35	25
2	Does your child have difficulty remembering English vocabulary?	140	135	96	5	4
3	Does your child have difficulty understanding English grammar?	140	113	81	27	19
4	Does your child have difficulty listening and understanding English?	140	76	54	64	46
5	Does your child have difficulty speaking English?	140	90	64	50	36
6	Does your child have difficulty understanding English passages?	140	78	56	62	44
7	Does your child have difficulty writing English sentences?	140	109	78	31	22
8	Is your child afraid of making mistakes when speaking or writing English?	140	105	75	35	25
9	Does your child have difficulty participating in group activities in English?	140	135	96	5	4
10	Is your child lacking confidence in using English in daily communication?	140	130	93	10	7

3.2. Effective psychological strategies in teaching

3.2.1. *Creating a positive and safe learning environment*

Establishing a positive and safe learning environment is essential for teaching English to children aged 5-12, as it not only boosts confidence but also enhances motivation, both critical factors in language learning (Dörnyei, 2001). Encouragement from teachers and parents, such as praise when children pronounce words correctly or complete sentences accurately, helps foster this environment. Simple affirmations like “Well done!” or “You did great!” reinforce children’s pride in their achievements, increasing their motivation to continue learning. These practices are consistent with studies showing that a supportive environment encourages children to actively engage in learning (Lightbown & Spada, 2013).

3.2.2. *Stimulating interest in learning*

Engaging and interactive learning activities are effective in capturing children’s attention and sustaining interest in English (Gardner, 1983). Research and classroom observations indicate that children learn more effectively when engaged with colorful games, visual aids, and interactive exercises. For instance, using pictures, videos, and digital games enhances focus and aids retention. Tools like illustrated books, educational videos, and tablets help facilitate curiosity, encouraging children to take a proactive role in their learning journey (Brewster, Ellis, & Girard, 2002).

3.2.3. *Building confidence*

Building confidence is foundational for effective English learning. Studies suggest that activities such as group work, role-playing, and interactive exercises help children freely express

themselves without fear of judgment, creating a safe space for active participation (Krashen, 1982). This reinforcement of self-assurance allows children to take risks in learning, fostering a growth mindset and enhancing their language skills.

3.2.4. Connecting learning to reality

Relating language learning to real-life contexts enhances children's ability to apply their skills practically. For example, exercises where children use English to introduce themselves, order food, or describe favorite activities show the practical value of language (Vygotsky, 1978). These relatable scenarios make learning more meaningful, helping students see the purpose of English beyond the classroom.

3.2.5. Utilizing technology

Incorporating technology into learning has proven increasingly relevant, with research showing that educational apps and software enhance engagement and language development (Nation & Newton, 2009). Interactive platforms provide real-time feedback and tailored learning paths, supporting individual progress. Through these tools, children benefit from an engaging and adaptive learning experience.

3.2.6. Encouraging active participation through supportive activities

Activities that promote participation in a comfortable, judgment-free setting help children build self-confidence. Group projects, role-playing, and interactive games foster collaboration and communication, making language learning more collaborative and engaging. This consistent integration of supportive activities builds confidence and supports fluency in English (Slavin, 1995).

3.2.7. Connecting learning to real-Life experiences and contexts

To reinforce practical language use, teachers organize activities related to real-world experiences. Field trips where children use English in markets or cultural exchange programs with English-speaking pen pals create authentic opportunities to practice language skills (Piaget, 1964). Such experiences make language learning tangible, reinforcing skills through real-world interactions and increasing engagement.

4. CONCLUSION

The research process provided a comprehensive understanding of the requirements and challenges in developing English language skills for children aged 5-12, as viewed from both parents' and teachers' perspectives. Data collected through interviews and observations offered valuable insights into the current state of English education for young learners, revealing specific difficulties they face.

From this analysis, we identified and applied key psychological strategies and practical methods to enhance children's learning experience and the effectiveness of English education.

These strategies included establishing a positive and safe learning environment, using encouragement and positive reinforcement to build confidence and reduce language-learning anxiety. To stimulate interest in learning, we implemented engaging activities like interactive games, videos, and storytelling, which actively involved children in the lessons (Lightbown & Spada, 2013).

To strengthen practical language application, learning activities were connected to real-life experiences, allowing children to practice English in relevant, relatable contexts through role-playing or discussing their daily lives. Technology was incorporated through educational apps and interactive platforms, offering additional practice and tailored feedback, which fostered individual progress and motivation (Nation & Newton, 2009).

These findings and recommendations present a holistic approach to enhancing English education for children, equipping them with essential skills and motivation to develop English proficiency effectively. This foundation better prepares children to navigate a globalized world and opens doors to the opportunities that English proficiency affords.

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A COMPARISON OF THE LEARNING MOTIVATION OF STUDENTS AT THAI NGUYEN UNIVERSITY OF EDUCATION, VIETNAM, AND UDON THANI RAJABHAT UNIVERSITY, THAILAND

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ABSTRACT

Motivation is a key factor guiding learning, influencing whether a person gives up or persists, and shaping their perception of their own learning abilities. Assessing and promoting students' learning motivation is a concern for all countries worldwide. This article draws on theories of teaching, educational psychology, and practical surveys of student motivation at Thai Nguyen University of Education, Vietnam, and Udon Thani Rajabhat University, Thailand, to highlight the similarities and differences in student learning motivation. From there, we propose measures to enhance the learning motivation of students at both institutions.

Keywords: learning motivation, students, Thai Nguyen University of Education, Udon Thani Rajabhat University

1. INTRODUCTION

To achieve one of the overarching goals of Resolution No. 29-NQ/TW, dated November 4, 2013, from the 8th Central Committee of the Communist Party of Vietnam, “...to educate Vietnamese people to develop comprehensively and to fully utilize the potential and creativity of each individual; to love family, love the homeland, and love compatriots; to live well and work effectively” (Vietnam, 2013), in recent years, educators and researchers have paid significant attention to identifying learning motivation and the relationship between learning motivation and learners' academic performance. Research on learners' learning motivation will help educators approach and explore learners' capabilities, thereby facilitating the effective implementation of educational tasks.

Learning motivation includes the factors that encourage individuals to proactively and actively engage in goal-oriented behaviors aimed at acquiring knowledge and skills in their studies and to self-regulate adaptive motivational patterns to conduct suitable learning activities and achieve educational effectiveness (Hac, 2002); (Nguyen Thanh Dan, 2013)

Thai Nguyen University of Education - Thai Nguyen University in Vietnam and Udon Thani Rajabhat University in Thailand are both large institutions located in the Northeast region. The two universities share similar geographical characteristics, educational perspectives, training objectives, and student demographics. Over the years, they have established significant

collaborative efforts in education. To enhance the quality of education and meet the demands of integration, the universities need to exchange ideas on various aspects. Among these aspects, we recognize that comparing the learning motivation of students from both institutions is one of the crucial and urgent issues. This comparison will not only help the universities affirm their strengths and identify limitations in their training programs but also strengthen their cooperative relationships.

The article will be based on guiding perspectives and theoretical issues regarding students' learning motivation to conduct a survey and analysis. From this, it will propose measures to enhance the learning motivation of students from two institutions: Thai Nguyen University of Education-Thai Nguyen University in Vietnam and Udon Thani Rajabhat University in Thailand.

2. LITERATURE REVIEW

Based on the study of various concepts, Huit (W., 2011) points out that there are many definitions of learning motivation in the field of psychology, such as those by Kleinginna (Kleinginna, 1981a) and Franken (Franken, 2006). Additionally, he identifies various theories, including Heider's Attribution Theory (Heider F., 1958), Vroom's Expectancy Theory (Vroom, 1964), Festinger's Cognitive Dissonance Theory (L., 1957), and Maslow's Hierarchy of Needs (A., 1954). Researchers in psychology generally agree that motivation is the driving force that compels individuals to act to fulfill their needs. In other words, motivation is an internal process that encourages individuals to orient themselves and maintain a continuous state of activity (Murphy P.K., 2005); (P.R., 2003b); (Thanh Son, 2013); (Hac, 2002).

Learning motivation plays a crucial role in the educational process of students. It is the driving force that encourages them to engage in learning activities and strive to achieve their best outcomes. Learning motivation can be understood as the desire and aspiration for progress, along with a sense of enthusiasm for learning (Bomia, 1997). It serves as the reason behind actions, meaning it is the cause that drives students to study and strive for good results (Merriam-Webster, 1997); (DuBrin, 2008); (U., 1991); (Trong Ngo, 2005).

Learning motivation is generally divided into two types: intrinsic motivation and extrinsic motivation ((Bomia, 1997); (F., 1958); (W., 2011); (Trong Ngo, 2005). Intrinsic motivation refers to the enjoyment and interest that drive students to learn and achieve their personal goals. In contrast, extrinsic motivation encompasses external factors that influence the learning process of students, which do not stem from personal interest or passion.

3. METHODOLOGY

We conducted a random survey of 160 students enrolled at the Thai Nguyen University of Education-Thai Nguyen University in Vietnam (80 students) and Udon Thani Rajabhat University (80 students).

The survey was conducted using a Google Form questionnaire that consisted of two parts: Part 1 focused on demographic characteristics (age, gender, living area, academic year); Part 2 assessed various criteria for evaluating learning motivation.

4. RESULT

4.1. Some General Theoretical Issues

4.1.1. Theoretical Issues on Learning Motivation

a. Concepts

To understand the concept of "learning motivation", it is essential to distinguish between "motive" and "motivation." "Motive" refers to the reasons that drive us to do something; it stimulates individuals to act to satisfy needs, fostering positivity and directing this positive tendency. Conversely, "motivation" encompasses all the factors that encourage individuals to engage in activities to meet needs and guide their actions (Piaget, 2015). In other words, "motive" is the direct cause that triggers behavior, while "motivation" is the underlying reason that leads us to perform that behavior. According to Do Huu Tai and colleagues (Do Huu Tai, 2016), the structure for distinguishing between these two concepts can be summarized as follows: "I do this because I want to... (motive) in order to... (motivation)".

Learning motivation encompasses the desire, enthusiasm, responsibility, and passion experienced during the learning process (Bomia, 1997). It serves as the driving force that guides an individual's actions (Merriam-Webster, 1997) and represents the effort made to successfully complete a task (DuBrin, 2008). Learning motivation encourages learners to actively, enthusiastically, and comfortably participate in learning activities (Spratt M., 2002). In the context of education, motivation refers to what students need to achieve to satisfy their own needs. In other words, students learn for specific reasons, which constitutes their learning motives (Trong Ngo, 2005). Meanwhile, learning motivation includes the factors that stimulate and promote continuous interest and engagement in learning, aiming for cognitive results, personal development, and the achievement of set learning goals (Khanh, 2016).

b. Classification of learning motivation

There are various theories regarding learning motivation. According to (Bomia, 1997), (F., 1958), (Trong Ngo, 2005)... intrinsic motivation arises when students feel enjoyment, passion, and a natural affinity for learning. This motivation originates from within the students themselves, as they wish to explore and learn for the intrinsic value that education offers, such as gaining deeper knowledge, acquiring new skills, or satisfying personal passions. Students with intrinsic motivation tend to learn voluntarily and actively seek knowledge without external pressure. They feel satisfied upon achieving their learning goals and view education as a part of personal development, rather than merely a means to earn grades or rewards.

Conversely, extrinsic motivation occurs when external factors influence and drive students to learn, but it does not stem from personal interest or passion. These factors may include demands from family, teachers, or schools, as well as rewards like grades, certificates, titles, or even recognition from peers and society. Students study for these rewards, due to pressure to complete tasks, or to avoid negative consequences such as criticism or failure to meet standards. While extrinsic motivation can help students maintain their studies in the short term, it often does not provide the joy or deep satisfaction that intrinsic motivation does.

According to Freud's psychoanalytic theory, Skinner's behaviorism, and Leonchiep's activity theory, each theory has its own characteristics based on different approaches and analyses regarding the formation, maintenance, and change of motivation. Despite their limitations, these theories complement each other. The learning motivation of students falls under the category of activity motivation, and studying it aligns well with Leonchiep's activity theory, which divides motivation into two types: object motivation (which shapes personality) and stimulus motivation.

4.1.2. General Introduction to Students at Thai Nguyen University of Education – Thai Nguyen University and Udon Thani Rajabhat University

Thai Nguyen University of Education is located in Thai Nguyen City, Thai Nguyen Province. It is one of the leading universities in the northern region of Vietnam and is affiliated with Thai Nguyen University. Established with the goal of training high-quality human resources in the field of education, the Thai Nguyen University of Education has made significant contributions to the development of Vietnam's education sector, particularly in the training of teachers and experts in educational sciences.

Students at Thai Nguyen University of Education-Thai Nguyen University (TNUE) are young individuals from various regions, particularly from the northern mountainous areas of Vietnam. They come from many different provinces, especially from remote and disadvantaged areas. This diversity creates a rich learning environment in terms of culture and mindset.

Regarding their academic attitude, students at TNUE are known for their hard work, perseverance, and determination to overcome difficulties. Many of them come from challenging backgrounds or live in distant regions, yet they consistently demonstrate a strong desire to learn and contribute to society. With aspirations of becoming teachers or education officials in the future, they have a clear understanding of their role in contributing to the development of national education, especially in underserved areas. Most students define their learning goals not only to improve their personal lives but also with the desire to become valuable members of society, assist their communities, and contribute to enhancing the quality of education for underprivileged populations. They often engage in volunteer activities, community projects, and support education initiatives in remote areas, demonstrating a strong sense of responsibility and commitment to their social mission. In addition to their academic pursuits, students actively participate in extracurricular activities, clubs, and various student groups. Through these experiences, they develop soft skills, teamwork, and confidence in communication. Overall, students of Thai Nguyen University of Education are energetic, passionate, and continuously strive to achieve their learning goals while contributing positively to society.

Udon Thani Rajabhat University in Thailand is located in the northeastern region of the country. It is one of the prominent and reputable higher education institutions in Thailand, particularly serving the educational and developmental needs of the northeastern community. Established with the aim of training high-quality teachers and human resources in important fields of society, the university plays a crucial role in enhancing the quality of education, community development, and promoting sustainable growth in Udon Thani and neighboring provinces.

Students at Udon Thani Rajabhat University come from various regions across Thailand, particularly the northeastern area. They embody a strong commitment to hard work, social responsibility, and pride in their local cultural identity. These students focus on their studies to become valuable members of society—teachers, education officials, and development professionals capable of leading change within their communities. They actively participate in community activities and development projects aimed at improving living conditions for local residents. Regularly engaging in volunteer programs, community education, and social initiatives, they work to raise awareness and support sustainable development while also being enthusiastic participants in cultural, sports, and club activities. It can be said that students at Udon Thani Rajabhat University are energetic, hardworking, and creative young individuals. They not only strive for academic success but also hold a high sense of responsibility toward their communities and society. Their unity and desire to contribute create a dynamic and promising generation of students for the future of Thailand.

4.2. Descriptive Statistics of Survey Participants

4.2.1. Descriptive Statistics of Survey Participants

We conducted a random survey of 160 students based on demographic criteria. The findings indicate that the majority of participants are second- and third-year students, while there are fewer fourth-year students as they are currently preparing for or undergoing internships. First-year students have not yet enrolled in the university.

In terms of age, most of the students are under 23 years old, with a significant number residing primarily in rural areas. The demographic characteristics have a certain impact on the assessment and comparison of the learning motivations of students from the two universities.

Table 1. Descriptive Statistics of Survey Participants

		Thai Nguyen University of Education-Thai Nguyen University		Udon Thani Rajabhat University	
		Frequency	Rate (%)	Frequency	Rate (%)
Gender	Male	38	47.5	26	32.5
	Female	42	52.5	48	60
	Other	0	0	6	7.5
Age	18-20	38	47.5	39	48.75
	21-22	35	43.75	36	45
	>22	7	8.75	5	6.25
Academic year	Second-year	37	46.25	41	51.25
	Third-year	35	43.75	35	43.75
	Forth-year	8	10	4	5
Living area	Urban	26	32.5	28	35
	Rural	54	67.5	52	65

Table 1 shows that the demographic characteristics of students from both universities surveyed are relatively similar in terms of age, academic year, and living area. However, there is

a difference in gender: at the Thai Nguyen University of Education - Thai Nguyen University, there are no students of other genders. In contrast, at Udon Thani Rajabhat University, 6 out of 80 surveyed students marked their gender as "Other".

4.2.2. General Results on Students' Learning Motivation

** Results of the Survey on Students' Learning Motivation for Themselves*

Table 2. Students' Learning Motivation for Themselves

	Thai Nguyen University of Education-Thai Nguyen University			Udon Thani Rajabhat University		
	Frequency	Rate (%)	Rank	Frequency	Rate (%)	Rank
Knowledge and professional skills	60	75	2	55	68.75	2
Good employment opportunities	65	81.25	1	52	65	3
Interests and passions	41	51.25	5	35	43.75	7
Self-affirmation	35	43.75	7	40	50	6
Becoming a useful person	51	63.75	4	57	71.25	1
Personal development and values	56	70	3	50	62.5	4
Building additional relationships	39	48.75	6	45	56.25	5
Lack of motivation	2	2.5	8	3	3.75	8

Table 2 shows that the learning motivation for personal learning among students from the two universities differs relatively in terms of perception and viewpoint. This is reflected in the hierarchy of the survey criteria. Specifically, students from both universities are very concerned about developing their personality and values, as well as acquiring knowledge and professional skills. Students at Thai Nguyen University of Education mainly focus on studying to secure good jobs and enhance their professional skills. In contrast, students at Udon Thani Rajabhat University place greater importance on becoming useful individuals and learning professional skills. Additionally, there remains a portion of students who do not have or have not identified their motivation to strive in their studies and self-improvement.

** Results of the Survey on Students' Learning Motivation for Their Family*

Table 3 shows that the students' motivation learning for their family differs and is reflected in the ranking of the survey criteria. Specifically:

Similarities: 1/ The motivation of "to meet their family's expectations" demonstrates a similarity between the students of the two universities. This motivation ranks 4th and 5th at both institutions, with almost equal percentages (Thai Nguyen University of Education: 45%, Udon Thani Rajabhat University: 43.75%). This result indicates that students from both universities value meeting family expectations, but it is not their top motivation; 2/ The motivation of "to keep up with friends" is ranked last (6th) at both universities, with fairly low percentages (Thai Nguyen

University of Education: 12.5%, Udon Thani Rajabhat University: 10%), indicating that this is not a significant factor for most students at either institution.

Differences: 1/ The motivation of “to improve the quality of their family's life in the future.”: Students at Udon Thani Rajabhat University rated this motivation higher (71.25%, ranked 1st), while at Thai Nguyen University of Education, it ranks 2nd with a percentage of 66.25%. This may suggest that students of Udon Thani Rajabhat University are more concerned with improving their family's quality of life; 2/ The motivation of “to build a good foundation for their family in the future” This is the most important motivation for students at Thai Nguyen University of Education (72.5%, ranked 1st), while at Udon Thani Rajabhat University, it ranks 2nd with a percentage of 68.75%.

The motivation of “to educate their children in the future”: This motivation ranks 2nd at Thai Nguyen University of Education and 3rd at Udon Thani Rajabhat University, with a small difference in percentage (Thai Nguyen University of Education: 66.25%, Udon Thani Rajabhat University: 58.75%). This indicates that students of Thai Nguyen University of Education may place slightly more importance on future child education.

Table 3. Students' Learning Motivation for Their Family

	Thai Nguyen University of Education- Thai Nguyen University			Udon Thani Rajabhat University		
	Frequency	Rate (%)	Rank	Frequency	Rate (%)	Rank
To meet their family's expectations	36	45	4	35	43.75	5
To improve the quality of their family's life in the future.	53	66.25	2	57	71.25	1
To educate their children in the future	53	66.25	2	47	58.75	3
To build a good foundation for their family in the future	58	72.5	1	55	68.75	2
To be a role model for their brothers and sisters	35	43.75	5	37	46.25	4
To keep up with friends	10	12.5	6	8	10	6

** Results of the Survey on Students' Learning Motivation for Society*

Table 4 comparing the students' learning motivations for society between students from Thai Nguyen University of Education and Udon Thani Rajabhat University shows the following similarities and differences:

- Similarities: 1/ The motivation of "to be a useful person for society" ranked highest at both universities, with similar percentages (Thai Nguyen University of Education: 78.75%, Udon Thani Rajabhat University: 75%), showing that students from both institutions value contributing positively to society; 2/ The motivation of "to contribute to the development of the community" ranked second at both universities (Thai Nguyen University of Education: 75%, Udon Thani Rajabhat University: 71.25%), reflecting that students are committed to playing an active role in their communities; 3/ The motivation of "to contribute to building a fair and civilized society"

ranked third at both institutions, with comparable percentages (Thai Nguyen University of Education: 63.75%, Udon Thani Rajabhat University: 60%), indicating a shared commitment to creating a better society.

- Differences: 1/ The motivation of "to have a better understanding of humanity" was more valued by students of Thai Nguyen University of Education (57.5%, ranked 4th) compared to students of Udon Thani Rajabhat University (46.25%, ranked 5th); 2/ The motivation of "to inspire the next generation" was stronger among students at Thai Nguyen University of Education (55%, ranked 5th) compared to students at Udon Thani Rajabhat University (43.75%, ranked 6th), suggesting that students of Thai Nguyen University of Education have a greater desire to inspire others; 3/ The motivation of "to promote the progress of science and technology" was rated lower at both universities, but students of Thai Nguyen University of Education ranked it 8th (35%) while students of Udon Thani Rajabhat University ranked it 7th (33.75%), showing that this factor is not a primary motivation for most students; 4/ The motivation of "to help the development of their ethnic community" was rated slightly higher by students of Thai Nguyen University of Education (46.25%) than students of Udon Thani Rajabhat University (43.75%), but both ranked this motivation lower (6th-7th positions).

In summary, students from both universities share several important societal motivations, but students of Thai Nguyen University of Education place more emphasis on understanding humanity and inspiring future generations, while students of Udon Thani Rajabhat University show less interest in these areas.

Table 4. Students' Learning Motivation for Society

	Thai Nguyen University of Education- Thai Nguyen University			Udon Thani Rajabhat University		
	Frequency	Rate (%)	Rank	Frequency	Rate (%)	Rank
To be a useful person for society	63	78.75	1	60	75	1
To contribute to the development of the community	60	75	2	57	71.25	2
To promote the progress of science and technology	28	35	8	27	33.75	7
To contribute to building a fair and civilized society	51	63.75	3	48	60	3
To inspire the next generation	44	55	5	35	43.75	6
To help the development of their ethnic community	37	46.25	7	35	43.75	6
To have a better understanding of humanity	46	57.5	4	37	46.25	5
To have the opportunity to study and exchange domestically and internationally	44	55	5	42	52.5	4

4.2.3. Some Measures to Enhance the Learning Motivation of Students at Thai Nguyen University of Education-Thai Nguyen University in Vietnam, and Udon Thani Rajabhat University in Thailand

** For the Universities*

Develop a flexible curriculum linked to future careers:

The curriculum should focus on preparing students with specialized knowledge and practical skills that can be applied after graduation, helping to build a strong foundation for their family and community. Programs should be designed to clarify the relationship between academic knowledge and practical application. Strengthening career guidance efforts will help students understand their career development pathways after graduation, thus enhancing their motivation to learn.

Improve the learning environment and international exchange by creating opportunities for domestic and international study exchanges. Student exchange programs, international workshops, and academic collaborations between regional institutions will enhance students' enthusiasm and broaden their perspectives.

** For Lecturers and Students' Parents*

Lecturers need to innovate their teaching methods. They should focus on developing soft skills and creative thinking for students by organizing activities that promote creative thinking, such as science competitions, technological innovations, and research workshops. These initiatives will encourage students to be more engaged in advancing scientific and technological progress while also enhancing soft skills training for students.

- Strengthen the teaching of civic responsibility, professional ethics, and the importance of building a fair and civilized society to motivate students to act for the benefit of society. Encourage students to participate in volunteer activities to enhance their motivation to support community development and promote social responsibility awareness.

- Actively support students through personal counseling sessions and academic mentoring programs. Connect and collaborate with families to understand and encourage students in a timely manner.

** For Students*

- Establish clear and personalized learning objectives. Throughout their studies and each semester, students need to clearly define their learning goals. These objectives should relate to personal development and contributing to their family and society. During their learning process, students should proactively adjust their study methods to suit their individual styles and needs.

- Proactively manage time and self-study skills. Students need to allocate their time effectively between studying, extracurricular activities, and personal work to reduce overload and stay motivated during their learning process. They should take the initiative to seek out resources, conduct research, and engage in self-study beyond the curriculum to actively acquire knowledge and enhance their creativity.

- Increase participation in social and community activities to contribute to society; learn various soft skills and gain a clearer awareness of one's responsibilities to the community. Engage in clubs and extracurricular activities to have opportunities to learn, connect with others, while also fostering confidence and motivation for studying.

- Build good relationships with instructors to share difficulties in studying and life; discuss and seek guidance on academic and career orientation.

- Explore and develop personal passions to help students discover aspects of their subject or field of study that they truly love. Passion for a specific area will create a stronger motivation for learning. As a result, students will have the opportunity to develop skills related to their personal interests that serve both their studies and their lives.

- Be proactive in exploring learning and personal development opportunities both domestically and internationally. Through various activities, students not only expand their knowledge but also enhance their motivation for learning, gain access to new ideas, and build a broad academic network.

5. CONCLUSIONS

Learning motivation plays a crucial role in determining the academic success of students. By comparing the learning motivations of students at Thai Nguyen University of Education-Thai Nguyen University in Vietnam, and Udon Thani Rajabhat University in Thailand, we found that students from both institutions generally identified appropriate motivations for their studies, spanning from personal to family and societal factors. Similar motivations include studying to secure good employment, acquire professional skills, improve their family's quality of life, and build a strong foundation for their future family.

However, there are also differences in the learning motivations between the two groups. Based on the comparison results, we proposed measures for universities, lecturers and parents, and students. These measures aim to help students correctly define their learning goals, foster strong ideals, and stay committed to their path. Furthermore, they should be provided with a modern, professional learning environment that offers personal development opportunities, meets training requirements, and helps them become high-quality human resources that serve the community.

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THRIVING THROUGH TRANSITIONS: ASSESSING THE ROLE OF EMPLOYEE MORALE IN POST-COVID PERSONNEL'S RESISTANCE TO CHANGE

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ABSTRACT

Amidst the national economic crisis, the COVID-19 pandemic brought forth numerous unprecedented challenges to the global higher education landscape. Hence, the study assessed the relationship between employee morale (EM) and resistance to change (RTC) among university personnel and tested the predictability of the former to the latter in the context of the post-COVID era in an academic college of a state university in Northern Mindanao, Philippines. The study involved 53 teaching and non-teaching personnel of the college as respondents. Almost all (98.1%) of them have high employee morale, and 52 respondents were highly motivated, engaged, and satisfied with their work. In terms of RTC, most of them (45.28%) are neutral which shows that they are neither resistant nor acceptive to changes. This is followed by mild resistance which composed about one-third of the total respondents. Moreover, a significant negative relationship was noted between EM and RTC. Findings revealed that the morale of the employee significantly predicts RTC. The study recommends administrators and supervisors prioritize the establishment of effective communication channels among colleagues and create a supportive work environment to enhance employee morale and foster a reflective assessment of personal and professional connections with the institution.

Keywords: Correlational study, employee morale, post-COVID, resistance to change, university personnel

1. INTRODUCTION

In the dawn of the rising national economic crisis, the coronavirus disease (COVID-19) Pandemic catalyzed a multitude of unprecedented challenges to the global higher education landscape. The pandemic prompted significant shifts in employee perceptions of institutional practices, necessitating changes in operations, educational paradigms, and organizational dynamics (Rumbley, 2020). As universities transition into the post-COVID era, understanding how employee morale (EM) influences resistance to change (RTC) has become increasingly crucial for effective adaptation and implementation of new initiatives.

Employee morale refers to how individuals or groups feel about their jobs and organizations (Mallik et al., 2019). This study grounds the concept in Herzberg's Two-Factor Theory, which highlights job satisfaction, motivation, and emotional well-being as key components of morale. High EM reflects contented workers whose productivity mirrors their satisfaction, while low morale leads to decreased motivation, resistance, and stress during periods of change.

Resistance to change arises from organizational transitions, challenging employees on both personal and professional levels (Piening, 2013). Lewin's theoretical framework (1945) conceptualizes resistance as a force opposing change, triggered by disruptions in organizational equilibrium (Burnes & Bargal, 2017). As employees experience changes, their psychological reactions may manifest as resistance, contesting new expectations and power dynamics (Collinson, 1994).

The link between employee cooperation and productivity underscores their role in implementing organizational changes. Providing employees with valuable resources fosters support and a sense of obligation to the organization (Eisenberger et al., 2002). Employee morale plays an essential role in shaping the success and reputation of universities, affecting not only the staff but also students and the academic community. As higher education institutions adapt to contemporary challenges, accurate strategies and innovations must be supported by the workforce. This study sought to analyze the relationship between university employee morale and resistance to change and to assess the predictability of morale in influencing resistance in the post-COVID context.

2. MATERIALS AND METHODS

This study used a correlational research design to examine the role of employee morale in resistance to change. Respondents included part-time and full-time personnel of the college during the Second Semester of School Year 2022-2023. Teaching personnel were faculty with at least 6 teaching units, while non-teaching staff were supervised by the dean. A simple random sampling method selected 53 respondents from a population of 58, with an online calculator recommending 51 participants. The questionnaire had two sections: the first measured employee morale using 40 items from Ilagan and Javier (2014) on a 5-point Likert scale, and the second assessed resistance to change using Oreg's (2003) 6-point scale. The overall reliability (Cronbach's alpha) was 0.92. After securing approval from the dean, questionnaires were distributed in both hard and soft copies, with Google Forms gathering 24 valid responses. Data were analyzed using frequency distribution, percentage, and weighted mean. Pearson's r was applied to determine correlations between variables, and simple linear regression evaluated the predictability of employee morale on resistance to change. Results are presented in the corresponding sections.

3. RESULTS AND DISCUSSIONS

Table 1 portrays the employee morale of the respondents. Among all the indicators, Item 10 with the statement "I respect my boss" got the highest mean of 4.96. This only implies that the employees have high regard and respect on their leaders. A workplace where employees respect their leaders and respect each other brings positive impact to an organization as employees become more satisfied on their jobs and become grateful and loyal to their organization (Rogers, 2018).

Table 1. Respondents' Employee Morale

INDICATORS	Mean	SD	I
There is a harmonious relationship between the immediate head and his subordinates	4.63	0.53	SA
Employees are encouraged to perform at their best.	4.71	0.50	SA
The immediate supervisor and the subordinates work hand-in-hand to achieve the organization's goals and objectives.	4.61	0.60	SA
Subordinates are treated fairly by the immediate head.	4.65	0.52	SA
The immediate head is confident to delegate responsibility and authority to his subordinates.	4.75	0.44	SA
I receive appropriate recognition for my contributions	4.55	0.50	SA
My supervisor cares and responds to issues that are important to me	4.63	0.56	SA
My managers and supervisors are willing and available when I require support.	4.53	0.61	SA
The organization's leadership is positive and supportive.	4.55	0.54	SA
I respect my boss.	4.96	0.20	SA
The management consistently enforces academic and administrative rules and policies	4.73	0.49	SA
Superiors delegate work to their subordinates effectively	4.49	0.50	SA
Management maintains discipline among employees	4.67	0.48	SA
There is a strong leadership among managers.	4.67	0.48	SA
Managers lead by example.	4.69	0.47	SA
Supervisors treat his/her subordinates with respect.	4.63	0.49	SA
My work responsibilities are reasonable.	4.65	0.48	SA
My work gives me a feeling of accomplishment	4.63	0.53	SA
I know how my job fits and why it's important.	4.65	0.48	SA
My organization is a good place to work.	4.63	0.49	SA
My duties and responsibilities are clearly defined.	4.73	0.45	SA
I enjoy the work that I do.	4.55	0.50	SA
Salary for the current position is well-compensated.	4.65	0.52	SA
The university's benefits meet the needs of employees.	4.53	0.50	SA
Apart from the benefits provided by law, employees receive other university-initiated benefits	4.61	0.49	SA
The university has several policies relative to the granting of benefits and incentive to employees.	4.61	0.53	SA
I am happy with my pay level and paid fairly for my contribution.	4.69	0.47	SA
My compensation is fair for the work that I do.	4.65	0.48	SA
There is an existing policy with regards to the placement and promotion of employees.	4.53	0.50	SA
Employees are usually promoted based on performance.	4.49	0.54	A
Favoritism is not a factor in the promotion of employees	4.63	0.53	SA
Promotion comes from within the organization.	4.43	0.50	A
There is consistency in the basis of qualification for placement and promotion of employees.	4.65	0.56	SA
I have opportunities at work to learn and grow.	4.67	0.48	SA
There is a free flow of communication from the management to the rank-and-file workers, and vice-versa.	4.49	0.54	A
Employees are encouraged to participate in planning and decision-making	4.61	0.49	A
Management holds regular meetings with employees	4.73	0.45	SA
Employees are well- informed about the latest updates in the university	4.78	0.42	A
There are bulletin boards in different university offices where announcements and office memoranda are being posted	4.75	0.44	SA

INDICATORS		Mean	SD	I
I receive regular and helpful feedback on my performance.		4.65	0.52	SA
Grand Mean		4.65	3.88	SA
Legend:	Mean Ranges	Description	Abbreviation	
	4.21 – 5.00	Strongly Agree	SA	
	3.41 – 4.20	Agree	A	
	2.61 – 3.40	Moderately Agree	MA	
	1.81 – 2.60	Disagree	D	
	1.00 – 1.81	Strongly Disagree	SD	

Item 32, "Promotion comes from within the organization," had the lowest mean score of 4.43. In the context of a State University, promotions are governed by National Budget Circular No. 461, which has framed the Revised Compensation and Position Classification Plan since 1998 (DBM & CHED, 2022). This indicates that respondents recognize their promotions are influenced by external factors rather than solely internal ones. Overall, employee morale received a grand mean of 4.65, reflecting strong agreement and high morale among respondents. Table 2 shows nearly all respondents reported high morale, with 52 being highly motivated, engaged, and satisfied with their work, while only one respondent showed slight deviation, still maintaining a positive outlook.

Table 2. Frequency Distribution of Respondents on their Employee Morale

Descriptive Level	General Description of Employee Morale	Score Ranges	Frequency	Percentage
High Morale	Employees portray high motivation, engagement, and satisfaction of their job.	168-200	52	98.1%
Good Morale	Employees portray generally a positive outlook and satisfaction of their work.	136-167	1	1.89%
Moderate Morale	Employees portray an average or neutral level of morale.	104-135	0	0
Low Morale	Employees portray lower level of motivation, engagement, and satisfaction of their job.	72-103	0	0
Critical Morale	Employees portray extremely low level of morale and would possibly disengage or leave the organization.	40-71	0	0
Total			53	100

Arunchand & Ramanathan (2013) emphasized that high employee morale is essential to workplace culture, significantly contributing to organizational success. Positive morale leads to increased productivity and job satisfaction. Beyond these immediate benefits, maintaining high morale attracts top talent, as organizations that prioritize employee well-being gain a competitive edge in the job market (Krithiga, 2015; Singh, 2015). Additionally, companies with high morale often enjoy strong reputations and increased customer satisfaction due to engaged employees providing better service. The findings also align with Herzberg's Two-Factor Theory, which links high morale to the avoidance of negative experiences and intrinsic motivation for personal growth.

Studies, such as Asghar et al. (2018), have shown that job satisfaction significantly contributes to higher morale, reinforcing this connection.

Table 3. Respondents’ Resistance to Change

Indicators	Mean	SD	I
I generally consider changes to be a negative thing.	2.78	1.59	SLD
I'll take a routine day over a day full of unexpected events any time.	4.24	1.42	SLA
I like to do the same old things rather than try new and different ones.	2.76	1.34	SLD
Whenever my life forms a stable routine, I look for ways to change it.	4.55	0.99	A
I'd rather be bored than surprised.	2.61	1.34	SLD
If I were to be informed that there's going to be a significant change regarding the way things are done at work; I would probably feel stressed.	3.33	1.40	SLD
When I am informed of a change of plans, I tense up a bit.	3.80	1.13	SLA
When things don't go according to plans, it stresses me out.	3.94	1.33	SLA
If my boss changed the criteria for evaluating employees, it would probably make me feel uncomfortable even if I thought I'd do just as well without having to do any extra work.	3.49	1.29	SLD
Changing plans seems like a real hassle to me.	3.78	1.22	SLA
Often, I feel a bit uncomfortable even about changes that may potentially improve my life.	3.55	1.15	SLA
When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.	3.10	1.30	SLD
I sometimes find myself avoiding changes that I know will be good for me.	2.92	1.20	SLD
I often change my mind.	3.59	1.30	SLA
Once I've come to a conclusion, I'm not likely to change my mind.	4.04	1.23	SLA
I don't change my mind easily.	4.29	1.06	SLA
My views are very consistent over time.	4.00	1.04	SLA
Grand Mean	3.58	1.25	SLA

Legend:	Mean Ranges	Description	Abbreviation
	5.50 – 6.00	Strongly Agree	SA
	4.50 – 5.49	Agree	A
	3.50 – 4.49	Slightly Agree	SLA
	2.5 – 3.49	Slightly Disagree	SLD
	1.50 – 2.49	Disagree	D
	1.00 – 1.49	Strongly Disagree	SD

Item 4, “Whenever my life forms a stable routine, I look for ways to change it,” had the highest mean of 4.55, indicating employees seek change when work becomes repetitive (Table 3). Item 5, “I’d rather be bored than surprised,” scored the lowest at 2.61, a reverse-coded statement suggesting slight disagreement and a preference for avoiding boredom. Work-related boredom arises from low-activity environments, leading to decreased pleasure and improvement (Reijseger et al., 2013). While boredom is often linked to monotonous tasks (Salanova et al., 2014), recent studies indicate repetition isn't the only cause (Tsai, 2016). The employees' disagreement with boredom statements reflects high job satisfaction and openness to change. Leaders are crucial in managing change by addressing resistance and providing resources (Beal III et al., 2013). In a fast-paced environment, leaders must act as change agents (Sackmann et al., 2009; Yukl, 2010).

Understanding resistance helps leaders refine strategies, allocate resources, and implement effective interventions.

Table 4. Frequency Distribution of Respondents on their Resistance to Change

Descriptive Level	General Description of Employee Morale	Score Ranges	Frequency	Percentage
Strong Resistance	Employees show strong resistance to changes.	92-102	0	0
Moderate Resistance	Employees show moderate level of resistance to changes.	77-91	6	11.32
Mild Resistance	Employees show mild resistance to changes.	62-76	17	32.08
Neutral	Employees show neither resistance nor acceptance to changes.	47-61	24	45.28
Mild Acceptance	Employees show mild acceptance to changes.	32-46	6	11.32
Strong Acceptance	Employees show strong acceptance and support to changes.	17-31	0	0
		Total	53	100

Most of them, neutral which showed that they are neither resistant nor acceptive to changes (Table 4). This is followed by mild resistance which composed about one-third of the total respondents. These employees showed mild resistance to changes. An equal number of respondents are considered moderate resistance and mild acceptance.

Table 5. Relationship between Employee Morale and Resistance to Change

Variables	Computed r	Interpretation	p-value
Employee Morale	-.287	Weak negative relationship	.037*
Resistance to Change			

*Correlation is significant at the 0.05 level (2-tailed)

The significant negative relationship between employee morale and resistance to change, as shown in Table 5, is crucial because it highlights that higher morale reduces resistance to change. This finding supports Kurt Lewin's Force-Field Theory, which emphasizes that increasing driving forces (such as morale) weakens restraining forces (resistance). This result aligns with Laframboise et al. (2003), who found that low morale due to lack of involvement in decisions, like workspace design, decreases productivity and satisfaction. Additionally, it echoes Green & Zhou's (2019) study, which demonstrated that imposed changes negatively impacted both morale and earnings.

However, this study adds new insights by reinforcing the importance of effective communication during organizational changes. Hornstein (2015) pointed out that clear communication is essential for successful change management, and the current findings confirm that when employees feel valued and informed, their resistance to change diminishes. This underscores the necessity of employee involvement and transparent leadership during transitions, contributing further to understanding morale's role in organizational success.

Table 6. Regression Analysis on Employee Morale and Resistance to Change

Variables	Coefficient	Standard Error	t-value	p-value
Employee Morale	-.451	.211	-2.137	.037*
Constant	144.542	39.217	3.686	.001*
Standard Error of Estimate = -.287 R-square = .082 R = 0.287 F=4.57				

Table 6 shows that employee morale (EM) is a significant predictor of employees' resistance to change (RTC). The regression model $RTC = 144.54 - 0.45EM$ is significant ($F = 4.57, p = .037$) and fit. The null hypothesis can be rejected, indicating that higher employee morale correlates with lower resistance to change, supporting Lewin's theory of negative driving and restraining forces. According to this theory, organizations remain stagnant when opposing forces are balanced. To initiate change, managers must amplify driving forces, reduce resistance, or employ both strategies simultaneously to overcome inertia. A coefficient of determination of 0.082 indicates that 8.2% of the variability in resistance to change is explained by employee morale, while 91.8% is due to other factors. This supports Pattnaik & Jena (2020), who view employee morale as a catalyst for productivity, as satisfied employees are more open to change. Similarly, Sonnentag et al. (2010) found that higher engagement boosts morale, leading to increased support for change and productivity. Killingsworth & Gilbert (2010) and Fard et al. (2010) stress that a positive work environment enhances morale and support for change. Research indicates that higher employee morale enhances organizational performance, especially in the post-pandemic context, by fostering persistence, energy, and cooperation (Kuang et al., 2023). To sustain this morale, it is vital to explore various strategies, such as implementing regular feedback mechanisms and promoting professional development (Nagal et al., 2024), which can effectively support a positive work environment during transitional periods.

4. CONCLUSIONS

This study aimed to examine the relationship between employee morale and resistance to change in the post-COVID era within an academic college in Northern Mindanao, Philippines. The findings showed that nearly all respondents (98.1%) had high morale, with most being motivated, engaged, and satisfied with their work. This supports Arunchand & Ramanathan's (2013) assertion that high morale is crucial to workplace culture and organizational success. Furthermore, the results align with Herzberg's Two-Factor Theory, which links employee satisfaction with intrinsic motivation and self-actualization. In terms of resistance to change, 45.28% of respondents were neutral, while others displayed mild to moderate resistance. A significant negative relationship was found between employee morale and resistance to change, confirming that higher morale is associated with lower resistance. This supports the Force-Field Theory of Kurt Lewin, which proposes that increasing driving forces (such as employee morale) reduces restraining forces (resistance to change). The regression model demonstrated that employee morale explains 8.2% of the variability in resistance to change, indicating that other factors not covered in the study contribute to the remaining variance. Thus, the findings emphasize

the importance of employee morale in reducing resistance to change, suggesting that organizations should foster a positive working environment and involve employees in organizational processes to facilitate successful change management.

5. ACKNOWLEDGEMENT

The researchers express their heartfelt gratitude to the University of Science and Technology of Southern Philippines (USTP) Claveria for its support in the conduct of this study.

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THE ROLE OF LANGUAGE IN BUILDING CULTURAL IDENTITY FOR VIETNAMESE STUDENTS IN A MULTICULTURAL ENVIRONMENT

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ABSTRACT

In the era of global internationalization, students represent the elite segment of Vietnamese youth, playing a crucial role in the development and preservation of national cultural identity. As the country accelerates industrialization, modernization, and international integration, the preservation and promotion of national cultural identity become increasingly important. This article, based on guiding perspectives, theories, and practical surveys (conducted with 300 students from Hai Phong University, Thai Nguyen University of Education-Thai Nguyen University, and Thai Nguyen College in Vietnam), examines the awareness of the role of culture in preserving the cultural identity of students in a multilingual environment at several universities and proposes four solutions: 1/ Incorporating cultural and linguistic education into the curriculum; 2/ Building linguistic and cultural communities among students; 3/ Enhancing awareness through media and technology; 4/ Organizing cultural exchange activities both domestically and internationally. These solutions aim to help students better understand the importance of language as a tool for connecting people and maintaining cultural identity in the modern social context, enabling them to become global citizens, confident and ready to embrace every opportunity and challenge in the future.

Keywords: role, language, cultural identity, students, multicultural environment.

1. INTRODUCTION

Building and promoting the cultural values and the strength of the Vietnamese people is one of the critical issues that the Communist Party of Vietnam has always prioritized. In the documents of the 13th National Congress of the Communist Party of Vietnam, the Party's perspective on building and promoting the cultural values and the strength of the Vietnamese people is stated as “preserving and promoting the cultural values and the strength of the Vietnamese people in the cause of building and defending the nation, and in international integration” (Hai, 2022). Accordingly, the process of building and promoting the cultural values and the strength of the Vietnamese people involves the creation and dissemination of new values, combined with the preservation of traditional values, aiming to foster sustainable development and embrace the cultural essence of humanity.

As one of the essential means of human communication, language serves as a strong bridge between members of a community and between different cultures around the world. D.X. Silichep asserts, “Along with the national dimension, language plays an equally important role in the

development of culture. It is also organically linked to culture as it almost forms the foundation of culture. National culture does not exist outside of language” [cited in (Ton, 2008)].

In every era, youth are considered one of the key forces that determine the destiny and future of society. In the period of global internationalization, Vietnamese students, as part of the youth, play a crucial role in preserving, protecting, and promoting national cultural identity. However, alongside these strengths, there are also many significant limitations, particularly in the areas of lack of linguistic purity, deviations from standards, cultural hybridization, and the dilution of national culture. Therefore, clarifying the role of language in building the cultural identity of Vietnamese students within a multicultural environment is an urgent task in the current period.

2. CULTURE

The term “culture” in scientific terminology originates from the Latin word “Cultus” (cultivation) and is often used in two senses: 1/ Cultus Agri; 2/ Cultus Animi. In the second sense, “cultus animi” is synonymous with “education, the nurturing of the human soul”.

From a socio-political perspective, Marxism-Leninism defines culture as “the totality of material and spiritual values created by humanity through labor and practical activity throughout its historical process. Culture represents the level of development that society has achieved at each specific historical stage” ((Training, 2018).

Discussing the concept of “culture”, President Ho Chi Minh stated: “For the sake of survival as well as the purpose of life, humanity has created and invented language, writing, ethics, laws, science, religion, literature, art, and tools for daily living, such as clothing, food, shelter, and methods of use. All these creations and inventions constitute culture. Culture is the synthesis of all modes of living and their expressions that humanity has produced to meet the needs and demands of survival” ((Minh, 1995).

From the perspective that emphasizes the creative nature of cultural activities tied to the historical process of each community, possessing universal humanistic qualities while also bearing the specific characteristics of each nation, UNESCO defines culture as “the dynamic totality of creative activities (of individuals and communities) in the past as well as in the present. Through centuries, these creative activities have formed a system of values, traditions, and tastes—the elements that define the unique identity of each nation” (UNESCO, 1992)

The issue of culture and the role of people as fundamental and important aspects has been a consistent focus of the Communist Party of Vietnam, as reflected in numerous documents such as: the Resolution of the 5th Plenum of the 8th Central Committee of the Communist Party of Vietnam, "On Building and Developing an Advanced Vietnamese Culture Rich in National Identity" (Vietnam T. C., 1998); the Resolution of the 9th Plenum of the 11th Central Committee of the Communist Party of Vietnam, "On Building and Developing Vietnamese Culture and People to Meet the Requirements of Sustainable Development of the Country" ((Vietnam T. C., Resolution No.33_NQ/TW, dated June 9,2014, the 9th Conferen of the Central Executive Committee of the Party (11th tenure) on building and developing Vietnamese culture and people to meet the requirements of sustainable national development. , 2014)); and the documents of the 12th National Congress of the Communist Party of Vietnam regarding the building and

development of Vietnamese culture and people to develop comprehensively in response to the requirements of sustainable development of the country and the firm defense of the socialist homeland, with the goal that “Culture truly becomes the firm spiritual foundation of society, an important internal strength ensuring sustainable development and the firm defense of the homeland” (Vietnam T. C., 2013).

By identifying the goals of culture, the Communist Party of Vietnam has always emphasized the preservation and promotion of national cultural identity. Resolution of the 5th Plenum of the Party Central Committee of the Communist Party of Vietnam (8th Term) clearly states: “The national identity of Vietnamese culture includes the enduring values and the essence cultivated through thousands of years of struggle to build and defend the nation, which have become the distinctive features of the Vietnamese community and people. These include a deep patriotism, a strong national spirit, unity, a sense of community that connects individuals, families, and villages, a compassionate and tolerant nature, a sense of righteousness and morality, practicality, industriousness, creativity in labor, politeness in behavior, and simplicity in lifestyle” (The Communist Party of Vietnam, 2008)

In Vietnam's process of international integration, cultural integration is an objective inevitability. The protection and enhancement of cultural values amid multidimensional impacts is the responsibility of the entire society. Particularly, youth and students in the current period need to further promote their roles. Resolution No. 25-NQ/TW, dated July 25, 2008, of the Central Committee of the Communist Party of Vietnam states: “Youth are the backbone of the nation, the future owners of the country, the vanguard force in building and defending the homeland, and one of the decisive factors in the success or failure of the cause of industrialization, modernization, international integration, and the construction of socialism. Youth are placed at the center of the strategy for nurturing, promoting human factors, and human resources. Caring for youth development is both a goal and a motivation to ensure the stability and sustainable development of the country” ((The Communist Party of Vietnam, 2008).

One of the key issues that youth and students need to be focused on in their education and development, to fulfill their duties while preserving and promoting national cultural identity, is the preservation of their native language (M., 1996), (A., 1995). This is because language and culture are closely interconnected. Language is “the true mirror of national culture” [cited in ((Ton, 2008), p.49] (Bộ Giáo dục và Đào tạo, 2018)

Thus, in the context of international integration-a multicultural environment-Vietnamese youth and students have numerous opportunities to develop themselves and contribute to the country's development. However, many challenges also arise, particularly in successfully integrating while maintaining and promoting their national cultural identity. Specifically, understanding the role and raising awareness of language use in the integration process among Vietnamese youth and students within a multicultural environment is crucial.

3. METHODOLOGY

To conduct this research, we employed the method of document synthesis and analysis, along with an online survey method (Google Forms).

The research materials include documents and resolutions from the Communist Party of Vietnam and the education; scientific articles, books, and textbooks related to language, the cultural identity of Vietnamese students, and the multicultural environment. Additionally, we performed advanced searches on platforms like "Google Scholar" and "ResearchGate" to collect relevant data. The online survey (Google Forms) was designed in two parts: Part 1 is a survey on demographic information; Part 2 consists of 10 questions related to the research content.

Survey scope: Students currently studying at Hai Phong University, Thai Nguyen University of Education - Thai Nguyen University, and Thai Nguyen College. Number of students surveyed: 300 students (100 students from each institution).

Survey period: From August 5, 2024, to August 12, 2024.

4. RESULT

4.1. Descriptive statistics of the subjects surveyed

Table 1 provides a summary description of the subjects surveyed in the study, including gender, age, and year of study of the students. The students surveyed were from the second, third, and fourth years. As the survey was conducted before the start of the academic year, first-year students had not yet enrolled.

Table 1. Statistics of surveyed subjects

		Hai Phong University		Thai Nguyen University of Education - TNU		Thai Nguyen College	
		Frequency	Rate (%)	Frequency	Rate (%)	Frequency	Rate (%)
Gender	Male	32	32.0	32	32.0	19	19.0
	Female	65	65.0	68	68.0	81	81.0
	Other	3	3.0	0	0.0	0	0.0
Age	18-20	34	34.0	32	32.0	58	58.0
	21-23	63	63.0	68	68.0	47	47.0
	24-26	3	3.0		0.0	5	5.0
Academic year	Second-year	31	31.0	32	32.0	30	30.0
	Third-year	47	47.0	49	49.0	46	46.0
	Fourth-year	22	22.0	19	19.0	24	24.0

Analysis of Survey Results on Awareness of the Role of Culture in Preserving Cultural Identity Among Students in Multilingual Environments at Some Universities

Objective Test Survey on Students' Understanding and Interaction in a Multicultural Environment

We conducted a survey with six objective test questions regarding students' understanding and interaction in a multicultural environment, yielding the following results:

First, primary language used by students daily:

Hai Phong University: Vietnamese: 97/100 students, accounting for 97%; English: 3/100 students, accounting for 3%; Thai Nguyen College: Vietnamese: 100/100 students, accounting for 100%; Thai Nguyen University of Education-Thai Nguyen University: Vietnamese: 99/100 students, accounting for 99%; English: 1/100 students, accounting for 1%.

Second, students using two or more languages in daily life:

Hai Phong University: Vietnamese: 53/100 students, accounting for 53%; English: 47/100 students, accounting for 47%; Thai Nguyen College: Vietnamese: 42/100 students, accounting for 42%; English: 58/100 students, accounting for 58%; Thai Nguyen University of Education-Thai Nguyen University: Vietnamese: 44/100 students, accounting for 44%; English: 56/100 students, accounting for 56%.

Third, students having friends or relatives who are foreigners:

Hai Phong University: Yes: 50/100 students, accounting for 50%; No: 50/100 students, accounting for 50%; Thai Nguyen College: Yes: 23/100 students, accounting for 23%; No: 77/100 students, accounting for 77%; Thai Nguyen University of Education-Thai Nguyen University: Yes: 19/100 students, accounting for 19%; No: 81/100 students, accounting for 81%.

Fourth, impact of language on cultural identity building:

Hai Phong University: Very much: 47/100 students, accounting for 47%; Much: 27/100 students, accounting for 27%; Normal: 23/100 students, accounting for 23%; Little: 3/100 students, accounting for 3%; No effect: no selection; Thai Nguyen College: Very much: 45/100 students, accounting for 45%; Much: 30/100 students, accounting for 30%; Normal: 19/100 students, accounting for 19%; Little: 1/100 students, accounting for 1%; No effect: 5/100 students, accounting for 5%; Thai Nguyen University of Education-Thai Nguyen University: Very much: 38/100 students, accounting for 38%; Much: 42/100 students, accounting for 42%; Normal: 16/100 students, accounting for 16%; Little: 3/100 students, accounting for 3%; No effect: 1/100 students, accounting for 1%.

Fifth, the second language helps students connect with other cultures:

Hai Phong University: Very much: 53/100 students, accounting for 53%; Much: 27/100 students, accounting for 27%; Normal: 15/100 students, accounting for 15%; Little: 5/100 students, accounting for 5%; No students chose "None"; Thai Nguyen College: Very much: 43/100 students, accounting for 43%; Much: 36/100 students, accounting for 36%; Normal: 19/100 students, accounting for 19%; Little: 1/100 students, accounting for 1%; No impact: 1/100 students, accounting for 1%; Thai Nguyen University of Education-Thai Nguyen University: Very much: 36/100 students, accounting for 36%; Much: 48/100 students, accounting for 48%; Normal: 15/100 students, accounting for 15%; Little: 1/100 students, accounting for 1%; No students chose "None".

Sixth, learning a new language will help students understand more about their own cultural identity:

Hai Phong University: Yes: 79/100 students, accounting for 79%; Normal: 6/100 students, accounting for 6%; No: 15/100 students, accounting for 15%; Thai Nguyen College: Yes: 86/100

students, accounting for 86%; Normal: 11/100 students, accounting for 11%; No: 13/100 students, accounting for 13%; Thai Nguyen University of Education-Thai Nguyen University: Yes: 75/100 students, accounting for 75%; Normal: 13/100 students, accounting for 13%; No: 12/100 students, accounting for 12%.

Survey Seeking Opinions on the Role of Language in Building Cultural Identity for Vietnamese Students in a Multicultural Environment

We conducted a survey with four questions seeking opinions on the role of language in building cultural identity for Vietnamese students in a multicultural environment. The results are as follows:

First, impact of participating in multicultural activities (such as music, festivals, theater, etc.) on language skills: 82/100 students, accounting for 82%, believed that such activities positively impact language skills. These activities allow students to learn communication and understanding of different ethnic languages, provide opportunities to listen to and use language in cultural contexts, improve listening, pronunciation, and natural understanding of language, and enhance sensitivity to linguistic and cultural aspects like intonation, communication styles, and appropriate language use in different situations.

Second, benefits of integrating cultural activities into language learning habits: 79/100 students, accounting for 79%, responded positively. Specific benefits include increasing students' interest and engagement, providing contextual and practical situations for effective communication, expanding vocabulary and understanding cultural aspects, customs, and lifestyles of speakers of other languages, and developing intercultural communication skills by understanding differences and similarities between cultures.

Third, role of language in helping students build cultural identity in a multicultural environment: 89/100 students, accounting for 89%, recognized the following roles: Language serves as a solid bridge between different cultures around the world. Through language, people can communicate messages, values, and traditions, fostering mutual understanding and respect; Language allows students to convey their unique cultural traits, such as specific vocabulary, idioms, or expressions characteristic of their culture; In a multicultural environment, language helps students maintain and connect with their native culture. Using their mother tongue with their linguistic community helps preserve and develop their cultural identity, even when living in a different cultural context; Learning and using new languages enable students to access and understand other cultures more deeply. This process helps them build a multidimensional cultural identity that combines their native culture with new cultural elements they encounter. Language is key to cultural exchange, making students more adaptable and flexible in multicultural settings.

Fourth, difficulties faced when interacting in a multicultural environment: 82/100 students, accounting for 82%, identified the following challenges: 71/100 students, accounting for 71%, cited language barriers due to insufficient proficiency in a second language; 8/100 students, accounting for 8%, mentioned reluctance to engage due to a lack of understanding of the culture; 3/100 students, accounting for 3%, noted the absence of suitable interaction environments.

4.2. Observations

Based on the survey results, we have observed:

Advantages:

- At the surveyed institutions, most students live and study in a multilingual environment.
- The institutions have paid attention to and students are aware of using a second language in communication through international activities.
- In the multilingual environment, students have become aware of the importance of preserving national cultural identity while understanding integration languages to actively and proactively interact. As a result, students not only integrate better into the multicultural environment but also create a multifaceted cultural identity, combining Vietnamese cultural values with new elements from other cultures.

Challenges: In a multilingual environment, understanding the role of language in preserving national cultural identity faces several challenges: Lack of proficiency in a second foreign language; Reluctance to engage due to unfamiliarity with other cultures; Absence of suitable interactive environments.

Causes: 1/ Some students are not fully aware of the role of language in a multicultural environment, leading to limited efforts in preserving national cultural identity; 2/ Multilingual activities have not been widely promoted or adequately suited to the student population.

5. MEASURES TO ENHANCE AWARENESS OF THE ROLE OF LANGUAGE IN BUILDING CULTURAL IDENTITY AMONG VIETNAMESE STUDENTS IN A MULTICULTURAL ENVIRONMENT

5.1. Integrating Cultural and Language Education into the Curriculum

Integrating cultural and linguistic education into the curriculum is an important solution to raise students' awareness of the role of language in building cultural identity in the following forms:

- Integrating cultural and linguistic content into the curriculum.
- Developing specialized or extended courses suitable for each major to provide students with general to specific knowledge about culture and language. In particular, for majors in the education sector, it is necessary to allocate specific time for courses related to the content: Vietnamese culture in the new era; Language and cultural identity;...
- Organizing extracurricular activities on culture and language to encourage students to participate.

5.2. Building Language and Cultural Communities among Students

Promote the building of linguistic and cultural communities among students such as:

- Establishing language and cultural clubs to create an environment for students to practice their mother tongue and explore Vietnamese cultural values. The club can also organize foreign

language classes such as English, French, Chinese so that students can access other cultures and languages; participate in activities such as festivals, cultural exhibitions, and seminars on topics related to Vietnamese and international culture.

- Organizing cultural events and activities under the leadership and direction of the Ho Chi Minh Communist Youth Union and Association in the school. Thereby, encouraging students to participate in programs connecting students at home and abroad. Through these activities, students can exchange and share culture through group activities, learning projects, or regular meetings. This helps Vietnamese students not only preserve their cultural identity but also learn from other cultures.

5.3. Enhancing Awareness through Communication and Technology

Raising awareness of the role of language in building cultural identity through communication and technology is an effective solution, especially in the context of strong digital technology development:

- Build social media groups (YouTube, Facebook, Instagram, and TikTok) or online forums specifically for Vietnamese students, where they can discuss language, culture, and related issues. This is also a place to share learning materials, personal experiences, and community activities.

- Develop or use learning applications, such as Duolingo or Memrise, but focusing on Vietnamese language and culture. These applications can provide short courses, games, and tests on language and culture, making it easy for students to access and learn.

- Offer online courses on language and culture on platforms like Coursera, Udemy, or internal school learning platforms. These courses can be designed to increase awareness of the role of language in building cultural identity, with online lectures, materials, and discussions.

5.4. Organizing Cultural Exchange Activities Domestically and Internationally

Organizing cultural exchange activities domestically and internationally is an effective solution to help Vietnamese students better understand the role of language in building and maintaining cultural identity such as: international cultural exchange programs; domestic cultural exchange activities; cultural seminars and forums; cross-national cultural cooperation projects; international internships and volunteering;...

In summary: These solutions will help Vietnamese students better understand the role of language in building and protecting cultural identity, while creating opportunities for them to develop intercultural skills and global integration.

6. CONCLUSIONS

Enhancing awareness of the role of language in building cultural identity not only helps Vietnamese students preserve and promote their national cultural values but also equips them with essential skills for integrating and thriving in a global multicultural environment. Based on guiding perspectives, theoretical frameworks, and practical surveys on the role of culture in maintaining student cultural identity in multilingual environments at several universities, we propose four

solutions: 1/ Integrating cultural and language education into the curriculum; 2/ Building language and cultural communities among students; 3/ Enhancing awareness through communication and technology; 4/ Organizing cultural exchange activities domestically and internationally. These solutions aim to ensure that through educational activities, cultural exchanges, and technology applications, students will gain a deeper understanding of the importance of language as a tool for connecting people and maintaining cultural identity in the modern world. These skills are not only crucial for personal development but also serve as a foundation for becoming global citizens who are confident and prepared to embrace future opportunities and challenges.

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ABSTRACT

Uranggadhat, the Phra That Phanom Legend, is a piece of folk literature from the Thai-Lao culture in the Mekong River basin. It tells the story of the construction of Phra That Phanom, the Buddha's travels through the Lan Xang kingdom along the Mekong River, and the placement of footprints in various locations. This article aims to study the inheritance of the Uranggadhat legend in the Mekong River basin and explore the creativity of the legend within the context of the Lan Xang kingdom and Thai-Lao culture.

The study found that the Uranggadhat literature was originally created by poets of the Lan Xang kingdom. The first copy was written on palm leaves, but over time it was neglected in the Mekong River basin. Later, Phraya Sri Chai Chompu, the interior minister in the court of King Suriyawongsa, had it rewritten and translated. There are various versions of the Uranggadhat literature, such as Uranggadhat Thasana and Urangghadhat Nitan. After being published 11 times, there were also other versions like Uranggadhat Nitan. Additionally, Lao manuscripts of the literature were published on the occasion of the cremation ceremony of the Lao patriarchy and were widely disseminated by people living on the left side of the Mekong River. The Uranggadhat literature also discusses sacred religious sites, mentioning that wherever the Buddha traveled, he left imprints of his feet as evidence. Furthermore, it was discovered that the Uranggadhat was written to commemorate the ascension to the throne of King Suriyawongsa. This study reflects the deep belief in and respect for Buddhism among the people living around the Mekong River basin.

Keywords: Uranggadhat, Lanxang Kingdom, Mekong River Basin

INTRODUCTION

Many literary works originate from folktales—oral stories passed down and gradually transformed into written form. Much of this literature is drawn from Buddhism, which is deeply rooted in the way of life of the Thai people. For this reason, literature serves as a tool for studying society in each era, explaining the events and values of the time (Sukanya Sujachaya, 2013)

Uranggadhat is an ancient and important piece of literature significant in language, history, and archaeology for both Laos and the northeastern region of Thailand. It can be described as literature from the Mekong River basin. The Thai version of Uranggadhat was created by His Royal Highness Prince Prajaksilpakom, the governor in charge of Udon Thani County. It was given to the National Library in 1921 and recorded in the Dhamma Isan script. The cover is inscribed with the name "Uranggadhat."

In 1961, S. Thammaphakdee Publishing House reprinted Uranggadhat using modern Thai characters on palm leaves. It was translated into an Isaan idiom by Mahasila Werawong under the title "Uranggadhat Thesana," which closely follows the version found in the Thai National Library. However, some content slightly deviates from the original expressions, likely amended to enhance comprehension (Thawat Punnotak, 1999)

Publisher S. Thammaphakdee intended this version of the literature for use by monks in their sermons on important Buddhist days. The original text, written in the idiom of Thailand's central region, was challenging for Isaan people to understand. Therefore, Mahasila Werawong adapted it into the idiom of the Northeastern region, making it more accessible to those who come to participate in merit-making ceremonies.

In 1948, Phra Thammachanuwat (Kaew Utummala), the abbot of Wat Phra That Phanom, compiled his recorded works during his tenure as an ordinary prelate. The compilation, titled Phra Phanom Chetiyaturak, was printed as a book for his 80th birthday celebration. Additional content was included in the section about the destruction of Phra That Phanom, with the book being titled Urangkha Tales of the Legend of Phra That Phanom (Bizarre Part).

In the Lao People's Democratic Republic, the Uranggadhat literature is considered an important historical and archaeological document. It is believed to be at least 500 years old (Tepsi Muang, 2010). The collection consists of 5 volumes recorded in the Tham script, totaling 250 pages. Later, 4 additional volumes were added in the Dhamma script and Lao language. Both versions are preserved at the National Library in Vientiane.

The text was later copied into the modern Lao script and published under the name Tales of the Uranggadhat: Luang Prabang Edition on the occasion of the cremation ceremony of the Supreme Patriarch of the Kingdom of Laos (Phra Luk Kaew Khun Mee, on February 9, 1969). In the preface of this book, it is explained that (Pochanee Pengplian, 2010)

In conclusion, the original Uranggadhat literature was initially scattered but was later collected and copied for various purposes, often with adaptations of the names to suit the context and appropriateness. In the Lao People's Democratic Republic, these tales have been published on numerous occasions, primarily focusing on Buddhist themes. Many of these stories are linked to specific locations and have been passed down through generations. The Uranggadhat literature shares similarities with the legend of Phra Chao Liap Lok, where the Buddha's presence is marked by leaving footprints as evidence of his visit. This literature serves as a foundational narrative for the histories of various locales and is also integrated into the royal narratives of the Lan Xang Kingdom. Its incorporation of Buddhist elements lends credibility and sanctity to these stories.



Picture 1. Various editions of Uranggadhat literature

Uranggadhat literature: creations by local scholars

Prakong Nimanhaemin (2012) stated that most local literature does not show the author's name for two reasons. Firstly, the page that states the author's name may be missing, or the copyist may not see the importance of copying the author's name. Secondly, due to Buddhist beliefs, the author may have wished to write in order to honor Buddhism, which is a tradition in local literature. In the three expressions of Urangadhatu literature, it is said that the authors are the five Arahants: Maharattana Thera, Chularattana Thera, Mahasuvannapatha Thera, Chulasuwanpathathera, and Sangkhawich Thera. According to the Fine Arts Department, the term "author" refers to the translator who translated the tales at the beginning of the story. They mention the fabled Urangadhatu as translated by the five Arahants. It appears that the Fine Arts Department regards the translator as an Arahant, which imbues the literature with sacredness. However, in the middle of the story, it is mentioned that the author of the Urangadhat literature is merely the collector and not the translator or original author. It states, "I, Phraya Sri Chaichompoo, offer the Urangadhat literature. And Phra Bat Laksananiya, Sasana Nakhon Narita, this is for the auspicious purpose of Wutth Srisawat" (Fine Arts Department, 1940).

From the text mentioned above, it is assumed that Phraya Sri Chaichompoo was the sole compiler of the Uranggadhat literature, doing so as a Buddhist offering. The tradition of donating books to temples is a custom that has been passed down through generations in Thailand. There is also evidence at the end of the literature indicating that he was the only one who compiled it, as follows: "This book, the Viceroy, and his family were created in the reign of King Rama IV, in the year of the dog, Chatawasok, 12th lunar month, 15th waxing moon, Thursday" (Fine Arts Department, 1940). From this statement, it is inferred that after Phraya Sri Chaichompoo finished compiling the literature, he presented it to King Suriyawongsa. The king then had it sent to the royal graduate institute and distributed to various temples to be used in preaching to lay worshippers on different occasions. Historically, the Uranggadhat literature had become damaged and dispersed across various locations. During the fourth peninsula of the Lan Chang period, Phraya Uparat, a member of the ruling class, commissioned scribes to copy and compile the work. Phraya Uparat financed and employed skilled scribes for this task. While the literary work was considered a new composition, it retained the original story. Once completed, it was given to various temples for further use.

Uranggadhat: A model for inheriting historical of the Mekong River Basin

The Uranggadhat literature can be regarded as a model for Isaan Lan Chang literature, particularly in Buddhist stories related to the origins of various places. This includes tales like the story of the Lord Buddha's footprints in the Lan Chang kingdom and the two Mekong river basins. The literature recounts the Lord Buddha's journey from the Indian subcontinent to spread the principles of Buddhism. After his return, he left his footprints as a symbol of his travels to these lands, especially on both sides of the Mekong River.

Many literary legends have used the fabled Uranggadhat as a model for writing, including:

- Legend of Phra That Narai Cheng Weng

- Legend of Phra That Choeng Chum
- Legend of Phra That Tum Kai (Phra That Dum) in Sakon Nakhon Province
- Legend of Phra That Renu Nakhon
- Legend of Buddha's Footprint Wenpla in Nakhon Phanom Province
- Legend of Phra Phutthabat Bua Bok
- Legend of Phra Phutthabat Bua Ban in Ban Phue District, Udon Thani Province

In addition, local legends and urban legends, such as the history of Sakon Nakhon Province and the history of Roi Et Province, also draw upon the Uranggadhat as a model.

Various versions of the Phra That legend use the stories contained in the Uranggadhat fable as a model and then describe the story of the Phra That. Regarding the legend of Phra That Choeng Chum, Khunthiramaisittikarn (2014) stated, "Once, His Majesty the Lord Buddha went to collect alms in the city of Khotburana. Phraya Khotbu offered food. The Buddha then went to Kampaa Mountain, where he reflected on the traditions and said: 'When we pass away, Phra Maha Kassapa will have Phra That Hua Ok Rao enshrined here.' After the Lord Buddha finished eating, he went to Phu Nam Tham Lod Choeng Chum. Phraya Suwanphingkhana, the governor of Nong Han Luang, and his retinue waited to welcome His Majesty."

The literature on Phra Kut Phra Phan, part of the Lao Lan Xang literary tradition, explains the origins of certain places using the fabled Uranggadhat relics as a model. While the names of characters and some details have been adjusted to fit the local context, the core stories remain largely the same. Siriporn Bangsud (1988:64) suggested that the story of Phra Kued Phra Phan may be similar to the tale of Kritsana's avatar in the Ten Incarnations of Narayana from the central region, particularly in the names of the characters.

The author believes that the literature on Phra Kued Phra Phan likely drew from the Uranggadhat story, as it is recorded in the Tai Noi script, which is associated with the Lan Xang group. This script and literature are mostly found in the Isaan region and the Lao PDR. Danupon Chaiyasin opined that Phra Kut Phra Phan is an anecdote that was incorporated into the narrative when the Lord Buddha traveled to Phu Ku Vien (Siriporn Bangsud, 1988).

The Fine Arts Department's version of Uranggadhat has been used to write local histories, particularly to explain the origins of various places. Some content from the Uranggadhat may have been added or omitted, as seen in the legend of Sakon Nakhon city, the legend of Roi Et city, and the legend of Phra That Bua Bok Bua Ban. These legends all derive their stories from Uranggadhat

In particular, the history of Sakon Nakhon Province has drawn from the Uranggadhat text, which states: "Early in the Kassapa period Buddha, Khun Khom, the son of the ruler of Inthapatha Nakhon, brought his family and servants to build a city on the edge of Nong Han Luang at Tha Nang Aab. He became the ruler of the city and had a son named Surautok."

The book on the history of Phra That Choeng Chum and Luang Porongsaen (2014:49) also incorporates content from Uranggadhat literature, stating: "Once, Lord Buddha Gotama, along with 1,500 Arhats, went to collect alms in Kottabun city. Then the Lord Buddha and his followers went to eat at Phu Orphan, where he said, 'When I die, the Hua Na relics should be enshrined at

Phu Orphan and then moved to another place. At Phu Nam Lod Choeng Chum, the three Lord Buddhas met to mark the footprints of the Lord Buddha as promised."

The history of Roi Et Province is also linked to the literature of Uranggadhat, which states: "The history of Roi Et appears in the literature of Uranggadhat as the Buddha's posture after he had passed away for eight years and eight months. Phra Kassapa, who was close to him, brought the Buddha's relics to the eastern part of the Indian subcontinent. From the city of Kuchinarai-Pavai, they were enshrined at Doi Kappanagiri (Phu Orphan), as the Lord Buddha had spoken in his final words in the eastern part of the Indian subcontinent."

From the significance of the Uranggadhat literature, particularly in the legend of Phra That Phanom, it can be seen that although this literature is Buddhist, it also holds importance in the history of various cities. It has been used as a model for naming houses and cities, especially in relation to their prehistoric history, which is a legendary period. These elements are crucial in the Mekong River Basin region.

Uranggadhat: Literature in honor of King Suriyavongsa.

Chaloem Phrakiat literature is a type of literature written to praise the honor and merit of the king (Saowanit Wingwon,1999). This genre also records historical events and important occurrences in the kingdom in a way that glorifies the king. After such events, courtiers or those close to the king would compose works to enhance the king's prestige. The distinguishing feature of Chaloem Phrakiat literature is its focus on extolling the virtues of kings who bring peace to the country

Uranggadhat literature highlights the significance of the monarch in maintaining the stability of the country and the prosperity of Buddhism. During the reign of King Chaiyachettha, Laos experienced a period of conflict with Burma and Vietnam. However, after King Suriyawongsa ascended the throne in 1637, the country became peaceful and prosperous. The Lan Xang Kingdom grew stronger in every aspect, and no foreign nation invaded (Martin Stewart Fox, History of Laos, translated by Jiraporn Winyarat,1990).

According to the accounts of Gerritt van Wuystoff, a Dutch merchant, and Giovanni-Maria Leria, an Italian monk, it was stated that "The Lan Xang Kingdom adopted the concept of monarchy from Siam. King Suriyavongsa was an imposing and impenetrable ruler who distanced himself from his subjects and isolated himself in his palace. He was surrounded by numerous servants, including officials and courtiers, and he reveled in music, dance, and drama, which were known to have flourished in the Lao capital region" (Martin Stewart Fox, History of Laos, translated by Jiraporn Winyarat,1990).

King Suriyavongsa ascended the throne in the Thai minor era 1000, corresponding to the year 2181 AD. According to the Uranggadhat literature, it is clearly stated that "Punna Sahatsawut Mongkhon Sangkarat." A group of guardian angels then had Suriyakumar ascend to the throne, and the privy councilor organized a celebration in the capital for three days and three nights. At the same time, royal scholars came together to write books about Buddhism so that the people could gain access to the Buddha's Dhamma, which was seen as another form of Lan Xang's guidance and healing" (Pised Jiachanphong,2012). Phraya Sri Chaichompoo, a priest of King Suriyavongsa, collected and compiled the Uranggadhat literature to praise and honor King

Suriyavongsa, demonstrating his greatness by attributing divine qualities to him through the concept of reincarnation.

In conclusion, in addition to narrating the story of the construction of Phra That Phanom, the author found that another purpose of this literature is to praise and honor King Suriyavongsa, celebrating his reign, which brought peace and stability to the country through the promotion of Buddhism. The author suggests that this literary work serves as an example of how the kings of Lan Xang were honored through such writings.

Uranggadhat: The legend of the creation of Wat Phra That Phanom.

The content of the Uranggadhat literature relates to the legend of the creation of Phra That Phanom, a sacred site revered by the Isan people. It also connects to the legend of the Buddha's footprint and various national legends. Uranggadhat literature incorporates folk tales to explain the origins of city names and the legends of important places in the Mekong, Mun, and Ngum river basins (Thawat Punnotok, 1999)

The complete version of the Uranggadhat literature was donated to the Thai National Library in 1921 by Krom Luang Prajak Silpakhom, the governor in charge of Udon Thani province. This version was subsequently published by the Fine Arts Department in 1940, making it the official edition used as a reference for future prints and documentation (Piset Chiachanphong, 2012). The manuscript is written on palm leaves, consisting of seven bindings and a total of 152 palm leaves, inscribed in the Dhamma Isaan script. The cover bears the title "Uranggadhat." Of the 152 palm leaves, five are inscribed on only one side, while the rest are inscribed on both sides. Each palm leaf measures 4.3 centimeters in width and 52.5 centimeters in length. The manuscript is preserved at the Ancient Letters Department of the National Library. Mr. Sud Srisomwong and Mr. Thongdee Chaichart transcribed it into modern Thai script, and it was first printed in 1940 under the title "Uranggadhat (The Legend of Phra That Phanom)" on the occasion of the royal cremation of Luang Prachum Bannasan (Phin Techakup). This edition has since been used as the model for studying the history of the Isan region (Thawat Punnotok, 1999).

The Uranggadhat literature recounts the legend of the creation of Wat Phra That Phanom, built by five rulers: Phraya Suwanphingkar of Nong Han Luang, Phraya Kham Daeng of Nong Han Noi, Phraya Nantasen of Sri Khot Bura, Phraya Chulani Phromthat, the governor of Chulani, and Phraya Inthapat, the ruler of Inthapatnakorn. Together, they constructed a tunnel, a rectangular hole measuring 2 cubits deep, 2 cubits wide, and 2 wa high from base to top, resembling a hearth. Phra Maha Kassapa then took the Uranghathat (Buddha's breastbone) and enshrined it in the tunnel. The story goes on to describe the miracle of Phra Uranghathat, which floated out of the tunnel into the hands of Phra Maha Kassapa before returning to the tunnel as it was before. Witnessing this miracle, the five rulers joined together to offer donations to the tunnel before returning to their respective cities.

CONCLUSION

The Uranggadhat literature was composed during the reign of King Suriyawongsaksattri of the Lan Xang Kingdom and by Phraya Sri Chaichompu. Later, Acharya Chao Uparatcha brought

the missing parts back together again. The original story came from the city of Inthapat Nakhon of Khmer. Uranggadhat literature is about ethnic groups living in the Mekong River Basin. Uranggadhat literature can be divided into two types: the first is myths and the second is the history of important people of the Lan Xang Kingdom. The legendary part can be divided into three parts: the first part is the original legend of Phra That Phanom, the second part is about the imprinting of the Buddha's footprints, and the third part is about the legend of the creation of Vientiane and Saket Nakhon (present-day Roi Et Province).

Uranggadhat literature was composed by local poets to celebrate the enthronement of King Suriyawongsa. Additionally, Uranggadhat literature was created to tell the story of the construction of Phra That Phanom. This literature serves as a model for composing various literary works set in the Mekong River Basin.

The author found that the important purpose of Uranggadhat literature is to praise the honor of King Suriyawongsa. By using the story of the sacredness of King Suriyawongsa, who was reincarnated as the great king of the Lan Xang Kingdom and considered superior to other kings of the Lan Xang Kingdom, it aimed to create legitimacy for his rule. Moreover, incorporating the Buddha, the prophet of Buddhism, into the narrative enhances its importance. The Buddha's footprints were placed at various locations, symbolizing a prediction of the future of those places. With Buddhism as an anchor for the mind, it indicates that the land will be happy without any obstacles, ensuring peace and tranquility for the people forever.

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UNHEARD NARRATIVES: TLE HIGH SCHOOL STUDENTS' EXPERIENCES IN ANSWERING AND ASSESSMENTS IN MODULAR DISTANCE LEARNING DURING PANDEMIC.

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ABSTRACT

This study investigates the implementation and experiences of Modular Distance Learning (MDL) within Technology and Livelihood Education (TLE) Cookery amid the COVID-19 pandemic. Specifically, it focuses on the perspectives of Grade-10 students, their teachers, and parents in a Philippine setting, aiming to understand how skills and competencies are adopted and executed in this non-traditional learning environment. Utilizing a qualitative research design, the study conducts in-depth interviews to gather narratives that illuminate the challenges and adaptive strategies employed by the participants. The findings reveal significant obstacles related to resource accessibility, such as inconsistent internet connectivity and a lack of direct instructional support, which impacted students' ability to effectively engage with the MDL format. Additionally, the study highlights the critical role of parental involvement in facilitating the learning process, often compensating for the system's shortcomings. Despite these challenges, a common theme of resilience emerged, with students and families demonstrating innovative approaches to navigate the educational disruptions. Based on these insights, the study recommends enhancing support mechanisms for students and parents, improving the delivery and quality of learning materials, and offering more robust training for teachers in MDL environments. These strategies aim to bolster the effectiveness of MDL, ensuring that it can serve as a viable educational model in future crises.

Keywords: basic education, educational resilience, modular distance learning, arrative inquiry, technology and livelihood education

1. INTRODUCTION

The shift to MDL represented a critical change from traditional classroom education to a self-directed, module-based learning format. This transformation was crucial to maintain educational continuity and quality during unprecedented global disruptions (Department of Education, 2020a). The Philippine Department of Education implemented the Basic Education Learning Continuity Plan (BE-LCP) as a strategic response to the educational challenges posed by the pandemic. Introduced through DepEd Order No. 12, series of 2020, this plan facilitated the adoption of various learning modalities, including MDL, to minimize educational disruptions while ensuring that learning remained comprehensive and accessible. The BE-LCP prioritized the Most Essential Learning Competencies (MELCs), streamlining the curriculum to focus on core

educational outcomes during the crisis (Department of Education, 2020b). The introduction of MDL raised specific concerns about its effectiveness, particularly in practical subjects like TLE Cookery. Adapting MDL to TLE Cookery is inherently complex due to the subject's practical nature. TLE courses are designed to be hands-on, preparing students with skills for real-world application. The transition to a non-interactive learning modality posed significant challenges in teaching and assessing these practical skills effectively, highlighting a notable gap in existing research (Department of Education, 2020c). This research aims to explore the lived experiences of TLE Cookery students within the MDL framework, focusing on their perceptions of the learning process and the evaluation of their skills. Employing narrative inquiry allows for an in-depth exploration of students' personal experiences and challenges during the pandemic, offering a rich understanding of the educational impacts of MDL (Clandinin & Connelly, 2000).

This examined how TLE students navigated the new educational landscape, their perceptions of the assessment processes, and the adaptive strategies they employed. Capturing these personal and shared experiences provides a comprehensive view of the educational shifts during the pandemic, essential for informing future teaching practices and curriculum design (Bruner, 1990). The lack of focused research on the assessment of practical competencies in remote learning environments underscores the originality and significance of this inquiry. The roles of educators and parents in supporting students through MDL are considered, revealing the collaborative dynamics essential for navigating this educational model. This study will contribute significantly to the academic community's understanding of remote learning dynamics. This is a crucial resource for educators, administrators, and policymakers involved in curriculum development and instructional design, especially in settings that require rapid adaptation to online learning (Darling-Hammond et al., 2020).

2. LITERATURE REVIEW

2.1. Learning Modalities in the New Normal

The COVID-19 pandemic necessitated a drastic transformation in educational delivery methods, leading the Philippines' Department of Education (DepEd) to implement Modular Distance Learning as part of the "New Normal System" in education. While DepEd's Basic Education Learning Continuity Plan (BE-LCP) outlined various learning modalities to facilitate educational continuity, its effectiveness in practical subjects like TLE-Cookery remains limited.

2.2. Exploring Untold Narratives

This study gathered and analyzed the narratives of Grade-10 students, teachers, and parents to explore the challenges, adaptations, and successes experienced in navigating Modular Distance Learning for TLE-Cookery. A qualitative methodology was employed to capture the depth and nuance of these experiences. The findings will provide offer valuable insights into the effectiveness of Modular Distance Learning, particularly for subjects requiring hands-on skills like TLE-Cookery. These insights will be critical for informing future education policies and practices, ensuring they are responsive to the needs of learners and educators in similar contexts.

2.3. Modular Distance Learning

The preference for modular learning among parents and students (Mateo, 2020) underscored the need for flexible and accessible educational materials during the pandemic. However, the delivery of these materials presented logistical challenges, further complicated by reports of parents completing modules on behalf of their children, raising concerns about the authenticity of students' learning experiences (Dangle & Sumaoang, 2020). The pandemic necessitated a swift and comprehensive adjustment within the education sector, leading to the adoption of various learning delivery options outlined in the BE-LCP by the IATF-EID through multiple formats, including face-to-face, blended, distance learning, and homeschooling (Briones, 2020). Globally, the COVID-19 pandemic led to widespread adoption of remote learning solutions, reflecting a global shift towards flexible learning strategies (Schleicher, 2020). While these adaptations were necessary, concerns remain about the long-term efficacy of modular learning and its impact on students' readiness for the labor market and further education. This shift prompts a deeper examination of its effectiveness, particularly in subjects like TLE-Cookery, where hands-on experience is crucial. Globally, the COVID-19 pandemic led to widespread adoption of remote learning solutions, reflecting a global shift towards flexible learning strategies. While these adaptations were necessary, concerns remain about the long-term efficacy of modular learning and its impact on students' readiness for the labor market and further education. This shift prompts a deeper examination of its effectiveness, particularly in subjects like TLE-Cookery, where hands-on experience is crucial.

2.4. The TLE and TVL Curriculum

The TLE and TVL curriculum in the Philippines aims to equip students with foundational skills in livelihood education. It is structured around the development of knowledge, information, skills, attitudes, entrepreneurial concepts, process and delivery, work values, and life skills (Department of Education, 2016). This comprehensive approach ensures that students not only learn theoretical concepts but also acquire practical skills and attitudes necessary for their future careers (Department of Education, 2020). However, the COVID-19 pandemic has significantly impacted the delivery of TLE and TVL education, disrupting traditional face-to-face learning modalities. This transition has raised concerns about the effectiveness of remote and modular learning in conveying practical skills and maintaining student engagement. In response to the pandemic, TLE and TVL educators have been tasked with adapting their pedagogical approaches to suit remote learning environments, utilizing the BE-LCP guidelines to implement modular and online learning strategies. Understanding the effectiveness of these adjustments is crucial for the future of TLE and TVL education. This research aims to gather baseline information on instructional strategies, evaluate learning modalities, and assess the challenges and successes experienced by stakeholders. The findings will contribute to refining educational practices and ensuring the resilience of TLE and TVL programs in the face of future challenges.

2.5. Assessment of Learning Competencies in the New Normal

The shift to MDL during the pandemic introduced significant challenges in assessing student learning, particularly in practical subjects like TLE. The absence of direct, in-person supervision

and the reliance on self-directed study modules complicated the assessment of hands-on skills. Effective assessment practices are essential for validating the quality of education and ensuring that learning objectives are achieved across various disciplines (Black & Wiliam, 1998). Teachers faced the limitations of remote instruction and struggled to ensure academic integrity in an unsupervised learning environment, while maintaining the rigor and authenticity of the assessment process (Barrett, 2020). Inadequate assessment can hinder students' preparedness for further education or employment and undermine the effectiveness of the educational program. Teachers may struggle to conduct thorough assessments, potentially overlooking gaps in student learning or failing to provide the necessary feedback for improvement (Darling-Hammond, 2020). These empirical studies will contribute to a richer, more nuanced understanding of assessment practices during educational disruption, informing future policy and practice (Zhao, 2020).

2.6. Learning Competencies in Technology and Livelihood Education

Owen-Jackson (2015) stresses the importance of tailoring food education to meet diverse student needs, emphasizing the need for a curriculum that is intellectually stimulating and practically applicable. Food education plays a critical role in addressing social determinants of health, including food insecurity, which has been exacerbated by the COVID-19 pandemic. Educational interventions focused on food security and nutrition are crucial for promoting positive health outcomes. Ruayruay (2020) emphasizes the essential role of competencies such as ethics, integrity, continuous learning, problem-solving, and research skills in educational settings. Educational programs should foster students' capacity for values-driven decision-making, highlighting the significance of leadership and teamwork skills in developing critical moral agency. Ask (2020) argues for integrating knowledge about food and meals into the curriculum to foster healthy eating habits and address health inequalities. Aydeniz (2021) examines the intelligence profile of curriculums, noting a predominance of verbal/linguistic and mathematical/logical intelligence and calling for a more inclusive curriculum that caters to a broader range of intelligences.

2.7. Philippines Perspective

Carreon (2018) emphasizes the importance of integrating digital learning tools and contextualized pedagogy in fostering the development of 21st-century skills among students. A study by Carreon found that contextualized blended learning interventions significantly enhanced learning outcomes in Grade 7 TLE exploratory subjects. This improvement indicates the potential of blended learning methods, especially those utilizing internet access and Facebook, as effective teaching and learning strategies in TLE. Elli (2020) points out the challenges teachers face in accessing professional development opportunities, noting that only a select few can participate in seminars and training programs. It also explores the relationship between the age of TLE teachers and their competency levels, finding that age does not significantly influence their ability to teach the subject effectively. To enhance TLE education, the education sector should leverage digital platforms and ensure equitable access to professional development for teachers, addressing the challenges posed by the digital divide and limited teacher training opportunities.

2.8. Materials and methods

This narrative inquiry study explored the implementation of modular distance learning (MDL) as experienced by Grade 10 students, their teachers, and parents. The study used purposive sampling to select a focused group of participants, prioritizing depth over breadth. Narrative inquiry, a methodology that focuses on participant perceptions and experiences, was used to construct narratives that illuminate the role of assessment in learning essential competencies in TLE under the MDL modality. The study was conducted at Misamis Oriental General Comprehensive High School, a prominent educational institution with a long history. The researcher systematically selected a Grade 7 TLE Cookery teacher and students for interviews, including their parents. Participants represented a diverse range of academic performance. The study used interviews and memory elicitations prepared by the TLE teacher. Semi-structured interviews were the primary data collection method. Interviews were conducted in English and Cebuano to cater to participant preferences, and were audio or video recorded to capture nonverbal cues. Narrative analysis was used to develop an in-depth perspective of participant experiences. Themes emerged through coding narrative blocks, grouping and reading by life event, creating a nested story structure, delving into the story structure, comparing across story structures, and telling the core narrative. The researcher ensured participant involvement in data analysis and upheld ethical principles of transparency, respect, and collaboration. Participant names were replaced with pseudonyms, and home addresses were not disclosed.

2.9. Results and discussion

The narratives of parents, teachers, and students reveal six key themes: Parental Involvement and Challenges, Teacher and Systemic Adaptations, Student Engagement and Learning Strategies, Quality of Learning and Educational Integrity, Equity and Access to Resources, and Resilience and Determination. The study focuses on the experiences of parents, teachers, and students. The teacher, Kysi, exemplifies the resilience and adaptability of educators, remaining dedicated to delivering quality education despite challenges. Parents, like Rowena, highlight the critical role of families in supporting home-based learning. Students, such as Vincent and Ivy, demonstrate their resilience and resourcefulness in navigating MDL. Aikah's experiences underscore the challenges faced by students with limited resources.

Theme 1: Parental Involvement and Challenges

Parents face significant challenges in balancing work and educational responsibilities. The lack of time, resources, and knowledge were among the challenges they encountered that hindered their ability to effectively guide their children's learning. This highlights the need for educational systems to rethink and adapt their support structures.

Theme 2: Teacher and Systemic Adaptations

Teachers have adapted their instructional approaches, but challenges remain in ensuring educational quality and remotely assessing student work. In her own words, Teacher Kysi shares, *"We are doing our best to provide engaging video lessons and ensure students receive their modules on time. However, it's difficult to assess the genuineness of their work when they're*

submitting assignments remotely." This difficulty stems from the absence of direct interaction and observation of students during the learning process, which raises concerns about the potential for dishonesty or outsourcing. These narratives underscore the critical need for targeted interventions that enhance assessment integrity and ensure equitable access to education and emphasizes the need for targeted interventions to enhance assessment integrity and equitable access to education.

Theme 3: Student Engagement and Learning Strategies

Students have adapted to MDL by relying on digital tools, peer collaboration, and family support. Vincent's narrative provides a clear illustration of these coping strategies. He shares, "When the activities in the module are tough, I usually turn to Google to find answers or get ideas on how to approach the questions. Ivy, another student, discusses the importance of peer support: *"I often chat with my classmates online when I'm stuck. We share ideas and sometimes work together on assignments, which helps make up for not being able to meet in person."* However, the reliance on digital resources raises questions about the depth of learning. Educational systems must provide strategies to enhance critical engagement with digital resources and facilitate effective online collaboration.

Theme 4: Quality of Learning and Educational Integrity

Participants express concerns about the depth and quality of learning in MDL. This highlights the need for strategies that foster deep engagement and understanding, such as interactive digital tools and collaborative learning. Student narratives vividly illustrate these challenges. Vincent remarks, *"Sometimes I just search for the quickest answer to get the task done. I'm not really learning much, just trying to finish my assignments."* From the teachers' perspective, the difficulty in ensuring depth of understanding is equally pronounced. Teacher Kysi states, *"It's challenging to know if the students grasp the material. (challenging bya jud sya kung nakuha ba gyud sa students ang instructions sa materials)"* *We can provide the resources, but without being there to see their process, it's hard to gauge comprehension."* Furthermore, the integration of collaborative projects and discussion-based learning, even in a virtual format, can help mitigate some of the challenges associated with MDL. This approach not only addresses the gaps in engagement and understanding but also aligns more closely with the pedagogical goals of comprehensive education.

Theme 5: Equity and Access to Resources

This theme surfaces concerns about the variability in students' ability to access stable internet, suitable learning environments, and effective adult guidance, which are critical for successful engagement with MDL. Aikah's narrative highlights her specific challenges with resource access: "Living far from school with a poor internet connection makes it hard to keep up with online classes and assignments. *My mom helps when she can, but sometimes she doesn't understand the work either.*" Aikah continues, *"It's frustrating when my classmates can quickly complete assignments because they have better access to the internet and their own devices.* These narratives underscore the urgent need for interventions that address these disparities, such as providing devices, offering subsidized internet access, and establishing local learning hubs.

Theme 6: Resilience and Determination

Students and parents demonstrate resilience and determination in overcoming challenges. This resilience is not merely about coping but actively striving to overcome barriers to learning despite significant challenges, such as limited resources, technological disparities, and the absence of traditional classroom support. Rowena's narrative encapsulates this resilience: "It's tough, balancing work and my daughter's education, but we make it work somehow. I pick up the modules, and we sit down in the evenings, to figure it out together." These narratives are further echoed by Ivy, who despite facing similar challenges, maintains a positive outlook: "Yes, it's hard without my teachers around like before, and sometimes I feel alone with my schoolwork. But I know this is important for my future, so I push through, ask for help from friends, and keep up with my studies as much as I can. The significance of such resilience cannot be overstated, as it plays a critical role in the psychological well-being and academic success of students during periods of disruption. This calls for educational policies that recognize and support their efforts, such as flexible frameworks and enhanced communication channels.

The themes emerging from these narratives underscore the necessity for systemic enhancements in MDL, including improved support for parents and guardians, robust assessment mechanisms, and enhanced educational materials. A conceptual framework identifies external challenges, adaptation strategies, and outcomes. External challenges include limited access to resources and logistical issues. Adaptation strategies encompass student-initiated strategies, family support, and teacher-led innovations. Outcomes vary based on these factors. Addressing these challenges requires targeted interventions and policy adjustments, such as comprehensive support systems for parents, enhanced assessment methods, and improved educational materials. By implementing these strategies, educational systems can ensure that MDL remains a viable and effective educational option.

3. CONCLUSIONS

This study, conducted within the context of MDL during the COVID-19 pandemic, offers a comprehensive understanding of the challenges and adaptive strategies employed by students, parents, and educators. Through a qualitative analysis of narratives from various stakeholders, this research illuminates the multifaceted experiences that define MDL, guided by the Authentic Learning Approach as the theoretical framework. The narratives revealed a tension between the ideals of authentic learning and the practical realities of the pandemic. Financial constraints, limited technology access, and insufficient parental support often hindered the creation of truly authentic learning experiences, echoing concerns within the Authentic Learning Theory (Herrington, Reeves, & Oliver, 2010). This theory underscores the importance of replicating real-world context and fostering active student engagement, elements that were not always achievable in the rapidly implemented MDL environment.

Students and parents demonstrated considerable resilience and ingenuity in adapting to these conditions. Adaptation strategies, such as the reliance on digital tools and peer collaboration, showcased the participants' efforts to maintain academic engagement despite the substantial

barriers. This aligns with the theoretical framework's emphasis on learner-centric approaches and highlights the critical role of learner initiative in overcoming educational disruptions (Herrington et al., 2014).

However, the outcomes of these strategies were mixed. While some students managed to sustain or even excel in their academic performance, others, like Aikah, struggled significantly. The disparities in outcomes underscore the need for more robust support systems and resources to ensure that all students can benefit from MDL, not just those with better access to digital tools or stronger familial support networks.

Based on the findings of this study, it is recommended that future research analyze the long-term impacts of MDL on student achievement and psychological well-being, and compare its effectiveness across different demographic groups. To improve MDL design and delivery, educational institutions should establish clear guidelines for module development and distribution, develop interactive online components, and train teachers on suitable assessments. Additionally, curricula should integrate authentic learning principles, collaborate with teachers for adaptable content, and ensure consistent feedback loops. To address the study's limitations, future research should broaden its participant base and consider using mixed methods. By implementing these recommendations, educational institutions can create more resilient, inclusive, and effective learning environments, regardless of the instructional format.

4. ACKNOWLEDGMENT

The researcher extends deepest gratitude to their thesis advisor, Dr. Sarah O. Namoco, Ed.D. Dr. Namoco's steadfast guidance, wisdom, and belief in the researcher's potential proved instrumental in shaping this work. Her mentorship not only illuminated the path but also inspired the researcher to strive for excellence in all endeavors.

The members of the thesis panel committee, Dr. Grace S. Pimentel, Dr. Fernando T. Capilitan, Dr. Alenogines L. San Diego, and Dr. Adolph Vincent Vigor, are acknowledged with profound thanks for their invaluable feedback, insightful critiques, and scholarly guidance. Their collective expertise significantly contributed to the refinement and scholarly rigor of this research.

The researcher's beloved family's unwavering love, encouragement, and sacrifices are recognized as a pillar of strength throughout this journey. Their belief fueled the researcher's determination and inspired me to overcome every challenge.

Gratitude is extended to friends, Jen, Erl, Charlie, and Sunjay, for their camaraderie, support, and understanding. Their presence has brought immense gladness and made the trials more bearable.

Finally, the researcher acknowledges the limitless love and knowledge of their Creator. Ample blessings are recognized as guiding forces. At the pinnacle of this gratitude stands Jesus Christ, whose tireless love, grace, and wisdom served as persistent companions. The researcher expresses humility for having played a small part in the grand tapestry of life, guided by the loving hand of Jesus Christ.

This work stands as an indication of the collective determination and collaboration of each of these individuals. The researcher is humbled and indebted for the opportunity to have been directed and fortified by such remarkable souls. May this thesis serve as proof of my gratitude and a tribute to the enduring sovereignty of collaboration, mentorship, and love.

Alain

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ASSESSING STUDENT SATISFACTION ON TEACHING ACTIVITIES AT TAN TRAO UNIVERSITY, VIETNAM

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ABSTRACT

The study aimed to assess student satisfaction with the teaching activities of lecturers at Tan Trao University. Data was collected from a randomly selected sample of 263 students across their first, second, and third years. The study employed the Exploratory Factor Analysis (EFA) method to identify the factors influencing students' satisfaction with their teachers' teaching activities. The research findings revealed that six factors positively impact student satisfaction: i) Teaching aids, ii) Teaching content, iii) Teaching methods, iv) Teachers' enthusiasm, v) Teachers' concerns to students, and vi) The combination of teaching aids, content, and teaching methods. Among these, teachers' concerns to students emerged as the most significant factor. The study also proposed several solutions from both teachers and the school to improve students' satisfaction with teaching activities and strengthen their connection to the school.

Keywords: Student Satisfaction, Teaching Quality, Teaching Activities, Service Quality, Tan Trao University.

1. INTRODUCTION

Higher education represents the highest level of the national education system, playing a crucial role in providing a quality workforce for society. It contributes to enhancing labor productivity, fostering economic growth, and driving the development of nations (Huyen, 2019). Today, higher education operates as a service industry, where students and their families are one of the primary consumers. They have the power to invest in and choose the educational options that best align with their individual needs and aspirations (Gruber et al., 2010).

As of now in Vietnam, there are 170/174 public higher education institutions that have established School Councils and put them into operation (reaching the rate of 97.4%); in which, there are 36 institutions under the Ministry of Education and Training and 58/60 private higher education institutions. In the academic year 2022-2023, the regular university enrollment rate reached 84,56%, the master's enrollment rate reached 55,86%, and the doctoral enrollment rate reached 41,86% (Phuc, 2023)

In the context of deepening international integration and the significant impact of the Fourth Industrial Revolution, the demand for higher-quality human resources is steadily increasing. As a result, universities in Vietnam must continuously seek diverse solutions to enhance their competitive position in this evolving landscape. An educational market has emerged where universities operate much like businesses, with teaching staff acting as service providers and students as service users. Consequently, measuring student satisfaction with the quality of school

services and the effectiveness of teaching has become critically important and remains a top priority for higher education institutions. The quality of lecturers' teaching is the most important factor as higher education institutions (HEIs) implement autonomy and navigate continuous changes (Duy et al, 2023). To enhance the quality of education, HEIs must consistently focus on improving the quality of teaching. Consequently, evaluating the teaching activities of lecturers has become an essential requirement for HEIs in Vietnam (Cong et al., 2023). In the teaching and learning process, students are the primary recipients of teachers' instruction, making them the most suitable source for providing feedback on teachers' teaching activities.

Tan Trao University places a strong emphasis on improving the quality of its teachers' instruction. Each year, the university conducts surveys to gather students' feedback on the quality of teaching. This valuable input helps the teaching staff continually refine and enhance the effectiveness of their teaching activities.

This study was conducted to evaluate student satisfaction with the teaching activities of teachers at Tan Trao University. The research findings offer insights into the levels of student satisfaction, leading to recommendations aimed at improving both the teaching quality of the teachers and the overall training quality at the university.

2. LITERATURE REVIEW

Globally, numerous studies have explored the concept of "satisfaction." Oliver (1981) defined customer satisfaction as the customer's assessment of a specific transaction, highlighting the relationship between their expectations and their actual experience with the product or service received (Richard, 1981). Thus, customer satisfaction hinges on how well the product meets or exceeds the buyer's expectations. In the context of education, the term "satisfaction" is often linked to the "quality of educational services."

Hishamuddin et al. (2008) confirmed a significant relationship between service quality and satisfaction, indicating that enhancing the quality of educational services will also increase student satisfaction. Similarly, a study by Muhammed et al. (2010) demonstrated that the quality of educational services greatly impacts student satisfaction, with the essence of that satisfaction rooted in the quality of the teaching and learning environment.

The interaction model between teaching and learning activities involves several key components: teachers, learners, the learning environment, teaching content, teaching style, teaching strategies, and assessment activities (Dees et al., 2007). Consequently, university teaching activities operate as a system of fundamental elements, including teaching goals and objectives, content, methods, resources, and the activities of both teachers and students. These elements are not isolated; they are interconnected and interact in a dialectical manner, reflecting the inherent dynamics and regularities of the teaching and learning process.

3. RESEARCH METHOD

Based on Cronin and Taylor's SERVPERF theoretical model, service quality is assessed solely through perceived service quality. The research model in this study is constructed on the theory of satisfaction and the teaching activities of teachers.

Following the pilot survey, the model was adjusted to better align with the current teaching activities of the school. The revised model emphasizes enhancing and improving the quality of training, innovating teaching methods and scientific research activities, fostering a positive and effective learning environment, and focusing on the education of students in ethics, personality, and life skills.

The final complete model comprises six components: (1) Teaching aids, (2) Teaching content, (3) Teaching methods, (4) Teacher enthusiasm, (5) Teacher’s concerns in students, and (6) Student satisfaction. Each component is measured on a five-point scale: (1) Very dissatisfied, (2) Dissatisfied, (3) Neutral, (4) Satisfied, and (5) Very satisfied.

Research Hypotheses

- (1) The better the teaching aids, the higher the student satisfaction.
- (2) The better the teaching content, the higher the student satisfaction.
- (3) The better the teaching methods, the higher the student satisfaction.
- (4) The higher the teacher's enthusiasm, the higher the student satisfaction.
- (5) The higher the teacher's concern for students, the higher the student satisfaction.
- (6) No difference in student satisfaction levels across courses

Table 1. Indicators for assessing student satisfaction with teachers' teaching activities

Group of variables	Variables	Sign
Teaching aids (TAs)	Teachers use a variety of teaching aids.	TAs 1
	Teachers select teaching aids that are appropriate to the content.	TAs 2
	Teachers help students recognize knowledge from teaching aids.	TAs 3
	Teachers demonstrate an appropriate level of use for teaching aids.	TAs 4
	Teachers apply information technology effectively.	TAs 5
Teaching content (TC)	Accurate teaching content.	TC 1
	Coherent and consistent teaching content.	TC 2
	Balanced teaching content between theory and practice.	TC 3
	Updated teaching content.	TC 4
	Useful teaching content.	TC 5
	Teaching content that emphasizes moral education.	TC 6
Teaching methods (TM)	Flexible combination of teaching methods.	TM 1
	Teaching methods appropriate for the lesson content.	TM 2
	Teaching methods suited to the class.	TM 3
	Teaching methods that facilitate easy understanding of the lesson.	TM 4
	Teaching methods that equip students with skills.	TM 5
	Teaching methods that introduce scientific research methods.	TM 6
	Teaching methods that stimulate student engagement.	TM 7
	Teaching methods that make the classroom lively.	TM 8

Group of variables	Variables	Sign
Teacher's enthusiasm (TE)	Teachers are passionate about their profession.	TE 1
	Teachers teach with enthusiasm and passion.	TE 2
	Teachers actively engage with students.	TE 3
	Teachers are dynamic.	TE 4
	Teachers respond to questions promptly.	TE 5
	Teachers are inspirational.	TE 6
	Teachers make the classroom lively.	TE 7
Teacher's concerns about students (TCS)	Teachers create a friendly atmosphere.	TCS 1
	Teachers understand students' needs.	TCS 2
	Teachers consistently listen to students.	TCS 3
	Teachers regularly encourage students.	TCS 4
	Teachers are willing to assist students.	TCS 5
	Teachers safeguard students' rights.	TCS 6
Student Satisfaction (SS)	Satisfied with teaching aids	SS 1
	Satisfied with teaching content	SS 2
	Satisfied with teaching methods	SS 3
	Satisfied with teacher's enthusiasm	SS 4
	Satisfied with teacher's concerns	SS 5
	Satisfied with overall	SS 6

This study uses survey data collected from 263 full-time students at Tan Trao University through an online survey. The distribution of students by year is as follows: 87 students in the first year (33%), 84 students in the second year (32%), and 92 students in the third year (35%).

The study employs mathematical statistics and Exploratory Factor Analysis (EFA) with SPSS software to analyze and evaluate the results. The scale's reliability is assessed using the Cronbach Alpha coefficient. Observed variables with a variable-total correlation below 0.3 are excluded, and the scale is considered acceptable if the Cronbach Alpha reliability coefficient meets or exceeds the threshold of 0.7 ($\geq 0,7$).

4. FINDINGS AND DISCUSSION

4.1. Assessing the reliability of the scale

The analysis of the Cronbach Alpha reliability coefficients reveals that the measurement scales for all components in the model exhibit high reliability (Table 1). Among these, the scale for Teachers' concerns in Students has the highest reliability coefficient of 0.864. All observed variables show variable-total correlations greater than 0.7. This indicates that the designed scale is both meaningful and suitable for evaluating students' satisfaction with the teaching activities of the school's faculty. Consequently, the components related to teaching activities will be utilized in the subsequent Exploratory Factor Analysis (EFA).

Table 2. Reliability of the scales

No	Group of variables	Cronbach's Alpha	N of Items
1	Teaching aids	.725	5
2	Teaching content	.741	6
3	Teaching methods	.820	8
4	Teacher's enthusiasm	.828	7
5	Teacher's concerns	.864	6
6	Student satisfaction	.821	6

Source: Synthesized from survey results

4.2. Exploratory factor analysis EFA

The results indicate that the KMO coefficient is 0.927, which falls within the range of $0.5 < \text{KMO} < 1$, suggesting that the actual data in this study is suitable for EFA analysis. Bartlett's test shows a significance level of $\text{Sig.} = 0.000 < 0.05$, indicating that the observed variables have a linear correlation with the representative factor. Therefore, the factors in the model account for most of the variation in the dependent variable.

Table 3. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	3.486E3
	df	496
	Sig.	.000

Source: Synthesized from survey results

Table 4. Regression model results

Model Summaryb						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.813a	.660	.652	.58992115	1.886	
Coefficientsa						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.003	.037		0.084	.933
	Teaching methods	.469	.037	.466	12.588	.000
	Teacher's concerns	.349	.037	.353	9.544	.000
	Teacher's enthusiasm	.263	.037	.261	7.039	.000
	Combination	.379	.038	.374	10.082	.000
	Teaching content	.162	.037	.160	4.327	.000
	Teaching aids	.283	.037	.281	7.575	.000

Source: Synthesized from survey results

The results of the linear regression analysis are presented below:

$$Y = 0,469 x_1 + 0,379 x_2 + 0,349 x_3 + 0,283 x_4 + 0,263 x_5 + 0,162 x_6 + \varepsilon$$

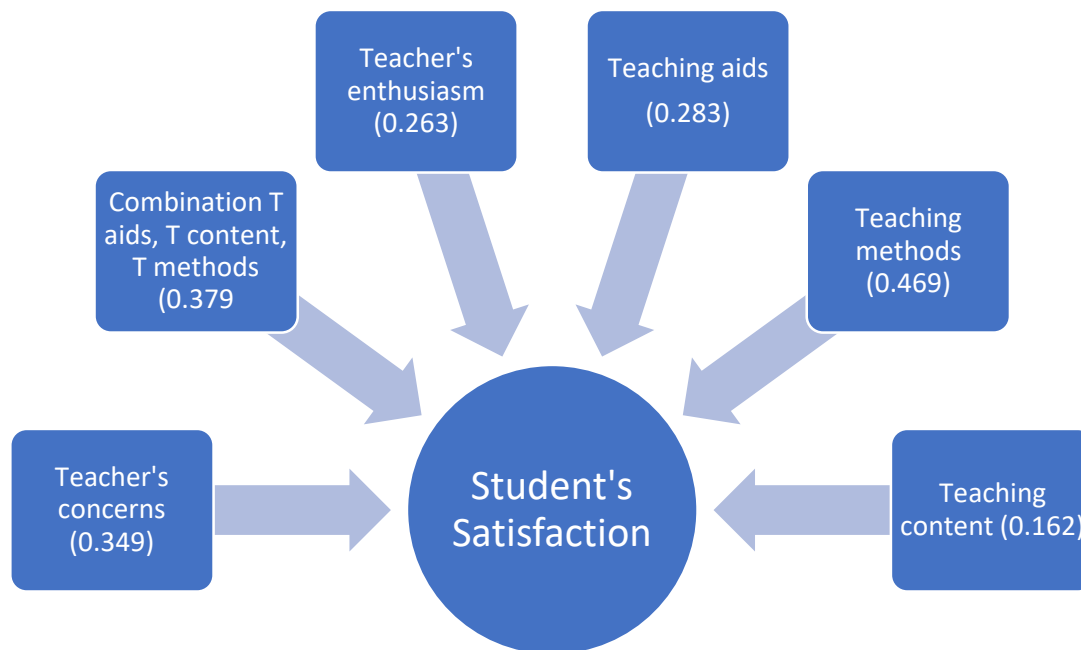
Based on the partial correlation coefficients, the importance of the variables in the model is ranked from highest to lowest as follows: 1) Teaching methods, 2) The combination of teaching aids, content, and methods, 3) Teacher's concerns, 4) Teaching aids, 5) Teacher's enthusiasm, 6) Teaching content. This ranking is consistent with the regression coefficients B and Beta coefficients.

The model accounts for 65% of the variation in the Satisfaction variable due to the independent variables included, while the remaining 35% is attributed to other factors not covered by the model. The analysis indicates that all independent variables have a positive effect on student satisfaction, with partial regression coefficients showing positive relationships at a 95% confidence level.

The regression analysis results confirm that hypotheses (1) through (5) are all accepted, with a significance coefficient of 0.000 (Table 4). Additionally, the model introduces a new factor: the Combination of Methods, Content, and Teaching Methods. This factor also exhibits a positive partial regression coefficient, indicating it has a positive effect on student satisfaction.

This result aligns with findings from previous studies, reinforcing the importance of enhancing each specific aspect of teaching activities to maximize overall student satisfaction. For example, if teaching aids are improved by one level, and the student's assessment score for this aspect increases by 1, the overall satisfaction score with teaching activities will rise by 0.283. Similarly, an increase of 1 in the assessment scores for teaching content, enthusiasm of teachers, teacher's concerns, teaching methods will correspondingly raise the overall satisfaction by 0.162, 0.263, 0.349, and 0.469, respectively.

A one-way analysis of variance (ANOVA) was conducted with student satisfaction as the dependent variable and Course as the categorical independent variable to test whether student satisfaction levels differ across courses. The Test of Homogeneity of Variances yielded a significance level of Sig. = 0.818, which is greater than 0.1. This indicates that the variance in student evaluations between courses is not significantly different, validating the ANOVA analysis results. The ANOVA analysis produced a significance level of Sig = 0.06 (greater than 0.05), suggesting that the null hypothesis (H0) of no difference in student satisfaction levels across courses cannot be rejected. In other words, students across all courses exhibit similar tendencies in evaluating their satisfaction with teaching activities. This finding contrasts with the results of previous studies by Tran Xuan Kien (2009) and Nguyen Thi Tham (2010). It may reflect the fact that the school's teachers have maintained a consistent and effective teaching approach across different courses.



Theoretical model testing results

4.3. Recommendation

- Teaching method is a crucial element in education, often ranked as the most valued by students. Teachers should continuously refine and improve their teaching approaches. It is especially important for educators to create an engaging and positive learning environment that encourages students to be more proactive and active during lectures, thereby enhancing their self-study skills. Additionally, teachers should help students set learning goals that extend beyond personal achievement to include societal contributions and community service. The Living Lab method is a highly effective approach that teachers can incorporate into their teaching strategies.

- Teaching aids are valuable tools that can significantly support teaching activities. However, their effectiveness depends on their proper use; improper use can lead to confusion, disorder, and increased stress for students. Research suggests that teachers should enhance their methods by actively guiding students in observing, analyzing, and manipulating these aids, rather than just using them for illustration purposes. This approach helps students better understand and engage with the material.

- Teaching content: In addition to its usefulness and educational value, students also appreciate the novelty of teaching content. To enhance student satisfaction, teachers should invest in keeping their content fresh and engaging by regularly updating their knowledge and incorporating the latest information in their field.

- Teacher's enthusiasm: Students appreciate and are satisfied with teachers' enthusiasm, but they also expect this enthusiasm to be demonstrated through specific actions. For instance, teachers can enhance their teaching by being more passionate and inspiring, which helps to spark students' interest in learning. Additionally, teachers should focus on developing a consistent and engaging teaching style that encourages active student participation.

- Teachers' concerns about students: In university settings, where students are generally more mature, independent, and self-directed, this concern can manifest differently compared to general education. Even though students are expected to take more control of their studies and lives, teachers still need to demonstrate their care by actively listening to and engaging with students. By proactively seeking out and understanding students' needs, teachers can build stronger relationships and gather valuable insights to adjust and improve their teaching strategies.

5. CONCLUSION

The study has established a model outlining the factors that influence students' satisfaction with teachers' teaching activities. The model identifies six factors that positively influence student satisfaction with teachers' teaching activities: i) Teaching aids, ii) Teaching content, iii) Teaching methods, iv) Teachers' enthusiasm, v) Teachers' concerns to students, and vi) The combination of aids, content, and teaching methods. Among these, "Teachers' concerns to students" has the most significant impact on student satisfaction, followed by "The combination of teaching aids, content, and teaching methods." Conversely, "Teaching content" has the least impact on student satisfaction. The study also revealed that there were no significant differences in satisfaction levels with teaching activities among students from different courses levels. This finding provides valuable insights for teachers, highlighting the need to review and adjust their teaching practices to ensure that all important factors are adequately addressed during the organization of teaching activities.

The research results also indicate that students at Tan Trao University are generally satisfied with the teaching activities of the faculty. Despite some limitations, the overall satisfaction score is quite high. This suggests that the teachers have been successful in their teaching efforts and have garnered positive feedback from students across all surveyed areas./.

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THE POTENTIAL OF EXTENDING LIVING LABS APPLICATIONS IN HIGHER EDUCATION IN THE CONTEXT OF INDUSTRY 5.0

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ABSTRACT

The arrival of Industry 5.0 has introduced a new phase in technological integration, where human-centered approaches are emphasized along with advanced automation and artificial intelligence. This paper looks into the potential of expanding Living Labs (LLs) applications in higher education and teaching methods in the context of Industry 5.0. A detailed review of existing studies, along with a SWOT analysis, was carried out to evaluate the strengths, weaknesses, opportunities, and threats linked to bringing LLs into educational systems within Industry 5.0. The findings show there are chances to enhance learning outcomes and better prepare students for the fast-changing technological world. However, the success of LLs is fundamentally influenced by the availability of resources and the level of commitment from stakeholders involved in these initiatives. The expansion of LLs necessitates careful planning and coordination, as well as the ability to adapt the LLs model to different contexts and needs. The results suggest that when LLs are effectively implemented, they can be a strong tool for connecting theoretical knowledge with practical use, thus aligning educational practices with the goals of Industry 5.0. Future studies should focus on long-term research to assess the ongoing impact of LLs in education and explore strategies to tackle the challenges identified.

Keywords: Living Labs, Industry 5.0, Higher Education, SWOT.

1. INTRODUCTION

The rapid adoption of technology, primarily driven by the COVID-19 pandemic, has accelerated the integration of digital tools within educational settings. This swift transformation has introduced challenges, particularly in adapting to the evolving classroom environment. Currently, the higher education sector faces pressure to determine (1) which changes are necessary, (2) how to effectively respond, and (3) what strategic tools and processes are required to meet the demands of Industry 5.0 on delivery of education.

The influence of Industry 5.0 has reshaped higher education and its delivery mechanisms (Diego et. al., 2024). These transformations are underpinned by advancements in digital transformation, information exchange, and simulation-based decision-making (Mohamed Hashim, Tlemsani, Matthews, et al., 2022; Tlemsani, Zaman, et al., 2023). While discussions surrounding the impact of Industry 4.0 on higher education continue, the dynamism of Industry 5.0 is extending beyond the operational confines of Higher Education Institutions, fostering the development of sustainable education services with a profit motive. Consequently, the agility brought about by

Industry 5.0 is prompting rapid changes in educational content, methods, and delivery. The new dialogues and strategies regarding the role of university education in the Industry 5.0 era are more concerned and discussed.

The advent of Industry 5.0 represents a pivotal development in this ongoing transformation. In contrast to Industry 4.0, which primarily concentrated on the integration of cyber-physical systems, the Internet of Things (IoT), and big data analytics, Industry 5.0 is defined by its focus on a human-centered approach that aims to balance human ingenuity with machine precision. This shift in perspective carries substantial implications for education, demanding the creation of innovative teaching methods that prepare students with the competencies and understanding necessary to excel in this new landscape.

Living Labs (LLs) are now well-recognized in the development and commercialization of science (Elie Abi Saad, 2024). The number of LLs worldwide has been consistently growing over the past ten years. These labs have been backed by universities, research institutions, and independent research centers (e.g., Albrecht Fritzsche, 2020) to promote user-focused solutions by redefining the roles and responsibilities of stakeholders within the innovation process (Seppo Leminen and Mika Westerlund, 2019; Judy Hong Huang and Elisa Thomas, 2021). Recent research in higher education suggests that LL is effective in fostering relevant skills for the new industrial revolution (e.g., James Evans et al., 2015; Harriet Bulkeley, 2016; Torsten Masseck, 2017; Yunseon Choe, 2024; Ane Kirstine Aare, 2024). The value of LLs is rooted in their ability to connect theoretical knowledge with practical application. By placing students in authentic, real-world settings, LLs facilitate a more profound comprehension of the subject matter, sharpen problem-solving abilities, and cultivate a sense of ownership in the learning process. LLs is an innovative approach to education where students, faculty, and the community engage together in the learning process through hands-on projects. This model has been implemented in many higher education institutions and has brought encouraging results. Also, this method plays a potential role in the context of Industry 5.0, where innovation, adaptability, and collaboration with cutting-edge technologies are essential competencies. However, with the rapid development of Industry 5.0, the implementation and expansion of LLs application requires adjustments to adapt to the new context. Industry 5.0 not only refers to the deeper integration of technology but also emphasizes the role of humans in using technology to create the most optimal value.

This study investigates the potential for expanding LLs applications in higher education in the context of Industry 5.0. By assessing the current implementation of LLs in higher education, evaluating their strengths, weaknesses, opportunities, and threats, and identifying the critical factors that contribute to their success, this research seeks to offer insights on how LLs can be strategically utilized to enhance teaching and learning in the context of Industry 5.0.

2. METHODS

This study adopts a multi-dimensional research strategy to explore the potential of expanding Living Lab applications within the framework of Industry 5.0. The methodology encompasses a

comprehensive literature review, qualitative analysis, and a SWOT analysis, all designed to provide a well-rounded understanding of the current implementation of LLs in higher education and the factors that may shape their future evolution.

To systematically evaluate the strengths, weaknesses, opportunities, and threats (SWOT) associated with expanding LLs applications in education, a SWOT analysis was conducted. This analytical framework was selected for its ability to provide a structured assessment of both internal and external factors that could influence the success of LLs. The SWOT analysis was informed by insights gained from the literature review and qualitative analysis, ensuring that it encompasses both theoretical perspectives and practical experiences. Further refinement of the SWOT analysis involved a pairwise comparison of its elements, comparing strengths (S) against weaknesses (W), opportunities (O) against threats (T), and vice versa. This comparative approach allowed for the identification of the most significant factors and facilitated the development of strategic recommendations aimed at extending LLs applications in the context of Industry 5.0.

3. RESULTS

The SWOT analysis revealed several key insights into the potential of extending LLs applications within the context of Industry 5.0. The following sections outline the results of the SWOT analysis, including a detailed examination of each element and a pairwise comparison of SWOT factors.

Strengths (S):

In the context of Industry 5.0, lectures dealing with human machine interaction technologies demonstrate the acceptance behaviour to work with sustainable technologies. The focus is on building human-centric resilience. Meanwhile, students should prepare for the lifelong learning process. The focus is not acquiring knowledge but gaining skills that offer them a job/career. LLs Application has the following strengths that can meet the needs of higher education in this context:

LLs helps students develop the necessary skills to meet the learning needs and the needs of the labor market that require the ability to apply knowledge to handle practical situations at both local and global scales, thereby promoting the ability to solve complex problems and supporting the principles of Industry 5.0, where humans and technology work together to create innovative solutions.

Developing soft skills and improving the ability to apply specialized knowledge to solve practical problems helps students better understand knowledge, and realize the meaning and value of learning in a university. From there, they are more and more confident when facing the requirements of future study and work.

LLs creates opportunities for global cooperation between universities around the world, helping lecturers and students have the opportunity to exchange, learn knowledge and find solutions to global problems in general and practical problems at the local level in particular. These strengths make LLs an educational method suitable for the transition trend of higher education from 4.0 to 5.0.

Weaknesses (W):

The successful implementation of LLs depends heavily on the availability of resources and the active participation of stakeholders. To scale up the application of LLs, it is necessary to develop flexible and adaptable frameworks, secure multi-year funding, and build collaborative networks that can support the expansion and sustainability of LLs in the context of Industry 5.0. Thus, the limited financial support and policies to attract the participation of lecturers and partner universities have limited the expansion of the number of LLs projects in the past. In developing countries, most of the time after university classes, lecturers and students spend a lot of time on part-time jobs to supplement their personal income and cover their living expenses.

Also, participating in LLs classes requires lecturers and students to spend a lot of time on learning, researching local practical problems and finding suitable solutions, leaving them no time for extra work, thereby reducing their income. This partly makes the expansion of LLs application more difficult in developing countries, where the salary received is not enough to meet the needs of life and lecturers have to do other jobs to be able to afford their family's life.

In addition, the language barrier is a weakness that needs to be noted in the process of expanding the LLs application in developing countries, where the ability to communicate and discuss in English of lecturers and students is still limited.

Opportunities (O):

With the rapid evolution of technology, students today have access to the most current knowledge, available anywhere through platforms like Coursera and Udemy. They can retrieve information instantly, read entire books in just a few hours using tools like OpenAI's ChatGPT and Google's Gemini. In light of these innovations, lecturers and students must be equipped new skills to adapt to, and thrive within, this technological landscape, ensuring they are not rendered obsolete by the growing reliance on AI-driven learning.

In the age of artificial intelligence, traditional one-way lectures are being supplanted by self-directed learning, where AI emerges as a key facilitator of knowledge. However, the complete replacement of human lecturers by AI remains distant. Lecturers are not merely conduits of information; they are pivotal in creating an engaging and supportive learning environment, fostering student motivation, and nurturing a positive academic experience. The qualities of interactivity, empathy, and personalized adaptation to individual student needs are aspects of teaching that AI currently cannot replicate.

Given the challenges posed by the Industrial Revolution 5.0, LLs emerge as a vital tool for lecturers. They stimulate student interest in real-world problems, promoting the development of critical thinking, creativity, systematic analysis, data synthesis, and collaborative skills. These competencies are essential for enhancing student capabilities and preparing them to meet the practical demands of job positions in the context of the 5.0 revolution.

Moreover, LLs serve as a platform for fostering international collaboration, enabling students and educators from diverse countries to jointly address common challenges. This collaborative environment promotes a more profound exchange of ideas and cultural viewpoints.

Also, as governments and educational institutions increasingly acknowledge the pivotal role of innovation in education, there is likely to be a surge in support for LLs initiatives. This support may manifest through enhanced funding and policy adjustments designed to promote their widespread adoption.

Industry 5.0 emphasizes the collaboration between humans and machines, supported by artificial intelligence (AI), the Internet of Things (IoT), and other advanced technologies. In this context, LLs can leverage these technologies to develop innovative educational solutions, enhancing the interaction between students and the real-world learning environment. For example, technologies such as virtual reality (VR) and augmented reality (AR) can be used in LLs to simulate real-world situations, allowing students to experience and practice in a safe and flexible learning environment. Instead of lecturers having to describe and explain abstractly to students, virtual reality technology can be used to create visual simulations of real-world problems in a hypothetical community, thereby inspiring students to develop creative thinking skills to propose solutions based on local conditions and resources. In addition, in cases where students' proposed solutions require too large a budget to implement, or there is confusion about the effectiveness of the proposed solutions, students can use virtual reality technology to simulate how to implement the solutions and give preliminary results. On that basis, although there is no budget to implement the proposed solutions, it is still possible to evaluate the effectiveness of the creative ideas that students put forward in their efforts to solve local problems by applying the LLs method.

Industry 5.0 encourages multidisciplinary collaboration in education and research, from technology, economics, environment to sociology. LLs, with the characteristic of connecting stakeholders from many fields, will be promoted by this trend to create more innovative education and research solutions. For example, LLs are currently implemented in classrooms, attached to pre-designed modules in the training program. In the context of Industry 5.0, a LLs can combine engineering, agriculture, business, and social science students to develop multidisciplinary projects, thereby creating solutions or products or services with higher practical value. At the same time, students learn more from different perspectives and perspectives of students from other majors, thereby better developing the necessary skills in the learning process.

LLs classes can use AI to support collaborative platforms, helping to connect students, lecturers, and stakeholders from different countries, creating a global LLs network. AI systems can automatically translate and support interactions between students and lecturers from different countries, eliminating language barriers, helping lecturers and students to be more proactive and confident in the process of participation and exchange, promoting more participation of lecturers and students, thereby building many collaborative LLs projects on an international scale.

Threats (T):

The success of LLs is fundamentally influenced by the availability of resources and the level of commitment from stakeholders involved in these initiatives. LLs often require significant financial investments, infrastructure, and human resources to function effectively. Without adequate support in these areas, the potential benefits of LLs may be compromised. Furthermore, the engagement and active participation of stakeholders, including lecturers, researchers, industry

partners, and policy-makers, are crucial. Their dedication to the principles and goals of LLs can drive innovation and ensure that the initiatives achieve their intended outcomes. However, scaling these initiatives to reach a larger audience or multiple institutions introduces complex challenges. This expansion necessitates careful planning and coordination, as well as the ability to adapt the LLs model to different contexts and needs. The process may involve overcoming logistical obstacles, addressing varying levels of institutional readiness, and ensuring that the core objectives of the LLs are maintained across diverse settings.

Resistance from some educators and institutions to adopting LLs methodologies can further complicate the widespread implementation of these innovative approaches. Many educators and academic institutions are deeply entrenched in traditional teaching methods and may be reluctant to embrace new pedagogical models. This resistance can stem from a variety of factors, including a lack of familiarity with LLs methodologies, concerns about the effectiveness of new approaches, or a preference for established practices. Such reluctance can create barriers to the adoption and integration of LLs, hindering their potential impact. Additionally, the integration of technology within LLs raises important concerns related to data privacy and security. The handling of sensitive information, especially in collaborations involving international partners, requires rigorous measures to protect data from unauthorized access and breaches. Ensuring robust data protection protocols and addressing privacy concerns are essential to maintain the integrity and trustworthiness of LLs, while fostering an environment conducive to collaborative and innovative research.

Table 1. SWOT Pairwise Analysis - SO, WO, ST, WT

<p>SO (Strengths - Opportunities)</p> <p><i>Strategy:</i> Leverage the strengths of LLs, such as practical application and technology integration, to exploit support opportunities from the government and international organizations, as well as strengthen international cooperation.</p> <p><i>Solution:</i> Develop international training and cooperation programs to enhance research capacity and implementation of LLs projects. Leverage financial and technological support from international partners to improve infrastructure and enhance teaching quality.</p>	<p>WO (Weaknesses - Opportunities)</p> <p><i>Strategy:</i> Use opportunities for international support and cooperation to overcome weaknesses, especially in terms of resources and technological skills.</p> <p><i>Solution:</i> Organize specialized training courses to enhance management and operation capacity of LLs projects. Establish partnerships with international educational and research institutions to improve the application of new technology and enhance the quality of education.</p>
<p>ST (Strengths - Threats)</p> <p><i>Strategy:</i> Use strengths, such as technology integration and the ability to support soft skills development, to minimize external threats, such as information security risks and technology gaps.</p> <p><i>Solution:</i> Apply advanced technology to improve operational efficiency, improve quality and minimize information security risks. Develop innovative strategies to maintain and enhance the competitiveness of LLs projects in the face of competitors.</p>	<p>WT (Weaknesses - Threats)</p> <p><i>Strategy:</i> Minimize weaknesses to avoid being threatened by external factors, especially security risks and rapid changes in technology.</p> <p><i>Solution:</i> Improve risk management systems and strengthen prevention capabilities against potential threats. Strengthen monitoring and periodic inspections to promptly detect and correct internal weaknesses, thereby ensuring the sustainability of LLs projects.</p>

The use of high technology in Industry 5.0 also comes with data security and ethical challenges, especially when students' personal information and sensitive data are used in LLs. Educational institutions must establish strict security measures and adhere to ethical principles

during implementation. For example, in a LLs project involving personal health data, data protection and ensuring participant privacy would be an important factor that would need to be tightly managed. Integrating AI into LLs requires significant investments in infrastructure, hardware, and software. In addition, the technical skills required to manage and operate AI systems can also be a barrier. For example, educational institutions in developing countries may have difficulty implementing AI technologies due to limited financial and human resources. Meanwhile, if LLs projects do not proactively keep up with the trend of Industry 5.0, there is a high risk that new learning methods will emerge and replace the LLs method in the coming period.

4. CONCLUSIONS

The findings of this study suggest that LLs hold significant potential for enhancing educational outcomes in the context of Industry 5.0. By providing a platform for experiential learning, collaboration, and real-world problem-solving, LLs can equip students with the skills and knowledge needed to thrive in a rapidly evolving technological landscape. However, the successful implementation of LLs requires careful consideration of resource allocation, scalability, and support of potential international partners. Industry 5.0 connects the world more strongly through technology, which opens up opportunities for LLs at higher education institutions to collaborate with international partners, share knowledge, and develop cross-border projects. A sustainability LLs project could collaborate with organizations and universities around the world to research and implement global solutions.

Future research should focus on longitudinal studies to evaluate the long-term impact of LLs in education and explore strategies for overcoming the challenges in the context of Industry 5.0. Additionally, there is a need to develop frameworks that ensure the integration of AI technologies in LLs remains aligned with the human-centric principles of Industry 5.0.

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A CONTRASTIVE STUDY ON WISHES IN ENGLISH AND VIETNAMESE

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ABSTRACT

This study discusses some similarities and differences between English wishes and Vietnamese wishes, focusing on their syntactic and semantic features. Wishes on four occasions including new year, birthday, wedding and outstanding achievements or milestones are collected and analyzed. The study is conducted with the combination of some research methods such as descriptive, quantitative, qualitative and contrastive on 200 samples of wishes in two languages collected from various sources. The findings of this study indicated that Vietnamese wishes are usually combined with other speech acts like greetings, compliments, thanks and encouragements whereas English wishes are only co-operated with compliments but not often. The most popular types of sentences used in English wishes are simple and complex sentences while they are simple and compound sentences in Vietnamese wishes. The results of this study hope to help language learners to use wishes in English and Vietnamese more effectively to achieve successful communication or research aims.

Keywords: differences, semantics, similarities, syntax, wishes.

1. INTRODUCTION

For many decades until now, English is considered as the international language that used in various fields such as politics, economics, education, tourism, journalism, etc. In Vietnam, English becomes more and more popular and important with a large number of learners. English has been one of the compulsory subjects in both state and private schools in Vietnam for many years. However, the teaching and learning of English has still focused too much on improving linguistic competence including phonological and lexical components; whereas, cultural factors as well as communicative competence are paid less attention. This lack may result in impoliteness, misunderstandings, cultural shock, and communication breakdown.

The cultural factors and communicative competence are shown quite clearly in different speech acts like greetings, compliments, apologies, invitation, wishes, etc. Wishes are the specific speech acts that are most commonly utilized in every culture of all societies with specific purposes. Wishes are classified as expressive speech acts (Searle, 1976).

In spite of the fact that wishes are quite important in communication, there are not many studies focusing on wishes, especially in terms of syntactic and semantic features. Some authors such as Pham Thi Anh Dao (2010) carried out a comparative study on wishes in British and Vietnamese culture on three occasions consisting of birthday, wedding and new year's holiday. Tran Yen Van & Phu Thi Nhung (2021) focused on analyzing similarities and differences in the

use of wishing in English and Vietnamese basing on the cultural factors. Moreover, La Xuan Thang (2022) did a research paper on the ways that Vietnamese use wishes in communication. However, the aspect of linguistic features of wishes on occasions such as new year, birthday, wedding and outstanding achievements or milestones in English and Vietnamese are hardly mentioned.

All the above-mentioned reasons made the authors carry out “A contrastive study on wishes in English and Vietnamese” in order to analyze their syntactic and semantic features as well as to uncover the similarities and differences between wishes used the two languages under study.

2. LITERATURE REVIEW

2.1. Speech act

The speech act is one of the closely connected concepts to sociolinguistics (Austin, 1962; Searle, 1969). The term speech act was proposed by Austin (1962), and was further developed by his student Searle (1969). The speech act theory analyzes the functions of statements in accordance with the behavior of speakers and listeners in conversation. And Searle (1969) as one of the founders of this theory has proposed the classification of speech acts into five major categories: (i) Commissive speech acts: those which influence the speaker to committing a particular action then, (ii) Declarative speech acts: those which declare the reality, (iii) Directive speech acts: those which impel the listener do a concrete operation, (iv) Expressive speech acts: those which express the speaker’s attitude and sensations towards the proposition, (v) Representative speech acts (Assertive speech acts): those which portray circumstance and commit the speaker to the truth of the expressed proposition.

Furthermore, Yule (1996, p. 47) noted “Actions performed via utterances are generally called speech acts and, in English, are commonly given more specific labels, such as apology, complaint, compliment, invitation, promise, or request.” Yule (1996) continued to mention that actions would perform an utterance on any occasion. Besides, he divides three types of acts: (i) Locutionary act: the basic act of utterance in a sentence with determinate reference, (ii) Illocutionary act: the intention or purpose of speaker when making an utterance, and (iii) Perlocutionary act: the influence of the words on the listener, the effect of the utterance on the hearer.

2.2. The speech act of wishes

Wishes are specific speech acts that are most commonly utilized in every culture of all societies. Wishes are popularly used for the purpose of showing someone’s love, admiration, joy, care and encouragement to other people (La Xuan Thang, 2022). Wishes have a clear subject, a defined audience, and a specified communication context to build up a clear communication aim. Searle (1976) explained that a wish is an expression of speaker’s hope or desire with the expectation that it can become true. Therefore, wishes are categorized as expressive speech acts.

2.3. Syntactic features

Language used to express wishes includes distinct syntax and syntactic features in both Vietnamese and English. Some scholars such as Oshima & Hogue (2006) Tran Huu Manh (2007)

stated that there are four kinds of sentences in English, i.e., the simple sentence, the compound sentence, the complex sentence and the compound-complex sentence. The components of all these kinds of sentences are composed of Subject (S), Verb (V), Object (O), Complement (C) and Adverbial (A). This study adapted Oishima & Hogue's (2006) analytical framework to analyze the data and discuss the results.

2.4. Semantic features

Richard et al. (1987, p. 254) defined semantic features as "the smallest units of meaning in a word". Basing on its semantic properties, a meaning of word can be identified. Generally, the investigated wishes express the hope and desire of the speakers to the hearers. They all have semantic features in common. However, each of them has something that differs from the other in term of their meaning.

This study not only focused on wishes but also tried to figure out the combination between wishes and other form of speech acts, including greetings, compliments, thanks and encouragement in term of semantic meaning in real communication.

Greeting is considered as the opening-closing address routine that occurs when two people first meet. Another effective technique of politeness is greeting, which aims to build a cordial rapport between the speaker and the listener.

Compliment, according to the definition given by Cambridge Dictionary, is an action that expresses approval, admiration, or respect. While compliments indicate a positive attitude, praise, admiration, and approval, wishes are statements of delight, hopes for fortune, and kindness toward others. Thus, wishing someone well and offering praise are endearing gestures that demonstrate the highest civility. In some certain context, compliment is equivalent to wish.

Thank is a form of speech act that has certain things in common with wishes: (i) The primary goal of both acts is to elicit a pleasant emotional response; (ii) Both acts serve to highlight an action taken by or involving the listener; and (iii) Both are employed to prevent the listener from losing face.

Encouragement is defined as a behavior that give someone confidence to do something (Cambridge Dictionary). In some situation, it can be understood as a wish with similar purpose that the speakers try to convey to the listener(s).

2.5. Methodology

The aim of this study is to analyze the syntactic and semantic features of wishes in English and Vietnamese by using examples collected from many different sources. Then, the study compares and contrasts to find out the similarities and differences between English wishes and Vietnamese wishes. In order to achieve these aims, several research methods are combined. The descriptive method is used to give a detailed description of syntactic and semantic features of wishes in English and Vietnamese. The quantitative and qualitative method is used to collect examples for illustration and calculate the rate of each factor. The contrastive method is used to

identify the similarities and differences between wishes in English and Vietnamese, focusing on their syntactic and semantic features.

200 examples that illustrates for wishes in English and Vietnamese wishes during four occasion including new year, birthday, wedding and outstanding achievements or milestones were collected from e-books, articles, advertisements, famous songs and official websites. The number of English examples is equivalent to that of Vietnamese examples. There are 100 examples of English wishes, including 25 examples of new year wishes, 25 examples of birthday wishes, 25 examples of wedding wishes and 25 examples of outstanding achievement or milestones. Similarly, 100 examples of Vietnamese wishes are collected in total and 25 examples for each occasion mentioned above. After being collected, the data was analyzed in terms of syntactic and semantic features in order to find the similarities and differences between English and Vietnamese. In term of syntactic features, the study calculated the occurrence of sentence types; whereas, in term of semantic features, the study focused on the combination between wishes and other speech acts.

3. FINDING AND DISCUSSIONS

3.1. Similarities

3.1.1. Similarities in syntactic features

Language normally used in wishes has specific syntactic features. English wishes and Vietnamese wishes are quite various in the ways the speakers try to convey. Therefore, they are also various in types of sentences.

Here is the distribution of each type of sentences in English wishes, calculated on 100 examples.

Table 1. Distribution of syntactic features of English wishes

Syntactic features	Occurrence	Rate
The simple sentence	68	68%
The compound sentence	12	12%
The complex sentence	19	19%
The compound-complex sentence	0	0%
Total	100	100%

As can be seen from the Table 1, the simple sentence occupies the highest percentage in English wishes with 68%. The complex sentence is followed with 19% in total. The third rank belongs to the compound sentence with 12%. The compound – complex sentence was not found in 100 examples.

And here is the distribution of each type of sentences in Vietnamese wishes, calculated on 100 examples.

Table 2. Distribution of syntactic features of Vietnamese wishes

Syntactic features	Occurrence	Rate
The simple sentence	65	65%
The compound sentence	28	28%
The complex sentence	7	7%
The compound-complex sentence	0	0%
Total	100	100%

According to the result shown on Table 2, the simple sentence occupies nearly two-third of all examples with the highest rate (65%). The second is followed by the compound sentence with the percentage of 28%. The complex sentence occupies 7% and there is no compound-complex sentence that used among 100 examples of Vietnamese wishes in four main occasions: new year, birthday, wedding and achievement or milestones.

Firstly, basing on the result in Table 1 and Table 2, the most popular type of sentence that used in both English wishes and Vietnamese wishes is simple sentence: 69% in English and 65% in Vietnamese wishes. The simple sentence is an independent clause in English (Oishima & Hogue, 2006). Here are some examples for illustration:

Example 1: “You deserve a happy new year and a beautiful year full of peace”

In this example, “you” is a subject, “deserve” is a verb and “a happy new year and a beautiful year full of peach” is the complement.

Example 2: “This birthday, I wish you abundant happiness and love”

In this birthday wish, the speaker conveys a brief but meaningful wish by using a simple sentence.

Example 3: “The fruit of your own hard work is the sweetest”

The speaker used this message as a best wish to the hearer to congratulate on his or her achievement or milestone.

A simple sentence in Vietnamese can be appeared in many other forms. It can be formed by a subject, a predicate and other components; it can be formed without a subject or it can be form without a predicate.

Example 4: “Chúc cụ già được sống lâu sống thọ cùng con cháu sang năm lại đón Tết sang” (Nguyen Quang Huy, 2012). (Wishing the elderly a long life with their children and grandchildren to welcome next Tet).

This new year wish belongs to the lyrics of the famous song “Ngày xuân long phụng sum vầy” composed by Nguyen Quang Huy in 2012.

Example 5: “Chúc các đồng chí cùng gia đình một năm mới an khang thịnh vượng” (Wishing you all as well as your family a happy and prosperous new year)

Vu Viet Trang, General director of Vietnam News Agency sent her new year wish to all the reporters, editors, staffs who work at Vietnam News Agency as well as their family in 2023. This simple sentence is without a subject and it is started with a verb “chúc” to show her clear purpose.

The second similarity is that compound – complex sentence is not used in wishes in both languages. In 200 examples of English and Vietnamese wishes, there is not any compound-complex sentence. Most of speakers make great efforts to make their wishes brief but meaningful; therefore; simple sentence is priority while compound – complex sentence is not because of its complicated structures.

3.1.2. Similarities in semantic features

In term of semantic features, this study focused on the combination of both English and Vietnamese wishes with other forms of speech acts including greetings, complements, thanks and encouragements. However, only compliments appear in both English and Vietnamese wishes with the aim of showing speakers' praise and respect to the hearers' achievement. In some certain context, compliment is equivalent to wish. According to Cambridge Dictionary, the definition of a compliment is “a remark that expresses approval, admiration, or respect”. English speakers tend to use compliments more often when they hearers got any achievements or a milestone in their life.

Example 6: “So awesome – in this great big world, two of the most amazing people found each other”

Beyond a wedding wish, the speaker wants to give a compliment to both groom and bride by the phrase “two of the most amazing people”.

Example 7: “Congrats! The sky's the limit and we cannot wait to see what you achieve next!”

The idiom “the sky's the limit” is used as a warmly praise to someone who was brilliant and got any achievement. However, this message is still a wish.

Example 8: “Thay mặt Ban Cán sự Đảng và lãnh đạo Bộ Văn hóa, Thể thao và Du lịch, tôi nhiệt liệt biểu dương và chúc mừng thành tích đáng tự hào này của thể thao Việt Nam”

(On behalf of the Party Committee and leaders of the Ministry of Culture, Sports and Tourism, I enthusiastically praise and congratulate this proud achievement of Vietnamese sports)

On behalf of the Ministry of Culture, Sports and Tourism, Minister Nguyen Van Hung gave his praise and congratulation on the excellent achievements that Vietnam athletes gained in 32nd SEA GAMES. The verb phrase “nhiệt liệt biểu dương” (enthusiastically praise) showed his enthusiastically praise together with his wish illustrated by the verb “chúc mừng” (congratulate).

Example 10: “Chúc mừng sinh nhật người phụ nữ tuyệt vời nhất của con” (Happy birthday to my best woman ever)

“Người phụ nữ tuyệt vời nhất” that implicates “the best mom” is a Vietnamese compliment to mom on her birthday.

Example 11: “Chúc đôi trai tài gái sắc hạnh phúc trọn vẹn, luôn yêu thương nhau thật nhiều” (Wishing the couple of a talented groom and a beautiful bride complete happiness and always love each other so much)

Both adjectives “tài” (*talented*) and “sắc” (*beautiful*) are used to the groom and the bride in order to praise their talents and beauty. This is a popular wedding wish in Vietnam.

3.2. Differences

3.2.1. Differences in syntactic features

In term of syntactical features, the second most popular type of sentence used in wishes is complex sentence in English (19%) but it is compound sentence in Vietnamese (28%). Whereas, the least popular type of sentence used in English wishes is compound sentence (12%); however, it is complex sentence in Vietnamese wishes (7%). There is a reversal in rankings here between two types of sentences in both languages.

A complex sentence contains one independent clause and one or more dependent clause(s). It can be built with adverb clauses, adjective clauses, and noun clauses (Oishima & Hogue, 2006). Here are some examples of English wishes that used complex sentences:

Example 12: “Everything you’re wishing for – that’s what I’m wishing you in the new year”

In this wish, the speaker used an independent clause “*Everything you’re wishing for*” and a dependent clause “*that’s what I’m wishing you*” to convey his message to the hearer.

Example 13: “*You know they’re right if you love to be with them all the time*”

The wedding wish is complex sentence with one main clause “*You know*” and one subordinate clause “*they’re right*” and another dependent clause “*if you love to be with them all the time*”. The message that the speaker wants to convey cannot be understood completely without any dependent clauses.

Example 14: “Marriage is the alliance of two people, one of whom never remembers birthdays and the other who never forget them”

This wish used complex sentences with one independent clause “Marriage is the alliance of two people” and two dependent clauses “one of whom never remembers birthday” and “the other who never forget them”.

The complex sentence only occupies the lowest percentage in Vietnamese wishes, calculated on 100 examples about wishes.

Example 15: “...tôi thân ái gửi lời thăm hỏi và chúc mừng tốt đẹp nhất đến toàn thể cán bộ, công chức, viên chức, phóng viên, biên tập viên, kỹ thuật viên, công nhân viên trong Ngành – những người đã và đang không ngừng cống hiến cho sự nghiệp thông tấn vẻ vang, các thương binh và thân nhân các nhà báo liệt sỹ đã dành trọng tuổi xuân cho nền báo chí cách mạng Việt Nam” (I cordially send my best regards and congratulations to all officials, civil servants, public employees, reporters, editors, technicians, and workers in the Journalism field - who have been constantly dedicating themselves to the glorious cause of journalism, wounded soldiers and relatives of martyred journalists have dedicated their youth to Vietnam's revolutionary journalism)

A compound sentence is two or more independent clauses joined together. There are three ways to join the clauses: with a coordinator, with a conjunctive adverb, and with a semicolon. Here are some examples:

Example 16: “A new year is a blank book, and the pen is in your hands”

Instead of saying “Happy New Year”, the speaker used the image of a blank book and a pen to hope for a better new year. The coordinator “and” connects two independent clauses in this compound sentence.

Example 17: “After all, you yourself are a gift to earth, so you deserve the best”

The coordinator “so” appears to connect the first clause “you yourself are a gift to the earth” with the second one “you deserve the best” to create a sweet and meaningful birthday wish.

Example 18: “Năm mới, khí thế mới, quyết tâm mới, thắng lợi mới!” (New year, new spirit, new determination, new victory!)

This new year wish consists of four independent clauses which are separated by commas.

Example 19: “Một chương mới đã mở ra với hai bạn rồi, tôi mong cuộc sống mới của cả hai sẽ tràn ngập hy vọng, hạnh phúc và niềm vui” (A new chapter opened to both of you, I hope your new life will be full-filled with hope, happiness and joy)

This wedding wish includes two independent clauses. They are separated by a comma like the example 19.

Example 20: “Chúc đôi uyên ương như sóng và biển, dù gió to cũng đều luôn hạnh phúc bên nhau” (Wishing the couple like the waves and the sea, even if the wind is strong, you two will always be happy together).

In this wedding wish, the speaker used the subordinator “dù” (even if/ although/...) to link two independent clauses.

3.2.2. Differences in semantic features

In term of semantic features, there are several differences. Firstly, English wishes only combined with compliments to convey not only their desire but also their praise to the hearers’ outstanding achievement or performance. Whereas, the combination is quite various in Vietnamese with different speech acts, consisting of greetings, compliments, thanks and encouragements in order to gain different communication purposes. Vietnamese speakers used greetings in wishes in formal rituals to closely pull the distance between the speaker and the listener. Compliments are used in Vietnamese wishes to show speakers’ approval and praise to the hearers’ achievements. Thanks are often used in birthday wishes to show their grace to the day they were brought into the real world as well as the person who gave them life. Encouragements are found in Vietnamese wishes in order to cheer and remind the hearers to keep moving on.

Among 100 examples of English wishes in four occasions, only compliments were found in combination with wishes while other form of speech acts like greetings, thanks and encouragement were not.

Unlike English, beside compliments, wishes in Vietnamese are naturally combined with greetings, thanks and encouragement. Each combination has its specific purpose(s). There are a number of these combination found in 100 Vietnamese examples.

Firstly, wishes are often combined with greetings in Vietnamese. Goffman (1971) described greetings as “access ritual” which composed of two patterns, one passed greetings and the rest one

engaged greetings. Greeting is an effective manners technique, which aims to build a cordial rapport between the speaker and the hearer.

Example 23: “...tôi thân ái gửi lời thăm hỏi và chúc mừng tốt đẹp nhất đến toàn thể cán bộ, công chức, viên chức, phóng viên, biên tập viên, kỹ thuật viên, công nhân viên trong Ngành – những người đã và đang không ngừng cống hiến cho sự nghiệp thông tấn vẻ vang, các thương binh và thân nhân các nhà báo liệt sỹ đã dành trọng tuổi xuân cho nền báo chí cách mạng Việt Nam” (I cordially send my best regards and wishes to all officials, civil servants, public employees, reporters, editors, technicians, and workers in the Journalism field - who have been constantly dedicating themselves to the glorious cause of journalism, wounded soldiers and relatives of martyred journalists have dedicated their youth to Vietnam's revolutionary journalism).

The wish identified by the phrase “*chúc mừng*” (*wishes*) is combined with the greeting “*tôi thân ái gửi lời thăm hỏi*” (*I cordially send my best regards*). Greeting in this new year wish aims to establish a friendly relationship between the speaker and the hearer. In this case, the speaker is the General director of Vietnam News Agency and the hearers are all her staffs.

Secondly, wishes are combined with thanks in Vietnamese. These two acts have certain things in common: (i) The primary goal of both acts is to elicit a pleasant emotional response; (ii) Both acts serve to highlight an action taken by or involving the listener; and (iii) Both are employed to prevent the listener from losing face. This combination appears more often in birthday wishes than others.

E.g., “Chúc mừng sinh nhật thiên thần bé nhỏ, cảm ơn con đã đến bên bố mẹ” (Happy birthday to our little angel, thank you for appearing in our life)

Birthday is considered as the day someone comes to the real world. Thus, along with giving good wishes to their baby, parents thank for the baby's appearance in their life.

Thirdly, Vietnamese wishes are linked with encouragements.

E.g., “Chúc đôi uyên ương như sóng và biển, dù gió to cũng đều luôn hạnh phúc bên nhau” (Wishing the couple like the wave and the sea, even if the wind is strong, you two will always be happy together)

It is not only a wedding wish, but also an encouragement to the newly married couple. Regardless of “*gió*” (*wind*) – a metaphor image of difficulties and obstacles – they both should hand in hand like “*sóng*” (*wave*) and “*biển*” (*sea*) and overcome together to keep their happiness.

4. CONCLUSION

From the syntactic and semantic analysis of 200 instances in English and Vietnamese collected from various sources, the conclusion comes. This study focuses on four main occasions when wishes are given, including new year, birthday, wedding and remarkable achievement or milestones. There are similarities and differences between English wishes and Vietnamese wishes. The types of sentences used in wishes in both languages are quite similar; however, the frequency of each of them is a bit changeable. Both English wishes and Vietnamese wishes prioritize simple sentence to convey their message. There are combinations that occur in both languages between

wishes and other forms of speech act such as greetings, compliments, thanks and encouragement to gain specific communication purposes or relationships. The combinations are more various in Vietnamese than in English.

This study hopes to help both English and Vietnamese learners have more in-depth understanding above wishes to give proper wishes in communication. Correct choice of sentence type can help your wishes become impressive and meaningful. Proper combination with other forms of speech act can gain distinct communication purposes. For example, wishes express the speaker's desire and hope for good things for the hearer; therefore, if they are linked with greetings, they can contribute to enhance politeness of greetings. Or a wish which is combined with an encouragement can show the speaker's care for the listener. Nevertheless, the usage of simple wishes or combined wishes needs to be proper in each occasion (new year, birthday, wedding, remarkable achievement or milestones) and it needs to be proper with the relationship between the speaker and the hearer.

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SIMILARITIES AND DIFFERENCES IN TEA CULTURE OF VIETNAM AND BRITAIN

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ABSTRACT

Tea holds a significant place in the cultural traditions of both Vietnam and Britain, serving as a symbol of hospitality, social cohesion, and historical continuity. The study used a combination of the comparative-contrastive analysis method to find the similarities and differences between Vietnamese and British tea culture in terms of types of tea, time to drink tea, tea sets, tea-drinking customs, tea brewing, drinking spaces, and the symbolism of tea. The findings suggest that while tea holds a central role in both societies, the cultural meanings and practices associated with tea differ significantly between the two countries. One of the most distinctive things is that Vietnamese prefer loose-leaf tea over tea bags, in contrast, in Britain, black tea with various flavors is predominant, and they tend to use tea bags more than loose-leaf tea due to convenience. Vietnamese tea sets are usually monochromatic and sometimes decorated with motifs like lotus flowers and dragons, made from clay and ceramics, with handle-less cups, conversely, British tea sets are ornate, featuring classic floral patterns, often made from bone china and silver, with handled cups. Vietnamese gatherings often include snacks like peanut candy, sesame candy, chè lam, green rice flake cakes, green bean cakes, meanwhile, British tea is traditionally paired with scones, biscuits, sandwiches, fruit cakes, or cream cakes. This study not only sheds light on the diverse expressions of tea culture of the two countries but also underscores the universal role of tea as a conduit for intercultural exchange and understanding.

Keywords: British, Differences, Tea Culture, Similarities, Vietnamese.

1. INTRODUCTION

Rationale for the study

Tea culture is one of the most interesting and attractive topics about tea and has been discussed for a long time around the world, in which Vietnam and Britain are two major tea-drinking countries. Tea, a kind of shrub with white flowers and very fragrant evergreen leaves, is a popular non-alcoholic beverage originating from China. Although current drinks such as alcoholic and soft drinks are increasing, tea has never lost popularity, especially in recent years, when people have become more and more aware further to clarify the importance of organic beverages and foods, tea is treated as one of the most popular organic beverages. Furthermore, tea is considered a living witness to the heroism of our ancestors in the past. Many famous poets and writers have put tea into their works, spreading the value and benefits of tea in our daily lives. Earlene Grey (n.d.), a poet and a big fan of a fine cuppa wrote about tea as follows “No matter where you are in the world, you are at home when tea is served”, or Zen Master Thich Nhat Hanh (n.d.) had a wonderful saying about tea “Drink your tea slowly and reverently, as if it is the axis on which the world earth revolves - slowly, evenly, without rushing toward the future”.

Indeed, tea culture is not only reflected in diplomatic activities between countries but also permeates into people's daily lives. It has become an important part of cultural exchanges between countries. Vietnam is a country with a long history of tea culture, from North to South, from rural to urban areas, from everyday life to holidays, Tet, weddings, from home to the street, and most notably, sidewalk tea shops. Stories surrounding a cup of tea are often very simple stories in every person's life. However, it is that simplicity that has created an extremely unique cultural feature in Vietnamese tea culture.

Britain often referred to as the nation of tea people, is the country with the largest per capita tea consumption in the world. Drinking tea is one of the beauties of culture and it is present in every aspect of British life, especially black tea culture has bold characteristics, and afternoon tea is considered an extremely interesting, unique, and elegant cultural beauty of the British people. British Tea Culture would not be complete without accompanying snacks such as biscuits, sandwiches, or cakes.

Both are countries with a long history of tea drinking and strong cultural foundations. However, their respective tea cultures are quite different. With a deep interest in tea culture through this research and the desire to promote cultural exchange and cooperation between the two countries, the study tries to find more about tea culture between Vietnam and Britain and find the similarities and differences in the tea culture including tea types, tea drinking time, tea preparation methods, tea-drinking customs, and space, drinking tea, tea sets, and symbols of tea. Comparing Vietnamese and British tea from a cross-cultural perspective can help people around the world, especially international students and foreigners living in Vietnam and Britain, grasp the existing forms and characteristics of the two tea cultures, thereby understanding their culture and language, avoiding communication conflicts between cultures, and promoting the spread of Vietnamese tea culture in the world.

Although there have not been many in-depth studies focusing on Vietnamese tea culture and British tea culture, there have been several studies that touch upon various aspects of it, such as 姚江波 (1999), Wenner (2011), Ni (2011), 赵淑萍 (2013), Pham Tan Thien (2014), Tran Thi Nguyet (2015), and Banks (2016). Most of the previous studies have primarily concentrated on studying the tea culture of either Vietnam or Britain, there have been almost no studies that compare Vietnamese and British tea culture to find the similarities and differences between these two tea cultures. Therefore, we would like to conduct this study, namely "Similarities and Differences in tea culture of Vietnam and Britain". The objective of the study is to compare some aspects of tea culture such as tea drinking time, tea preparation methods, tea-drinking customs, and tea-drinking space, tea sets, and tea symbols in Britain with those in Vietnam.

To achieve above-mentioned objectives, the study seeks to answer the following research questions:

1. What are the similarities between Vietnamese and British tea culture?
2. What are the differences between Vietnamese and British tea culture?

2. LITERATURE REVIEW

2.1. Review of the previous studies

The tea culture of Vietnam and Britain is abundant and diverse, with a long history and profound traditions. Although there have not been many in-depth studies focusing on the tea culture of the two countries, there have been several studies that touch upon various aspects of it. Here is a review of some of the significant studies conducted on this topic:

Wenner (2011) assumes that tea culture in Vietnam rarely exists in large cities because Western-centered development occurs at a breakneck pace and people across the country regularly gather to drink a quick cup of tea and a short chat with friends. A large part of the Vietnamese people still consume tea in the traditional social way, especially in the countryside. Especially in Hanoi, it is common for the older generation, often migrants from remote areas, to sit together and share small cups of tea at sidewalk stalls.

According to Tran Thi Nguyet (2015), Vietnamese tea has been present for at least 10 centuries. It is a drink representing the spirit of equality, a bond between host and guest, and between friends. Tea always maintains a loving yet alert, elegant yet noble character in communication. The culture of tea is associated with the leisurely lifestyle of Vietnamese people.

Vietnamese people's taste for drinking tea is very rich, luxurious, and elegant. Drinking tea is to feel the quintessential flavor of tea, lighten the mood, reduce worries, and increase excitement when talking with friends. Nowadays, each region has a different way of enjoying tea. Southern people like to drink tea marinated with Lotus and Jasmine flowers to increase the fragrance and like to drink tea with ice. Northern people like to drink herbal tea and drink it hot. And for Northerners, green tea has long been a familiar drink in every family. People enjoy tea anytime, anywhere, there are both luxurious and popular spaces like sidewalk tea shops.

According to Ni (2011), Britain is a country with a long history of tea drinking and is famous for its afternoon tea. The British tradition of afternoon tea invented by Anna, the 7th Duchess of Bedford, originated in the early 1840s. At that time, only the wealthy could buy tea, and the tea ceremony would be held in their homes. Afternoon tea became popular and typically consisted of elegant sandwiches, scones with clotted cream, pastries, and cakes, served with tea poured from silver pots into exquisite bone China cups. Afternoon tea is usually served from 2 pm to 4 pm and lasts about 1.5 to 2 hours. Nowadays, afternoon tea is mainly enjoyed in tea rooms, providing an informal and comfortable atmosphere for friends and family to chat and spend quality time together.

赵淑萍 (2013) researched the origins of British Tea, the tasting culture, and the spirit of the British tea ceremony. According to her, afternoon tea is considered the quintessence of English culture. The British used their own milk and American sugar to turn the bitter tea into a fragrant and nutritious daily necessity. Especially after tea entered the homes of ordinary people, drinking tea became a habitual part of life. About the tea tasting, because Britain is surrounded by the sea and is cold and humid all year round, compared with green tea, which is cold, the British choose

black tea, which is rich in flavor and rich in nutrients. They like to mix drinks. Some add milk and sugar to the teapot, and some also add some whiskey to the tea to create various flavors. In addition, the British also transformed the tea itself and bagged instant tea appeared. The British often use bone china tea sets.

2.2. Review of theoretical background

2.2.1. Definition of tea

The study follows the definition of tea by Cambridge dictionary, which is defined as "a drink made by pouring hot water onto dried and cut leaves and sometimes flowers, especially the leaves of the tea plant". Tea is also a flavored beverage prepared by placing boiling water in a teakettle containing leaves or small bags of leaves from the *Camellia Sinensis* plant, according to Michael (n.d.). The leaves emit fragrance into the water. And then, the liquid is poured through a sieve over a cup to catch the leaves (or stored in a small bag). Then drink and enjoy (ibid.).

The results of T. Linh's study (2022) indicates that tea is not simply a drink but it contains the history and culture of each country. Tea time is also a time to ponder life's stories, temporarily escape from the bustling life, relax, and restore energy. We do not know exactly since when drinking tea has become the culture of each country with its unique tea-drinking ritual.

2.2.2. Definition of tea culture

Tea culture in this study is defined as "the way of life, especially the general customs, and beliefs, of a particular group of people at a particular time" according to Cambridge dictionary. The results of Tran Ngoc Them's study (2000) show that culture is an organic system of material and spiritual values created and accumulated by humans through the process of practical activities, in the interaction between humans and the environment in natural and social fields.

The study also adapted the concept of tea culture by TEAPEDIA, i.e., tea culture means the way tea is brewed and consumed, how people interact with tea, and the artistic surrounding tea drinking, it includes the side of tea production, tea brewing, tea ceremony and arts, history, health, society, education, ethics, and media and communication problems.

2.2.3. Methodology

This library-based study used a combination of qualitative method, descriptive method, and analytical method to explore and analyze the documents about the tea culture of Vietnamese and British people in terms of types of tea, tea drinking time, tea sets, tea brewing, tea-drinking customs, drinking spaces, and tea symbols and at the same time, using a combination of comparative-contrastive analysis method - the main method investigates the similarities and differences between the tea cultures of the two countries.

To answer the research questions "What are the similarities between Vietnamese and British tea culture? And "What are the differences between Vietnamese and British tea culture? The study uses the analytical framework adapted from Ni (2011), 姚江波 (1999), and Yi (2023) as follows:

Table 1.1. Analytical Framework for Tea culture in Vietnam and Britain

Comparative Criteria	Vietnam	Britain
Types of tea	The most popular type of tea (green tea)	The most popular type of tea (black tea)
Time to drink tea	- In the morning - Tea break - After meal - At family reunions - At meeting - Tet holiday - Wedding occasions	- In the morning, after wake up - After breakfast - Tea break - At meeting - In the late afternoon or early evening - Afternoon tea - In the evening
Tea set	Typical material	Typical material
Tea brewing	Making method	Making method
Tea-drinking customs	- Ingredients commonly used in tea - Snacks to serve with tea	- Ingredients commonly used in tea - Snacks to serve with tea
Drinking space	Tea drinking space	Tea drinking space
Tea symbols	Unity, hospitality, tradition, simplicity, mindfulness.	Elegance, sophistication, community, tranquility, cultural heritage.

3. RESULTS

With the development of science and technology and the advancement of the times, the pace of integration of world culture and art is getting faster and faster. However, due to cultural differences in history and environmental conditions, there are differences in the spread and development of tea-drinking culture worldwide. To achieve cross-cultural communication, it is crucial to evaluate one's own culture and learn from other cultures' strengths. Vietnamese tea culture has a long history and is extensive and profound. Britain is the world's largest consumer of tea. It has shaped the unique British black tea culture and created a comfortable and elegant European afternoon tea lifestyle. The similarities and differences between the two tea cultures including (i) types of tea, (ii) Time to drink tea, (iii) Tea sets, (iv) Tea drinking customs, (v) Tea brewing, (vi) Tea- drinking spaces and (vii) Tea symbols are interpreted in detail as follows.

(i) Types of tea

The results of Bich Huong's (2022), Phuong Anh's (2021) studies show that Vietnam's tea culture is diverse, with green, black, oolong, yellow, white, herbal, and scented teas, each offering unique flavors and benefits. Green tea, popular in Vietnam, is fresh, sweet, and high in polyphenols, which have cancer-fighting properties. White tea, known as the "king of teas," is made from high-altitude buds, while yellow tea comes from ancient Shan Tuyet trees. Oolong tea, originating from China, has a mild flavor. Herbal teas like artichoke and bitter melon are also common, and marinated teas feature floral scents.

However, it is indicated from the research results of 姚江波 (1999), T. Linh (2022), and Phuong (2023) that in Britain, tea is mainly black, with green and flavored teas also available. Black tea became preferred due to its ease of preservation and suitability for the humid British climate. It is fully fermented, which helps maintain its flavor over time, unlike green tea, which spoils more easily. Black teas like Earl Grey and English Breakfast are popular for their strong flavors and compatibility with milk and sugar.

Today, both countries blend tradition with modernity in their tea culture. While loose-leaf tea remains cherished, especially in Vietnam, where it is central to cultural rituals, tea bags are more

common in Britain due to their convenience, making up 96% of the tea consumed. Though tea bags are convenient, loose-leaf tea offers a richer experience, appealing to enthusiasts in both nations.

(ii) Time to drink tea

Tea is more than just a refreshing drink; it's a vital part of life for both Vietnamese and British people, playing a significant role in daily rituals and social interactions. In both cultures, tea is enjoyed in the morning for energy, in the afternoon to relax, and when hosting guests to create a welcoming atmosphere.

Some authors such as Tran Ngoc Them (1996), Thanh Phuong (2013), Johnson (2015), Nguyen Le Phuong Anh (2021), Phuong (2023) state that in Vietnam, inviting tea is a way to show the host's warmth, kindness, and affection towards guests whenever they visit, which can be seen in the following verses:

“Mỗi khi khách đến chơi nhà
Đốt than quạt nước pha trà người ơi
Trà này quý lắm người ơi
Mỗi người một chén cho tôi vừa lòng”.

(Vietnam Quan Ho folk song)

"Whenever guests come to visit,
Homeowners light the charcoal stove, boil water,
and brew tea for everyone to savor.
This tea is very precious, my friends,
One cup each for everyone to please me."

(Translated by the author)

Besides the similarities, they have a special difference. In the morning, Vietnamese people often drink tea after meals, while the British not only drink tea after meals, but they also drink it before and during their breakfast. British morning tea has a light scent, often with milk added, and the British take breakfast very seriously, so breakfast is indispensable for tea. For British people, the traditional time for tea break is at 11 am, they drink tea while working. At noon, it is still the number 1 choice for a warm cup of tea and a nutritious lunch to recharge for the afternoon, while Vietnamese people will not drink tea at this time. Afternoon tea at three or four o'clock in the afternoon is the most anticipated time of the day for British people. The special teas for afternoon tea are Keemun black tea, Darjeeling, Earl Grey, and Ceylon black tea, accompanied by snacks. The afternoon tea party originated in the early 19th century from the 7th Duchess of Bedford, Anna Maria. Although the tradition is less common today due to busy schedules, it remains a cherished cultural practice.

Vietnamese tea culture, however, is deeply rooted in tradition and folklore, with tea being an essential part of holidays, weddings, funerals, and daily life without fixed tea times. Vietnamese also individuals frequently drink tea during breaks from their laborious tasks, such as builders, gardeners, or travelers who pause at roadside tea stalls to rejuvenate with a refreshing cup of iced tea before continuing their journey

While tea holds an irreplaceable place in both societies, Vietnamese tea-drinking practices are more closely tied to cultural traditions, whereas British tea culture emphasizes social interaction and relaxation.

(iii) Tea sets

Some researchers such as 姚江波 (1999), Ni (2011), Thuy Duong (2021), Bich Huong (2022) conclude that the ancient Vietnamese saying "Nhất thủy, nhì trà, tam bôi, tứ bình, ngũ quần anh" emphasizes the importance of each element in the tea-drinking process, with the teapot ("Tứ bình") playing a key role in enhancing the tea's aroma, color, and flavor. Vietnamese tea sets are simple and rustic, typically including a teapot, teacups, a tea tray, a tea jar, and sometimes a strainer and kettle. The cups often include a larger "chén tổng" for pouring tea into smaller "chén quân" to ensure an even taste. Tea sets are usually made from clay, ceramics, marble, or wood, often featuring traditional motifs like lotus flowers or dragons.

In contrast, British tea sets are more elaborate and formal, reflecting the culture's historical emphasis on afternoon tea, which includes a variety of sweet and savory cakes. A typical British tea set includes a teapot, teacups with saucers, spoons, cake trays, sugar and cream jars, a milk cup, and various other utensils, often made of bone china or silver pewter. The designs are often ornate, with classic Victorian patterns and vibrant colors.

However, nowadays, many people in both Vietnam and Britain do not have much time to brew loose tea, they often brew tea bags. In Vietnam, many families now only use a teacup, tea bag, and hot water to brew a cup of tea with Vietnamese taste, while in Britain, a cup, tea bag, milk, and sugar suffice for a traditional brew.



Source: <https://vietnam-tea.com/tea-news/vietnamese-tea-set.html>

Image 1. Vietnamese tea set



Source: <https://www.countryandtownhouse.com/food-and-drink/tea/>

Image 2. British tea set

(iv) Tea drinking customs

The results of 姚江波 (1999), Goodwright & Bateman (2000), 赵淑萍 (2013), Chrystal (2014), Bich Huong (2022), Phuong (2023) reveal that Vietnam as a multi-ethnic country, Vietnamese culture must be very diverse, and colorful but different from each other, but that doesn't mean the way they drink tea is also different. A characteristic feature of Vietnamese tea culture is that people favor the rustic taste of tea, using only boiling water to make it, without adding any ingredients that would lose its aroma and flavor. Unlike the Vietnamese “clean drink”, the British often drink hot tea and add sugar and milk to the tea to ease its bitterness, increasing the aroma and creating enjoyment. Some people also add honey, whiskey, eggs, or butter to adjust the flavor.



Source: <https://www.mcgill.ca/oss/article/history-you-asked/should-you-add-milk-tea-or-tea-milk>

Image 3. Vietnamese tea culture

Image 4. British tea culture

In addition, Vietnamese people also like to drink green tea with ice as a special beverage. Wherever you go, from high-end restaurants or sidewalk eateries, iced tea is always served as an indispensable drink, as it has a mildly astringent taste that dispels the aftertaste of greasy meals. The light taste of green tea drowns out the garlic and onion scents that are common in Vietnamese food. The popularity of iced tea has become an unmistakable cultural feature, creating a distinct beauty of Vietnamese tea culture and cuisine.

Tea types have become very diverse, with the young generation in both Vietnam and Britain adding flavors to make tea more delicious.

When enjoying Vietnamese tea, it is customary to serve it with various traditional snacks such as peanut candy, sesame candy, chè lam, green rice flake cake, green bean cakes, rolled banana candy, cu do candy, or biscuits. Meanwhile, British tea is often served with pastries such as cakes, pies, sandwiches, scones, sweets, biscuits, etc. In particular, desserts for the orthodox British afternoon tea are served on a three-tiered cake tray with different types of cakes, with sandwiches on the first course, scones with jam and cream on the second course, and sweets on the third course such as cakes and fruit. The order of eating refreshments should follow the rule of light to heavy, salty to sweet. In addition, High tea is a pre-meal snack to replenish energy after a day's hard work. It is more like a full meal. In addition to tea, the food includes meat, potatoes, bread, pies, cheese, vegetables, etc.



Source: <https://chethainguyensach.com/cach-lam-keo-lac-vung-nham-nhi-cung-ly-che-nong-nhung-ngay-tro-lanh/>

Image 5. Vietnamese tea snacks



Source: <https://www.telegraph.co.uk/food-and-drink/restaurants/best-restaurants-cafes-afternoon-tea-2022-london-uk-britain/>

Image 6. British tea snacks

(v) Tea brewing

Tea brewing in Vietnamese and British cultures reflects unique traditions and preferences. Researchers such as Nguyen Le Phuong Anh (2021), Phuong (2023) conclude that in Vietnam, brewing tea involves a careful, ritualistic process guided by five elements: water, tea, cups, teapot, and tea-drinking friends. Traditionally, water from natural sources is gently boiled, and the tea, chosen for its color, clarity, aroma, taste, and spirit, is carefully prepared. The teapot and cups are rinsed with boiling water, and the tea is steeped for a short time. Everyday tea brewing is simpler, often using fresh leaves.

Some authors such as 姚江波 (1999), 赵淑萍 (2013), Phuong (2023) and Chrystal (2014) discover that in British culture, "Afternoon Tea" is a cherished ritual. The teapot is warmed before adding tea, with one teaspoon per person and an extra for the pot. The tea is steeped for 3-5 minutes, and most Britons add milk, sugar, or lemon according to taste. While loose-leaf tea was once standard, tea bags are now common for convenience. The interplay between tradition and modernity in both cultures shows a balance between preserving heritage and adapting to contemporary life.

(vi) Tea- drinking spaces

Tea-drinking spaces in different cultures reflect their unique lifestyles and cultural characteristics. Researchers such as Thanh Phuong (2013), Nguyen Le Phuong Anh (2021), and Phuong Anh (2021) uncover that in Vietnam, tea is traditional, intimate, and quiet, often embodied by Zen culture. It is enjoyed outdoors or in natural settings like home gardens or rooftops. In

contrast, according to the results of 姚江波 (1999), 赵淑萍 (2013), Yi & Ya (2023) show that in Britain, tea is a social ritual with more formal spaces and styles. Vietnamese households typically have a living room as the main place for tea, decorated with handcrafted items and fresh flowers. British homes' tea rooms are elegant and cozy, featuring comfortable chairs, curtains, and decorative items.

Traditional tea houses in Vietnam are designed in a classical style with wooden interiors and decorations, perfect for exploring Vietnamese tea culture. In contrast, British tea rooms feature classical designs with luxurious interiors and professional service, perfect for enjoying Afternoon Tea. Many British cafe and hotels serve tea in modern, elegant settings, catering to a younger audience while maintaining the elegance of British tea culture.



Source: <https://vietnam-tea.com/tea-news/vietnam-tea-house.html>

Image 7. Vietnamese tea houses



Source: <https://afternoontea.co.uk/information/the-afternoon-tea-menu/>

Image 8. British tea houses

Apart from these spaces, in Vietnamese cities, roadside tea stalls, known as "trà đá vỉa hè," provide a simple yet unique cultural feature of Vietnam.



Source: <https://vietnamnet.vn/tra-da-chem-gio-via-he-ha-noi-2070437.html>

Image 9. Vietnam's trà đá vỉa hè

(vii) Tea symbols

The study results of Nguyen Le Phuong Anh (2021) and Thuy Duong (2021) indicate that tea in Vietnamese culture symbolizes unity, gratitude, and respect towards guests. It is often brewed and served by the Vietnamese, demonstrating hospitality and appreciation. Tea is a symbol of traditional culture, representing the simple life of the Vietnamese people. The study findings of TeaBrewCrewEmre (2023) reveal that, in contrast, tea in Britain is a symbol of elegance and sophistication, often served at luxurious hotels or social gatherings. It is a part of daily life, helping to soothe tension and bring a sense of peace.

4. DISCUSSION

The tea cultures of Vietnam and Britain each possess unique characteristics that reflect the lifestyle, traditions, and aesthetics of their respective countries. This study has identified a few similarities between the tea cultures of these two nations:

Both Vietnamese and British people consider drinking tea an important part of daily life. Tea is not merely a beverage; it is also a medium for socializing, connecting, and relaxing. The finding is consistent with study results done by Tran Thi Nguyet's (2015) and 赵淑萍's (2013) study on the differences between British and Chinese tea cultures.

Alongside these similarities, there are notable differences between the tea cultures of the two countries.

In Vietnam, predominantly green tea is consumed, including traditional varieties like lotus tea, jasmine tea, and Thai Nguyen green tea. Vietnamese people generally prefer loose tea leaves and drink it plain without any additives, sometimes adding ice. In contrast, the British primarily consume black tea, such as Earl Grey and English Breakfast, leaning more towards tea bags than loose tea, and it is often drunk with milk and sugar.

Vietnamese tea can be enjoyed at any time of the day, from early morning to late evening. Drinking tea usually accompanies conversations and hospitality, or while playing chess, and is also consumed on special occasions such as Tet (Lunar New Year), festivals, weddings, and funerals. Conversely, in Britain, tea drinking usually occurs at specific times: before and during breakfast, the famous "afternoon tea" between 3-5 PM, and "high tea" between 5-7 PM. There are also "elevenses" around 11 AM. The study by 姚江波 (1999) also showed similar results.

Regarding tea sets, Vietnamese tea sets tend to be monochromatic, smooth, or decorated with lotus flowers, peach blossoms, apricot blossoms, dragons, and phoenixes, and cups usually lack handles. The materials of the tea sets are mainly clay and ceramics. On the other hand, British tea sets are more ornate, with designs featuring classic flowers, plants, and colorful patterns, and cups typically have handles. They often favor bone china and silver tea sets. This finding aligns with the results of Yi & Ya (2023).

In terms of tea preparation, the Vietnamese method is simple and not as elaborate as the tea ceremonies in some other countries. They often brew loose tea leaves in small teapots and pour them into cups. The loose tea leaves can be reused against. In contrast, the British method involves brewing tea using tea bags or loose tea in large teapots and then pouring it into cups. Milk, sugar, or lemon is often added to the tea.

In Vietnam, snacks accompanying tea often include peanut candy, sesame candy, "chè lam" (a type of traditional Vietnamese candy), green rice flake cakes, green bean cakes, rolled banana candy, "củ dờ" candy, or biscuits. Meanwhile, British tea is typically paired with sweet treats like scones, biscuits, small sandwiches, fruit cakes, or cream cakes. This finding corresponds with Ni's (2011) research.

Vietnamese tea spaces favor simplicity, closeness to nature, and tranquility, similar results to those obtained by Tran Thi Nguyet's (2015) study. In contrast, British tea culture emphasizes elegance, politeness, and complex social rituals. This point aligns with 赵淑萍's (2013) study.

In Vietnam, tea symbolizes unity, hospitality, tradition, simplicity, and mindfulness. In contrast, in the Britain, tea represents elegance, sophistication, community, tranquility, and cultural heritage.

5. CONCLUSIONS

The tea cultures of Vietnam and the Britain each possess unique characteristics that reflect the lifestyle, traditions, and aesthetics of their respective countries. This study revealed that tea in both countries is more than just a beverage; it is a cultural symbol, a social lubricant, and a reflection of historical and societal evolution.

In Vietnam, tea culture is deeply intertwined with history, spirituality, and daily life. Vietnamese tea ceremonies emphasize tranquility, mindfulness, and the connection to nature. The diversity in tea types, from green to oolong and herbal, illustrates the region's rich agricultural heritage and the importance of tea in Vietnamese hospitality and rituals.

On the other hand, British tea culture is marked by its distinctive traditions, such as the famous afternoon tea, which emerged in the 19th century as a social event among the upper classes. The British preference for black tea, often served with milk and sugar, reflects the influence of colonial trade routes and the integration of tea into daily routines as a symbol of British identity and refinement.

Both cultures, despite their differences, showcase tea as a medium of social connection and cultural expression. The study highlighted that in both Vietnam and Britain, tea serves as a bridge between generations, a marker of hospitality, and a comfort in everyday life.

This comparative analysis underscores the universality of tea as a cultural cornerstone while celebrating the unique ways in which it is cherished and consumed across different societies. The exploration of Vietnamese and British tea traditions not only enhances our understanding of these cultures but also enriches the global narrative of tea as a timeless and unifying element in human history.

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APPLYING THE CIPO MODEL IN MANAGING STARTUP SUPPORT ACTIVITIES FOR STUDENTS AT UNIVERSITIES

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ABSTRACT

Supporting student start-ups is an activity of consulting, assisting and providing information and means to create an environment for students to build and implement business ideas based on their strengths and abilities while still studying at university. Supporting student start-ups is a core task of universities. To carry out this task, each educational institution must choose a suitable management model. The article presents the CIPO model and the application of the CIPO model to the management of startup support for students, thereby, scientists and managers can refer to the implementation in startup support at higher education institutions in Vietnam.

Keywords: Startup support, students, CIPO model, teaching, application, university education

1. INTRODUCTION

In the current period, global integration combined with the demands for a sustainable socio-economic environment has promoted the entrepreneurial spirit and increased the social responsibility of entrepreneurs (Cohen and Winn, 2007). This motivation is like a key to promoting the entrepreneurial spirit, increasing the desire to own a business of individuals (Krueger et al., 2000). In particular, the intention to start a business in a sustainable direction is proposed to play a central role in the process of solving social and environmental problems such as poverty, climate change or unemployment, ... (Poter and Kramer, 2011). That shows the important role of the intention to start a business in a sustainable direction of individuals for the development goals of the country Agenda 2030).

Universities play a pioneering role in promoting innovative startups by providing society with human resources equipped with the necessary thinking and skills, as well as applicable research results. Building and developing an entrepreneurial training environment at universities to educate students about knowledge and entrepreneurial spirit, giving students many opportunities to start a business, connect with society, and practice in real life is one of the necessary requirements for the current education system in particular and the whole society in general (Nguyen Thi Dung, 2020).

In addition, studies have shown that a huge challenge for young people is the application and development of theories and skills in the classroom related to the intention to start a business and consider starting a business as a future career choice. Many students have the desire to start a business, but are confused about the operating model, encounter barriers in their startup ideas, and some legal restrictions on students. (Nguyen Thi Thu Hoai, 2021). Most students when embarking on a startup project lack experience, encounter many difficulties in legal procedures, and have

limited access to investment capital. (Tran Xuan Hai, Dao Thi Huong, 2018). There are many reasons for this situation, the main reason being that the management of startup support activities for students is not really effective.

This study was conducted to present the CIPO model and the application of the CIPO model to the management of startup support for students, thereby, scientists and managers can refer to the implementation in startup support at higher education institutions in Vietnam.

2. LITURATURE REVIEW

2.1. CIPO (Context input profcess output/out come) model

The CIPO model, developed by Scheerens, J. (2004), is a simple system model of school operations that can be managed at multiple levels: System, school and classroom levels. This model includes input, process and output elements. Through the development process, the CIPO model is shown in diagram 1 below:

With the CIPO model approach, education can be considered a production process, in which the input must go through a process in the system or its system level to lead to the output results, which take place under the influence of a certain context.



Figure 1. CIPO model

2.2. The role of the CIPO model in managing student start-up support activities

Managing start-up support activities according to the CIPO approach is characterized by managing student start-up support activities from input, process to output under the influence of social context. Therefore, it is very important in controlling the process of ensuring the quality of start-up support, because the elements of the start-up support process are the criteria for quality assurance. Managing student start-up support activities is always affected by the social context, requiring the management subject to have regulatory activities that adapt to the objective factors (policy mechanisms; Industry 4.0; international integration...) and subjective factors (financial resources; team capacity; international cooperation...) of the context in order to take advantage of opportunities and overcome challenges in the process of managing start-up support activities according to the CIPO approach with the goal of constantly improving the quality of start-up support, learners achieving start-up capacity, adapting and integrating into the world of work which is inherently volatile due to the strong development of Industry 4.0.

3. RESEARCH METHODOLOGY

Recognizing the importance of having a comprehensive quality assurance process as well as acknowledging the difficulties in managing student entrepreneurship support activities in Vietnam, we apply the traditional CIPO model to manage student entrepreneurship support activities at universities in Vietnam as summarized in Figure 2.

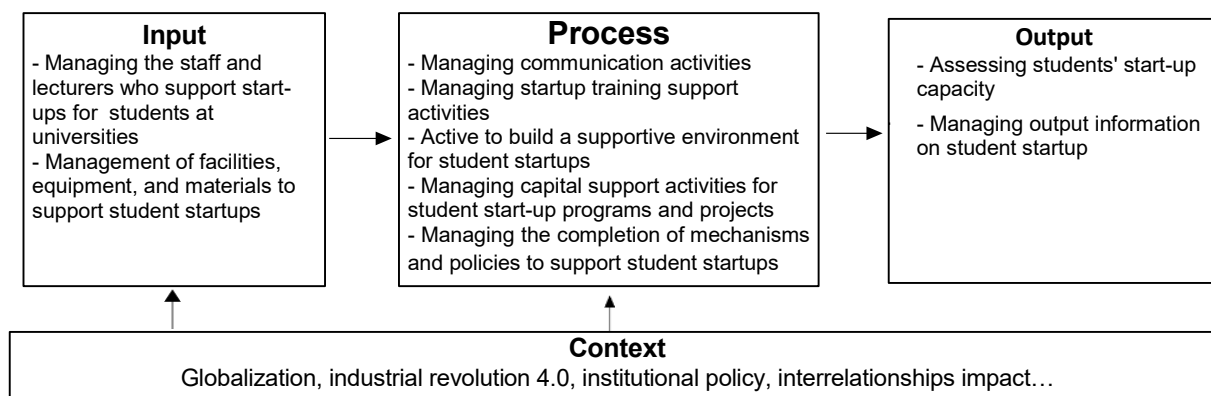


Figure 2. Management model of student startup support activities at universities in Vietnam according to CIPO approach

In Figure 2, we describe in detail the stages related to the management of student start-up support activities at universities with three basic components according to the process from input (Students, teaching staff, training programs, facilities, training and development programs, finance); process (Objectives, content, methods, testing and evaluation of the results of student start-up support activities on the content of start-up communication, start-up training, creating a start-up environment, calling for start-up capital, start-up policies); output (ratio of student start-ups, start-up capacity according to output standards); the elements in each of these components are placed in a specific socio-economic context (socio-economic development; Party and State policies; Industrial Revolution 4.0 ...).

4. RESEARCH RESULTS

4.1. Managing input elements of start-up support for students

4.1.1. Managing the staff and lecturers who support start-ups for students at universities

Managing the staff and lecturers who support start-ups is essentially the impact of managers at universities, expressed through planning; organizing; directing; inspecting and evaluating the recruitment, use, planning, training and evaluation of the teaching staff according to prescribed standards to ensure the quantity, quality and structure of the teaching staff.

The management entity needs to: Plan and develop a plan to develop the teaching staff; use and arrange professional work reasonably to promote the effectiveness of start-up support activities; evaluate the teaching staff based on work results, environment and actual circumstances; feedback information obtained from relevant parties must be analyzed objectively, compared with goals, criteria and standards, ensuring comprehensiveness and being implemented regularly.

4.1.2. Management of facilities, equipment, and materials to support student startups

Management of facilities, equipment, and materials to support student startups is to make them a useful tool to support learners in developing their startup capacity in the process of developing startup capacity. The management entity needs to implement a number of synchronous measures with the following contents: Raising awareness for teachers and employees in preserving and using facilities, equipment, and materials to ensure proper implementation of the process and closely following the training program plan; training and fostering lecturers and staff in charge of preserving facilities, equipment, materials, and libraries; cooperating with businesses to help lecturers and staff have the opportunity to interact with advanced technology equipment (Nguyen Thi My Loc et al., 2015).

4.2. Managing the process of supporting student startups

4.2.1. Managing communication activities

- Organizing the compilation of documents and publications serving the communication work of startups, it is necessary to collect information and documents on startups from reliable sources, ensuring scientific. After being approved by the competent authority, lecturers compile, supplement and adjust accordingly and proceed to print and issue documents.

- Organizing conferences, seminars, forums, exchanges with investors, domestic and foreign enterprises requires activities to be carefully prepared in terms of content and organization. This is also an opportunity to grasp the thoughts, aspirations and answer questions of students in the process of starting a business as well as helping managers detect problems in the process of implementing the startup support to adjust startup policies to suit the practical situation.

- Propagating and guiding students to use and exploit information sources and learning materials from the national innovation and entrepreneurship information portal: To implement the above content, managers need to direct lecturers to disseminate specific procedures to help students easily access learning materials. Diversify forms of propaganda so that students can access information sources.

4.2.2. Managing startup training support activities

- Implementing the goal of supporting startup training: It is very important for managers to determine this goal right from the beginning of the goal management process, because it is the starting point, orientation, and control of the movement of the entire goal management process (Tran Kiem, 2015).

- Innovation in startup training content: The management subject directs the affiliated units based on the national qualification framework and the output standards of the training profession to develop plans and update, adjust and supplement training content in accordance with the development of science and technology in the training program.

- Implementation of forms of organization to support startups: Management of the implementation of the organization of the startup support is the impact of the management subject

on the organization of the startup support, carried out by teachers and students during the teaching and learning process at a certain time and place with specific methods and equipment to carry out teaching and learning tasks according to the school's set goals (Tran Kiem, 2015).

- Management of innovation in startup training content: The management subject directs the affiliated units based on the national qualification framework and training industry output standards to develop plans and update, adjust and supplement training content in accordance with the development of science and technology in the training program. The selection and arrangement of training content for subjects and modules must ensure simplification and practicality in accordance with the development of science and technology, economy and society, develop students' capacity, be linked to reality, and facilitate the implementation of active teaching methods to develop students' qualities and capacities. - Management of innovation in startup training methods: Management of innovation in startup training methods is the process of purposeful and organized impact of the management subject on the entire human, organization and material conditions of the school in order to make the innovation in startup support methods achieve the set common goals. The management subject directs the subordinate units to develop a strategic plan to innovate the method of training for startups; to check and evaluate the innovation of the training method of training for startups. This adjustment is consistent with the law of motion and flexibility for the innovation of the training method of training for startups.

- Managing the implementation of the forms of organizing the training for startups: To manage the implementation of the forms of organizing the training for startups, the management subject directs the units, departments, faculties, and professional groups (collectively referred to as units) to develop a plan to apply the form of organizing the training for startups to subjects, lessons, and subject modules in the training program to develop knowledge, skills, and attitudes of responsibility for the profession; to train and foster teachers' professional expertise, improve the quality of professional activities, etc.

4.2.3. Activities to build a supportive environment for student startups

- Organize startup competitions: Managers direct staff units to develop plans to organize competitions, coordinate with organizations and sponsors, establish organizing committees, judges, rules and award structures to create an environment to encourage students' creative ideas. Competitions must be included in the school year plan and assigned specific tasks.

- Direct the implementation of repairs, renovations and upgrades of school facilities and equipment to create a service environment to provide and support students: Based on the actual situation of the school, managers need to have a plan to repair, renovate and upgrade school facilities and equipment to create a service environment to provide and support students. Specifically: Managers direct the arrangement of working space; build a specific database system of the industry to serve startup needs.

- Directing financial support for start-up activities, start-up clubs, and student start-up centers in schools. Schools also need to have policies to support capital sources to motivate students to carry out start-up activities as stated in the school's regulations.

4.2.4. *Managing capital support activities for student start-up programs and projects*

The subject of managing the start-up education facility needs to clearly understand the current financial management mechanism and policies as an important legal basis for financial management to ensure compliance with the prescribed norms; based on the revenue and expenses for activities related to the start-up education facility, develop a plan for collecting and spending closely.

with the unit's practice. The management subject decentralizes financial management to the affiliated units, is autonomous and responsible for the decentralized finances; directs the allocation of funds to support activities, ideas, and startup projects of students in the school; directs the establishment of a Student Startup Support Fund for students at the school from socialized funding sources; directs the implementation of support for finding funding sources, connecting, and attracting investment from individuals and organizations for projects formed from students' startup ideas; provides financial support for startup projects, creating important conveniences for individuals starting a business.

4.2.5. *Managing the completion of mechanisms and policies to support student startups*

To effectively manage the completion of mechanisms and policies to support student startups, the management subject needs to proactively identify, select, and improve the content of mechanisms and policies to support startups and increase social criticism and consultation. Managers need to facilitate forces involved in the policy development process by expanding information channels and enhancing consulting activities, consulting and reflecting the opinions of educational forces and students.

4.3. Managing the output factors of student start-up support

4.3.1. *Assessing students' start-up capacity*

4.3.1.1. *Determining the framework of university students' start-up capacity*

Inyang and Enuoh (2009) explain start-up capacity as the capacity that allows entrepreneurs to create value from an idea, demonstrate high efficiency and maximum profit in managing a business. According to the European start-up capacity framework, start-up capacity includes the following component capacities:

- Ideas and opportunities:

Competencies	Suggested	Description
1.1. Seize the opportunity	Use imagination	- Identify the needs and challenges that are being met you to identify opportunities - Establish new connections and bring together the scattered elements of that landscape to create opportunities to create value - Identify and seize opportunities to create value by exploring the social, cultural and economic landscape and the possibilities of
1.2. Creativity	Purposeful creative ideas	- Combine knowledge and resources to achieve valuable impacts - Develop a range of ideas and opportunities to create value, including better solutions to current challenges
1.3 Visioning	Working towards your vision of the future	- Visualize the future looking ahead - Develop a vision to turn ideas into action - Envision future scenarios to help guide and act
1.4 Valuing ideas	Making the most of ideas and opportunities	- Assess what value they have socially, economically, culturally

1.5. Ethics and sustainable thinking	Assessing the consequences and impacts of ideas, opportunities and actions	<ul style="list-style-type: none"> - Recognize the potential an idea has to create value and identify appropriate ways to make the most of it - Assessing the consequences of ideas that bring value and the impact of entrepreneurial actions on target communities, the impact of social and environmental ideas, opportunities and actions - Reflecting on how long-term and sustainable business goals are socially, culturally and economically and the course of action - Acting responsibly
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• Resources

Competencies	Suggested	Description
2.1. Self-awareness and self-efficacy	Believe in yourself and continue to develop	<ul style="list-style-type: none"> - Reflect on your needs, desires and wants in the short, medium and long term - Identify and assess your individual and team strengths and weaknesses
2.2. Motivation and persistence	Stay focused and don't give up	<ul style="list-style-type: none"> - Resolve to turn ideas into action and meet the needs to be achieved - Be prepared to persevere and continue to strive to achieve your individual or team's long-term goals resources
2.3 Resource mobilization	Gather and manage the resources you need	<ul style="list-style-type: none"> - Make the most of limited resources - Acquire and manage the necessary capabilities at any stage, including technical, legal, tax and proprietary capabilities
2.4 Financial and economic initiatives	Develop financial and economic know-how	<ul style="list-style-type: none"> - Estimate the cost of turning an idea into value - Plan, make and evaluate financial decisions over time - Manage finances to ensure your value-creating activities are sustainable
2.5. Mobilize Others	Mobilize Others	<ul style="list-style-type: none"> - Inspire and engage stakeholders - Get the support needed to achieve valuable results - Demonstrate effective communication, persuasion, negotiation and leadership skills

• In Action

Competencies	Suggested	Description
3.1. Proactive	Take a risk	<ul style="list-style-type: none"> - Initiate value-creating processes - Accept challenges - Act and work independently to achieve goals, stick to intentions, and execute planned tasks
3.2. Plan and manage	Prioritize and organize	<ul style="list-style-type: none"> - Identify priorities and action plans - Adapt to unseen changes
3.3. Overcome uncertainty, ambiguity, and risk	Make decisions with prioritization, certainty, and risk-free	<ul style="list-style-type: none"> - Make decisions when the outcome of the decision is uncertain, when information is only partially available or when there is uncertainty, or when there is a risk of undesirable outcomes - In the value-creating process, include structured ways to test ideas - Handle rapidly changing influences promptly and flexibly
3.4. Working with Others Teaming, 3.5. Experiential Learning	Collaboration and Networking Learning by Doing	<ul style="list-style-type: none"> - Networking - Resolve conflict and face competition positively when necessary - Learn with others, both peers and friends - Reflect and learn from both successes and failures (yours and others)

4.3.1.2. Organizing the assessment of students according to the standards of entrepreneurial capacity

To manage the quality of student output to meet the output standards of the entrepreneurial capacity framework, it is necessary to organize the examination, assessment and recognition of the results of students' entrepreneurial capacity according to the output standards. The management subject needs to:

- Determine the criteria and standards of knowledge, skills, level of autonomy and responsibility, position and ability to undertake the work of students.

Develop a plan to test and assess students' entrepreneurial capacity. Manage the assessment and evaluation activities

- Organize the implementation of the assessment and evaluation plan

- Train students to prepare and write questions for the assessment and evaluation of students' entrepreneurial capacity. Assessment and evaluation of students' entrepreneurial capacity requires the use of a combination of different tools, methods and forms. Assessment and evaluation is one of the tools commonly used to assess the results of students' entrepreneurial capacity.

- Check and supervise the inspection and evaluation activities

- Prepare facilities and techniques for assessment and evaluation activities: To ensure good results in assessment and evaluation activities, it is necessary to pay attention to the conditions of facilities such as: Regulations and instructions on the content, form, and methods of assessment and evaluation.

4.3.2. Managing output information on student startup

To manage output information on student startups, managers need to make a plan to collect information: Managers need to develop a plan to manage the information system supporting student startups, including both the input information system and the output information system; manage technical equipment for information management; need to clearly identify and assign tasks, etc.; information processing: Managers need to develop a plan to manage the information system, including both the input information system and the output information system; manage technical equipment for information management; need to identify and assign tasks clearly, etc.

To assess the quality and effectiveness of the start up support process, higher education institutions need to monitor and evaluate the results of student startups. The evaluation contents include: Number of startup projects, including the proportion of pilot projects, number of businesses created, number of students participating in startup activities; number of students equipped with startup capacity.

4.4. Managing factors related to the context of startup support for students

4.4.1. Industrial Revolution 4.0

The fourth industrial revolution is taking place and is mainly based on the automation and robotization of production processes, completely changing the nature of work. Therefore, it can be concluded that in the next few years, startup activities require entrepreneurs to have high qualifications, accurate knowledge and logical thinking. At the same time, people with communication and social cooperation skills will also be needed. In addition, the nature of science and innovation is also changing significantly. The characteristic of the 4.0 Industrial Revolution is that the initial investment capital may not be large but the profits are high, which will be good for startups because they often do not have much capital. Startups bring their series of digital

innovations to the industry. These capabilities will be great advantages for startups in the future. In Vietnam, promoting startups is considered a suitable direction in developing the national economy. Promoting startups in Vietnam will contribute to the prosperity of the economy and the development of social progress (Nguyen Thi Thu Hoai, 2021).

4.4.2. Policies and guidelines of the Party, the State and the Ministry of Education and Training on supporting start-ups for university students

The timely issuance of directive documents demonstrates the will and determination of the Party, the State and the Education and Training sector to raise awareness and understanding of the importance of start-up activities of students. The Party and the State play a special role in creating a professional and healthy start-up environment. Decision 1665 of the Prime Minister approving the project "Supporting students and students to start a business" is a legal corridor with breakthrough contents on promoting start-ups, creating conditions for organizations, individuals, companies, corporations, researchers, etc. to join the start-up system. Responsibilities of the Youth Union and Student Association to participate in a series of start-up activities with the following contents: training on business start-ups, seminars on students participating in economic development, exchanging experiences in starting a business, consulting and supporting legal procedures.

4.4.3. Awareness, management and operational capacity of the team of leaders and staff in charge of supporting student start-ups

- Management staff: Awareness of the team of education management staff and staff related to management (hereinafter referred to as staff) of student start-up support activities for students for students is the most important factor. Because awareness is the process by which staff understand the need for management, the importance, content, form and inter-sectoral coordination in managing student start-up support activities for students.

- Staff qualifications: Staff qualifications include: cultural level, professional level, foreign language level and participation skills

- Staff capacity: Staff capacity is a factor that enables them to complete the task of participating in managing start-up support activities for students for students for students for students. Staff capacity determines the effectiveness of managing start-up support activities for students. Staff capacity is formed during the working process, training of the staff themselves and the training work of the school.

4.4.3. Students' awareness of the importance of start-ups

Students must be aware of the importance of start-ups and of start-up support activities for students in order to strive to study and improve themselves. Self-training through start-up support activities for students from the internal and external environment of the school is the shortest path to success in students' start-up activities. 5. Conclusion

Managing student start-up support activities as a contemporary educational science issue is posing many opportunities and challenges for domestic and foreign researchers. Although Start-

up support activities and start-up support management need to be studied in depth. Start-up support management in educational institutions according to the CIPO management model needs to synchronously manage the stages of the teaching and learning process: managing input factors; managing the educational process; managing output factors and managing the contextual factors in which the educational process takes place. Comprehensive management of this process will have the opportunity and ability to achieve effectiveness in improving the quality of start-up support for students at educational institutions. The theoretical basis for managing start-up support for students according to the CIPO model is a scientific basis for surveying and evaluating practices, thereby building measures to manage and support start-ups to improve the quality of education and develop capacity for students.

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GUAIANE LACTONE SESQUITERPENES FROM THE ROOTS OF *PREMNA ODORATA*

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ABSTRACT

The roots of *Premna odorata*, collected for the first time from Phu Yen province, Vietnam, were subjected to phytochemical investigation. This study successfully isolated two guaiane lactone sesquiterpenes, namely zedoalactone E and zedoarolide B. Structural elucidation of these compounds was achieved using advanced spectroscopic techniques, including ESI-MS and NMR. Detailed ¹H- and ¹³C-NMR data, supplemented by HMBC and HSQC experiments, provided further structural confirmation. This research contributes novel findings to the phytochemistry of *Premna odorata*, expanding the understanding of the chemical constituents of this species and highlighting its potential biological importance.

Keywords: *Premna odorata*, zedoalactone E, zedoarolide B, guaiane lactone

1. INTRODUCTION

The genus *Premna* comprises numerous species, among them, *P. corymbosa*, *P. integrifolia*, and *P. odorata*, which are predominantly cultivated in tropical and subtropical regions. Species from this genus have garnered significant attention due to their extensive use in traditional medicine, attributed to their diverse biological activities. Studies have demonstrated that *Premna* species exhibit immunomodulatory, anti-atherosclerotic, antioxidant, anti-diabetic, anti-inflammatory, and antitumor properties.

P. odorata, a plant native to various tropical regions, holds ethnobotanical importance. In traditional medicine, decoctions of its leaves have been employed as febrifuges, diuretics, carminatives, and for the treatment of conditions such as abdominal pain, vaginal irritation, dysentery, and coughs. Despite its medicinal significance, research on *P. odorata* remains limited, with initial studies identifying flavonoids, phenylethanoids, iridoids, and acylated rhamnopyranosides as its key active constituents. Additional investigations have reported anti-inflammatory, anti-tuberculosis, and cytotoxic effects.

In Vietnam, research on *P. odorata* is still sparse, particularly concerning populations distributed in the central provinces. This study focuses on the structural analysis of two guaiane sesquiterpenes (1 and 2) isolated from the roots of *P. odorata*, collected in Phu Yen province, Vietnam.

2. EXPERIMENTAL

2.1. General experimental procedures

NMR analyses were conducted using Bruker 600 MHz spectrometers, with TMS as an

internal standard. ESI-MS spectra were acquired on an Agilent 1100-LC/MSD Trap SL mass spectrometer. Thin-layer chromatography (TLC) was performed using Silica gel 60 F₂₅₄ plates (0.25 mm, Merck). Column chromatography was conducted with Silica gel 60 (230-400 mesh, Merck) for the initial purification, followed by Silica gel 60 (40-63 μ m, Merck) and Sephadex LH₂₀ for subsequent columns. Preparative high-performance liquid chromatography (HPLC) was completed on a Waters 600 system equipped with an ODS column (C₁₈, 250 \times 20 mm; Inertsil Pak).

2.2. Plant material

Roots of *P. odorata* were collected from Phu Yen, Vietnam, in September 2022. Plant material authentication was carried out by Dr. Phan Duc Ngai at the University of Khanh Hoa. A voucher specimen (No. 22.R.01) is maintained in the Laboratory of Drug Research and Discovery at the Institute of Chemistry, Vietnam Academy of Science and Technology (VAST), Hanoi, Vietnam. Roots were air-dried, minced, and ground into a fine powder for extraction.

2.3. Extraction and isolation

A total of 2.2 kg of powdered root material was processed for compound isolation. Three extractions were performed with 70% ethanol (EtOH) over three days, and the combined extracts were concentrated under reduced pressure, yielding 276 g of crude extract. The extract was partitioned between *n*-hexane, dichloromethane (CH₂Cl₂), ethyl acetate (EtOAc), and *n*-butanol after adding water. Each solvent fraction was concentrated at 45°C under reduced pressure to obtain individual residues.

The CH₂Cl₂ fraction (27.0 g) was further purified using silica gel column chromatography with a solvent gradient of *n*-hexane (from 100:1:0 to 0:50:50), yielding 15 fractions (F1-F15). Fraction 3 (2.3 g) was subjected to further purification using silica gel chromatography with a CH₂Cl₂ solvent system (ratios of 100:1, 100:5, and 100:20) and then MeOH. Additional purification with Sephadex LH₂₀ (acetone: MeOH = 1:10) and HPLC (MeOH:H₂O = 55:45) resulted in the isolation of compound 1 (63 mg).

Fraction 5 was further separated using silica gel chromatography with a gradient of CH₂Cl₂ (100:1 to 100:10, and finally 50:50, ending with 100% MeOH), yielding three subfractions (F5.1-F5.3). Subfraction 5.2 (1.78 g) was further purified by silica gel chromatography and Sephadex LH₂₀ (acetone:MeOH = 1:10), followed by HPLC using a MeOH: H₂O mixture (38:62), leading to the isolation of compound 2 (37 mg).

2.4. Spectral data of isolated compounds

Compound 1: zedoalactone E, C₁₅H₂₂O₄, colourless oil, ¹H-NMR (600 MHz, DMSO-d₆), ¹³C NMR (DMSO-d₆, 150.864 MHz) (detailed NMR data in Table 1).

Compound 2: zedoarolide B, C₁₅H₂₂O₅, colourless oil, ¹H-NMR (600 MHz, DMSO-d₆), ¹³C NMR (DMSO-d₆, 150.864 MHz) (detailed NMR data in Table 1).

3. RESULTS AND DISCUSSION

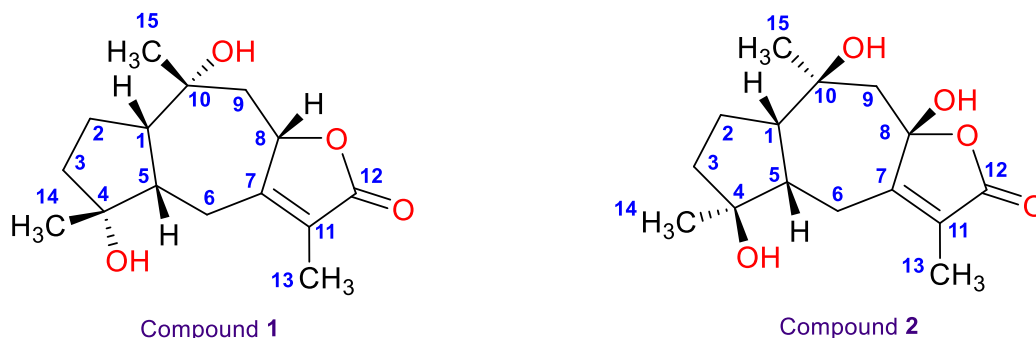


Figure 1. Structures of 1 and 2

Compound 1 was confirmed as $C_{15}H_{22}O_4$, with five indices of hydrogen deficiency, supported by ESI-MS data showing a pseudo-molecular ion $[M+Na]^+$ at m/z 289.14. The 1H -NMR spectrum (600 MHz, DMSO- d_6) revealed significant signals, including a doublet at δH 5.19 (1H, d, 10.8 Hz, H-8), broad singlets at δH 4.73 and 4.37 (1H each, br s, OH), and several aliphatic signals such as δH 2.77 (1H, m, H-1) and δH 1.70 (3H, s, H-13). The ^{13}C -NMR spectrum (150.864 MHz, DMSO- d_6) showed 15 distinct carbon environments, notably an ester carbonyl carbon at δC 174.50 (C-12), two alkenyl carbons at δC 120.42 (C-11) and 166.00 (C-7), along with oxygenated carbons at δC 80.43 (C-4) and 70.99 (C-10). Additional signals corresponding to methyl carbons appeared at δC 8.81 (C-13), 25.71 (C-14), and 32.15 (C-15). The combined 1H - and ^{13}C -NMR data, supported by HSQC correlations, confirmed the presence of three methyl groups, four methylene carbons, three methine carbons, and two quaternary oxygenated carbons. The NOESY spectrum provided further structural details, particularly confirming the β -orientation of H-14 and H-15 through correlations between H-2 β /H-14 and H-2 β /H-15. Altogether, these spectroscopic analyses conclusively identified Compound 1 as Zedoalactone E [13], characterized by a guaianolide sesquiterpene carbon skeleton.

Compound 2 was also isolated as a colorless oil. The molecular formula $C_{15}H_{22}O_5$ was assigned on the basis of ESI-MS, showed a protonated molecular ion peak at m/z 284.15 $[M+H]^+$. The 1H -NMR spectrum showed methyl signals at δH 1.67 (3H, s), 1.21 (3H, s), and 1.07 (3H, s). The ^{13}C NMR data indicated 15 carbons, including an ester carbonyl at δC 173.83; two alkenyl carbons at δC 123.41 and 161.59; three oxygenated carbons at δC 80.35, 71.54, and 106.99; two methine carbons at δC 51.34 and 52.17; four methylenes at δC 24.25, 24.90, 37.67, and 44.10; three methyls at δC 8.12, 25.33, and 31.87. The 1H -NMR and ^{13}C -NMR spectra of 2 were similar to those of compound 1, except for the signal due to the C-8 position (Table 1) with the emergence of hemiacetal at δC 106.99 ppm. In the HMBC experiment on 2, long-range correlations were observed between the following protons and carbons: H-5, H-14 and C-4; H-6 and C-7; H-9 and C-8, C-10; H-13 and C-7, C-11, 12-C-12; H-15 and C-1, C-10- C, H-14 and C-3. These data conclusively suggested that 2 possessed the same structure as Zedoarolide B [14], featuring a guaianolide sesquiterpene carbon skeleton.

Table 1. NMR data of 1, and 2

C	1 (measured in DMSO-d ₆)			2 (measured in DMSO-d ₆)		
	HSQC	δ _C	δ _H	HSQC	δ _C	δ _H
1	CH	51.96	2.77 (1H, m)	CH	52.17	2.52 (1H, m)
2	CH ₂	24.49	1.55 (1H, m) 1.28 (1H, m)	CH ₂	24.90	1.54 (1H, m) 1.30 (1H, m)
3	CH ₂	37.31	1.54 (2H, t, 7.8 and 6.7 Hz)	CH ₂	37.67	1.55-1.66 (2H, m, H-3)
4	C-OH	80.43	-	C-OH	80.35	-
5	CH	47.43	2.06 (1H, dd, 10.2 and 4.8 Hz)	CH	51.34	1.87 (1H, m)
6	CH ₂	24.44	2.62 (1H, dd, 18.0 and 4.8 Hz) 2.31 (1H, dd, 18.0 and 10.2 Hz)	CH ₂	24.25	2.43 (1H, dd, 12.0 and 3.0 Hz) 1.76 (1H, m)
7	=C<	166.00	-	=C<	161.59	-
8	HC-OR	79.51	5.19 (1H, d, 10.8 Hz)	HO-C-OR	106.99	-
9	CH ₂	40.70 (overlap with solvent)	2.03 (1H, m) 1.63 (1H, m)	CH ₂	44.10	2.22 (2H, m)
10	C-OH	70.99	-	C-OH	71.54	-
11	=C<	120.42	-	=C<	123.41	-
12	C=O	174.50	-	C=O	173.83	-
13	CH ₃	8.81	1.71 (3H, s)	CH ₃	8.12	1.67 (3H, s)
14	CH ₃	25.71	1.22 (3H, s)	CH ₃	25.33	1.21 (3H, s)
15	CH ₃	32.15	1.17 (3H, s)	CH ₃	31.87	1.07 (3H, s)

4. CONCLUSION

This study marks the first phytochemical investigation of the roots of *P. odorata* collected from Phu Yen province, Vietnam. Through this research, two pure guaiane lactone sesquiterpenes, zedoalactone E and zedoarolide B, were successfully isolated and identified. Structure elucidation was accomplished using advanced spectroscopic techniques, including ESI-MS and NMR. Both compounds' structures were supported by detailed ¹H- and ¹³C-NMR data, with further confirmation from HMBC and HSQC experiments. Notably, these guaiane sesquiterpenes are being reported here for the first time within the *Premna* genus. These findings contribute new knowledge to the phytochemistry of the *Premna* genus, significantly expanding the understanding of its chemical constituents. The discovery of these two guaiane sesquiterpenes highlights the potential biological importance of *Premna odorata*, paving the way for further studies into its pharmacological applications and the exploration of its other bioactive compounds.

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STATUS OF STUDENTS' ACADEMIC RESULTS IN ENGLISH AT VIETNAM NATIONAL UNIVERSITY OF AGRICULTURE

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ABSTRACT

English is a crucial language for advancing international integration strategies, making it a key focus of the Vietnam National University of Agriculture's (VNUA) educational agenda. At VNUA, English is a mandatory subject for all students, ensuring that graduates are proficient in English for communication, work, and advanced research. This study investigates the current status and factors affecting students' academic performance in English at VNUA, offering insights into potential improvements. Data was collected through an online survey using a Google Form questionnaire, yielding 284 high-quality responses. The findings reveal that 9.42% of students achieved excellence in English, 32.66% performed well, 27.64% were average, while the remainder were weak or did not pass. A chi-square test indicated a significant difference at the 1% level in English academic results based on the amount of time students dedicated to studying English. Additionally, there was a significant difference at the 5% level in the learning outcomes for Listening and Speaking 1, Reading and Writing 2, and Listening and Speaking 2 based on students' living areas. However, extra English learning outside the classroom only significantly impacted Listening and Speaking 1 results at the 5% level. No significant differences were found in English academic outcomes related to participation in English clubs or gender differences. Based on these results, the study suggests proposals to improve students' academic results in English, emphasizing the need to raise awareness about increasing self-study time and enhancing the effectiveness of English club activities.

Keywords: Academic results in English, Self-studying, English club

1. INTRODUCTION

In the context of Vietnam's international integration and the increasingly strong globalization trend, English has become an important language to promote international communication and cooperation. Vietnam National University of Agriculture (VNUA) has made English a compulsory subject in the training program after realizing the importance and benefits of English for students. Proficiency in English not only helps students feel confident in communication but also opens up many opportunities for study and work in an international environment. However, in reality, the English learning results of students at VNUA are still limited. Some students have difficulty achieving English output standards, causing delays in graduation as well as wasting time and money when having to re-register for classes many times. This also hinders their ability to use English effectively in work and research after graduation and their future job opportunities. Factors that affect students' learning outcomes include English learning time, extracurricular

activities, and living space. However, the extent and manner of this influence have not been fully and deeply studied. Therefore, this study was conducted with the desire to better understand the current situation of English learning results of students at VNUA, as well as identify factors that affect these outcomes. The study used an online survey method to collect data from students, thereby making specific recommendations to improve the quality of English learning and teaching at the Vietnam National University of Agriculture.

2. LITERATURE REVIEW

Research on students' academic performance in English at universities is relatively limited in the literature, particularly when it comes to understanding the factors that influence these outcomes. While English has been recognized as a critical skill for international integration and professional development in Vietnam, most existing studies focus on general English proficiency rather than the specific academic results of university students (John, 2017; Kapur, 2018; MANN & A, 2013; Ofori, R. & Charlton, 2002; Salem et al., 2013; Shawwa et al., 2015; Todres et al., 2012). This gap in the literature leaves much to be explored regarding the unique challenges and influences faced by university students in their English studies.

The existing research often addresses broader issues such as curriculum effectiveness, teaching methodologies, and the impact of English on employability. For instance, studies have examined the effectiveness of different teaching methods in improving English proficiency, such as communicative language teaching and blended learning approaches. However, these studies tend to generalize the outcomes without delving into the individual factors that may affect student performance, such as socio-economic background, prior exposure to English, motivation, and the availability of support resources like tutoring or language labs.

Additionally, research focusing on the Vietnamese context has often been limited to primary and secondary education levels, with less attention given to higher education. Studies that do explore university-level English education typically emphasize challenges related to curriculum design and policy implementation rather than student-specific factors like study habits, anxiety, or the influence of extracurricular activities.

Given this context, the need for focused research on the factors influencing university students' English academic results in Vietnam is evident. Understanding these factors could lead to more targeted interventions, improving not only individual student outcomes but also contributing to the overall effectiveness of English language education at the tertiary level. This study aims to fill that gap by identifying and analyzing the key factors that influence English academic performance among university students in Vietnam, providing insights that could inform future educational strategies and policies.

3. METHODOLOGY

3.1. Data collection

This study was conducted through an online survey. The questionnaire was distributed on student forums/social network platform of the Vietnam National University of Agriculture, as well

as through networks of faculty members and student clubs, to maximize the number of survey responses collected. After a three-month survey period, the study received 300 responses, of which 284 were used for this research after data cleaning.

3.2. Data analysis

Descriptive statistical methods were used in this study to describe the characteristics of the students and compare differences among them to examine certain factors that may influence the English academic results of students at the VNUA.

4. RESULTS AND DISCUSSION

4.1. Students' characteristics

This table 1 indicates the students' characteristics.

Table 1. The surveyed students' cohort and program information

Programme	Cohort 63-65	Cohort 66 (Enroll in 2021)	Cohort 67 (Enroll in 2022)	Total
English program	3	16	5	24
Vietnamese program	50	112	98	260
Total	53	128	103	284

The data in Table 1 are divided by the course and curriculum of the students participating in the survey at the VNUA. Of the total 284 students who participated in the survey, there were 24 students in English-taught programs and 260 students in Vietnamese-taught programs. Specifically, the number of students studying in English-taught programs is distributed as follows: 3 students from courses K63-65, 16 students from course K66, and 5 students from course K67. Meanwhile, the number of students participating in Vietnamese-taught programs is significantly larger: 50 students from courses K63-65, 112 students from course K66, and 98 students from course K67. This large difference clearly shows us that the Vietnamese-taught program is still more dominant in students' choices. The explanation for this may stem from the familiarity with the language of instruction and the better receptive ability of each student.

Table 2. Demographic characteristics of surveyed students

Characteristic	Explain	Number (people)	Structure (%)
Place of residence*	Area 1	37	13
	Area 2	116	41
	Rural Area 2	91	32
	Area 3	40	14
Gender	Male	122	43
	Female	162	57
University entrance exam combination with English subject	Yes	128	45
	No	156	55

Characteristic	Explain	Number (people)	Structure (%)
Faculty currently studying	Social Science fields	174	61
	Engineering fields	110	39
English club	Yes	161	57
	No	123	43
Take additional English classes	Yes	79	28
	No	205	72
Forms of additional English classes	Online	37	21
	Offline	62	34
	Combine both online and offline	81	45
Self studying	Less than 3 hours/week	172	61
	3-5 hours/week	73	26
	5-7 hours/week	21	7
	Over 7 hours/week	18	6

Note: * The regulations regarding student residential areas are stipulated in Circular 08/2022/TT-BGDĐT.

Table 2 details the demographic characteristics of the 284 students who participated in the survey, including residence, gender, course, university entrance exam group, and some factors related to English learning. Of the surveyed students, 43% were male and 57% were female, which reflected a relative gender balance in the sample. In terms of residence distribution, students came from many different regions, with 13% of students coming from region 1, 41% of students living in region 2, 32% from rural region 2, and 14% living in region 3. These figures show a diversity in the geographical background of the surveyed students. The diversity in course groups is shown by the percentages of K63-65 (19%), K66 (45%), and K67 (36%). Notably, 45% of students have applied for university admission with a combination of English subjects, but up to 55% do not have English in the admission combination. In addition, 57% of students participate in English clubs and 28% participate in extra English classes, showing that students still have a significant level of interest in improving their language skills. However, most students do not participate in extra English classes, accounting for 72%.

Table 3. A passion for English of surveyed students

Criteria	Extremely dislike (%)	Dislike (%)	Normal (%)	Like (%)	Really Like (%)	Average score (%)
Do you like learning English?	2	10	53	29	6	3.27

Table 3 shows the views of the students of the VNUA surveyed about their interest in learning English. More than half (53%) have a neutral attitude towards this. They do not show their love or hate for English. In addition, more than one-third of the surveyed people show their liking (29%) and very liking (6%) of English. And only a small part of the students show their dislike for learning this language, accounting for 12%.

Table 4. Assessment of aptitude for English

Criteria	Absolutely not (%)	No (%)	Normal (%)	Have a little (%)	Very talented (%)	Average score
Do you think you have a talent for learning English?	3.17	28.17	44.01	23.24	1.41	2.91

From Table 4, it can be seen that the majority of students are not sure whether they have an aptitude for learning English or not, as 44.01% chose normal. In addition, the low average score (2.9155) on the assessment of English aptitude shows that a large number of students surveyed believe that they have no aptitude for this subject, and only less than a quarter of students (24.65%) believe that they have a little aptitude (23.24%) and are extremely talented (1.41%).

Table 5. Students' motivation to learn English

Criteria	Strongly disagree (1)	Disagree (2)	Normal (3)	Agree (4)	Strongly agree (5)	Average score
I learn English because of passion.	15.14%	24.65%	37.32%	15.49%	7.39%	2.92
I study English to get a high-paying job after graduation.	5.99%	3.52%	26.76%	42.25%	21.48%	3.69
I learned English because my parents and school forced me to.	15.14%	24.65%	37.32%	15.49%	7.39%	2.75
I learn English so I can watch foreign movies, play games...	9.86%	8.80%	41.90%	28.17%	11.27%	3.22
I learn English to communicate with foreign friends.	9.15%	7.39%	35.92%	28.52%	19.01%	3.40
I am learning English to study abroad.	15.14%	16.55%	37.68%	18.31%	12.32%	2.96
I study English to get a degree (IELTS, TOEIC...)	8.80%	8.45%	36.97%	29.58%	16.20%	3.35
I learn English to access other cultures.	8.10%	33.80%	32.35%	9.51%	15.85%	3.37
I learned English because my friends asked me to.	19.37%	23.24%	41.90%	10.56%	4.93%	2.58

Table 5 shows that most of the students' opinions on English learning motivation are neutral. 2 motivations for learning English have higher average scores than the others: learning to have a chance to get a good job in the future (3.6972) and learning to be able to communicate with foreigners (3.4085). Meanwhile, the motivation to learn because of passion has a fairly low average score (2.9225). It can be seen that students at the Viet Nam National University of Agriculture are motivated to learn English mainly for economic reasons and to be able to integrate internationally. Specifically, they want to get a job with a higher salary and be able to communicate with foreigners rather than because of passion. This reflects the trend of students wanting to learn English for practical purposes when putting future goals and career opportunities above personal interests.

This is not only seen in students of VNUA, but is a common trend among Vietnamese youth today. According to a study called "Vietnam Language Learning Behaviors" in 2021, it was shown that 60% of Vietnamese youth's motivation to learn English is to have better job opportunities and 44% for communication.

Table 6. Students' English learning methods

Criteria	Strongly disagree (1)	Disagree (2)	Normal (3)	Agree (4)	Strongly agree (5)	Average score
For me, learning English through listening to music, watching movies, reading newspapers... is the most effective.	8.45%	12.32%	35.56%	29.23%	14.44%	3.28
For me, learning English through playing games is the most effective.	9.86%	21.48%	46.31%	17.96%	7.39%	2.91
For me, learning English through practicing test questions is the most effective.	8.45%	12.32%	42.25%	27.11%	9.86%	3.17
For me, learning English through communication is the most effective.	8.45%	7.39%	29.23%	33.45%	21.48%	3.52
For me, learning English through English teaching apps is the most effective.	7.75%	13.73%	44.72%	27.11%	6.69%	3.11

It can be seen that students of VNUA believe that the traditional learning method through practicing exam questions is no longer the most effective method, when the assessment score is only slightly above average, 3.1761, only ranked 3rd out of 5 English learning methods mentioned. Instead, they highly appreciate the practical application learning methods such as learning through communication (average assessment score is 3.5211) or learning through watching movies or listening to music (average score is 3.2887). These are also the two methods with the first and second highest rates of agreement and strong agreement respectively. With the first method, the percentage of surveyed students choosing to agree and strongly agree is 54.93%. The second method reached 43.67%.

Although the method of learning English through playing games is rated the lowest, the average score is only low (2.9155). However, there are also a number of students who think that this method is the most effective for them. This opinion accounts for about a quarter (25.35%) of the opinions received from the surveyed students. This shows that a number of students at the VNUA do not only consider playing games as a purely recreational activity but it can also support their studies. There are many video games today that require players to communicate in English and read and understand the tasks and conversations in the game. This method helps learners improve their English ability unconsciously while participating in games whose main language is English. It can be seen that this can be a good method of learning English if you know how to apply it.

Table 7. Comments on English subject

Criteria	Strongly disagree (1)	Disagree (2)	Normal (3)	Agree (4)	Strongly agree (5)	Average score
I feel English very interesting.	8.80%	11.60%	50.40%	23.60%	5.60%	3.05
I feel that English is highly applicable.	6.30%	7.40%	32.40%	31.70%	22.20%	3.55
I feel the amount of English knowledge is appropriate.	6.70%	10.60%	47.50%	26.40%	8.80%	3.20
I feel that the content of the sections and chapters of English are closely linked.	5.60%	12.70%	48.60%	26.10%	7.00%	3.16
I am satisfied with the English teaching curriculum.	5.60%	10.60%	51.40%	25.70%	6.70%	3.17
I feel satisfied with the time teaching English.	5.60%	9.50%	51.10%	26.40%	7.40%	3.20
I feel that the amount of time spent teaching English is too much.	9.90%	15.10%	55.30%	15.50%	4.20%	2.89
I find the level of difficulty of English easy.	12.30%	21.10%	46.10%	15.10%	5.30%	2.79
I felt the difficulty level of the English exam was easy.	13.00%	26.40%	43.00%	12.30%	5.30%	2.70

From Table 7, it can be seen that the surveyed students all have positive opinions about the English subject taught at the VNUA when most of the evaluation scores are above average. In particular, with the characteristic of high applicability, most of the students participating in the survey agreed when the average evaluation score reached 3.55.

However, in terms of the attractiveness of a course, the average score was only 3.0563. Because about half of the students interviewed (50.40%) expressed a neutral opinion. That means they did not feel that the content of the English subject taught at the VNUA was boring but also not attractive to them. In addition, about one-fifth of the people surveyed (20.4%) said that the content of this subject was boring to them.

Although a large number of surveyed students believe that the English subject taught at the VNUA is highly applicable, they also believe that the difficulty level of the content and the exam are not suitable. The average score of the statements "I feel that the difficulty level of the English subject is easy" and "I feel that the difficulty level of the English exam is easy" is only 2.7993 and 2.7042 respectively. Of these, about one-third (33.4%) of the surveyed people do not agree or strongly disagree with the difficulty level of the teaching content. Meanwhile, this rate in the opinion about the difficulty level of the English exam at the VNUA is 39.4%.

Through this, it can be seen that the teaching content of English at the VNUA is highly applicable. However, it also needs to be improved. Especially the difficulty of the teaching content as well as the exam questions.

Table 8. Assessment of facilities and learning environment of English subject

Criteria	Strongly disagree (1)	Disagree (2)	Normal (3)	Agree (4)	Strongly agree (5)	Average score
I am satisfied with the quality of facilities for teaching English.	4.90%	8.50%	48.60%	29.90%	8.10%	3.2746
I feel that the facilities for teaching English are adequate.	4.90%	8.50%	49.30%	28.90%	8.50%	3.2641
I am satisfied with the size of the English classes (both online and offline).	5.60%	6.70%	51.80%	27.50%	8.50%	3.1056
I feel the English learning movement at the Viet Nam National University of Agriculture is very active	6.30%	12.70%	52.10%	21.80%	7.00%	3.0775
I feel satisfied with the English learning environment at home (boarding house, dormitory...)	6.30%	13.40%	53.20%	20.40%	6.70%	3.2218
I feel satisfied with the English learning environment in class and school.	4.90%	8.10%	54.20%	25.40%	7.40%	3.2993
I feel that the course materials are comprehensive.	3.90%	7.40%	51.40%	29.60%	7.70%	3.2606
I am satisfied with the quality of the material.	4.60%	6.30%	54.90%	26.80%	7.40%	3.2465
I feel the content of the document is up to date with current trends.	5.30%	8.10%	52.10%	25.70%	8.80%	3.2746

From Table 8, it can be seen that the factors of facilities and learning environment of English at VNUA are all well evaluated. Most of the factors have an average score of over 3. It can be seen that the Viet Nam National University of Agriculture has also paid attention and invested in facilities as well as building a learning environment for this subject.

However, regarding the factor “the movement to learn English is very active”, the average score is only 3.0775. This can also be partly explained by the characteristics of the university. Because most of the majors in the school do not have strict requirements on English proficiency, the movement to learn English at the VNUA is not very active.

But the school should also have more activities to promote the English learning movement. This will not only improve the quality of English learning of students in the school but also improve the quality of students in the school.

Table 9. Students' level of agreement with factors affecting English learning outcomes

Criteria	Strongly disagree (1)	Disagree (2)	Normal (3)	Agree (4)	Strongly agree (5)	Average score
I feel that my family's financial situation has an impact on my English performance.	6.00%	10.60%	48.90%	26.10%	8.50%	3.2042
I feel that the environment (learning space) has an impact on my English learning results.	5.30%	7.70%	43.70%	31.70%	11.60%	3.3662
A good learning environment (quiet, adequate facilities...) helps me learn English more effectively.	4.20%	6.00%	48.20%	29.60%	12.00%	3.3908
I feel that my parents' influence has an impact on my English learning results.	6.00%	13.40%	53.20%	19.70%	7.70%	3.0986
If my parents are good at English, I will be good at English too.	12.30%	11.60%	47.20%	22.20%	6.70%	2,993
I tried to get high marks in English because my parents required it.	13.00%	18.30%	46.50%	16.90%	5.30%	2,831
I feel that my friends have an impact on my English learning.	5.60%	12.00%	48.90%	27.80%	5.60%	3.1585
If my friends are also good at English, I will learn English well.	8.10%	15.50%	49.30%	21.80%	5.30%	3,007
I feel that health factors affect my English learning results.	7.00%	12.70%	52.10%	20.80%	7.40%	3,088
I feel that if I am in good health, I will learn English more effectively.	6.70%	11.60%	53.20%	20.80%	7.70%	3.1127
I feel that if I am in a good mood (not mentally ill, not under pressure), learning English will be more effective.	4.60%	9.50%	45.80%	28.90%	11.30%	3.3275

Through Table 9, it can be seen that the surveyed students all highly appreciated the impact of external factors such as financial factors and learning environment when the average score of these two factors both reached a fairly high average score, respectively 3.2042 and 3.3662. Which, the statement that a good environment helps learning English more effectively had the highest average score, 3.3908. 41.6% of the students participating in the survey agreed and strongly agreed with this statement. It can be seen that family financial factors and the learning environment support each other. Families with financial conditions can help their children have a good English learning environment and vice versa.

In addition, health factors, especially mental health factors, are also highly appreciated with an average score of 3.3275. Of which, up to 40.2% of the surveyed students agreed and strongly agreed with the statement that having a good mentality makes learning English more effective. A study in 2002 by Casady and Johnson showed that test anxiety can negatively affect learning

performance. High test anxiety leads to a decrease in the ability to concentrate and process information, thereby reducing students' scores. Another study in 2006 by Pekrun emphasized that positive emotions such as excitement and happiness can motivate students to learn more effectively, while negative emotions such as anxiety and fear can reduce learning performance.

Genetic factors as well as influences from family or friends are not highly appreciated. Only 28.2% of the students participating in the survey agreed that if parents are good at English, their children will also be good at English. The percentage of those who said that children will learn English well because of pressure from their parents was 22.2%, about 1/10 of the number of survey participants.

In summary, students of VNUA believe that finance, learning environment, and mental health are three factors that have a great influence on their English learning results. Other factors have an influence but are not significant.

From this result, the academy should consider supporting students who have financial difficulties when studying this subject. In addition, there are also measures to promote the movement of learning English in the school when this is assessed by participating students as not high.

4.2. Academic results in English of survey students at Vietnam National University of Agriculture

Table 10. English exam score structure

Structure	English 1				English 2				General	
	Reading and Writing 1		Listen 1		Reading and Writing 2		Listen 2			
	N	%	N	%	N	%	N	%	N	%
Failed	14	4.93	15	5.28	14	4.93	14	4.93	57	5.02
Weak	71	25.00	71	25.00	72	25.35	73	25.70	287	25.26
Medium	77	27.11	77	27.11	81	28.52	79	27.82	314	27.64
Fair	94	33.10	95	33.45	92	32.39	90	31.69	371	32.66
Excellent	28	9.86	26	9.15	25	8.80	28	9.86	107	9.42
Total	284	100	284	100	284	100	284	100	1136	100

Note: Failed (0): F; Weak (1): D, D+; Average (2): C, C+; Fair (3): B, B+; Excellent (4): A

Overall, it can be seen that the majority of students achieved average or good scores (an average of about 60% in listening, speaking, reading, and writing skills in both English 1 and English 2). This shows that in general, the learning level of the surveyed students was at the average level of the course.

However, there is a quarter of the number of students with poor academic performance and about 5% do not meet the requirements. This result is also quite reasonable when assessing the

difficulty of English and its exam (Table 7), about 33% think that the learning content is available and nearly 40% think that the exam is difficult.

A detailed observation shows that the scores of reading and writing skills tend to be higher than those of listening and speaking in both English 1 and English 2. This can be seen as a sign that the foundation of students' reading and writing skills is better than that of listening and speaking. This may be due to the fact that the English learning process in secondary and high school is mainly taught two skills: reading and writing.

In addition, we can see the similarity between English 1 and English 2 when there is no big difference between the levels (from not reaching to good). Through that, we can see that the teaching curriculum of this subject is closely linked.

4.3. Factors influencing students' academic results in English at Vietnam National University of Agriculture

The analysis of factors influencing students' academic results in English at the VNUA reveals significant findings. The chi-square test indicates a strong relationship between the time students dedicate to studying English and their academic performance, with a significant difference at the 1% level. This suggests that increased study time positively correlates with better academic outcomes in English.

Additionally, the living area significantly affects learning outcomes in specific English skills, such as Listening and Speaking 1, Reading and Writing 2, and Listening and Speaking 2, with differences observed at the 5% level. Students from different living areas show varying levels of proficiency in these skills, which may be attributed to differences in access to resources, environmental influences, or educational backgrounds.

Interestingly, additional English learning outside the classroom does not generally lead to improved learning outcomes across all skills. The exception is the Listening and Speaking 1 skill, where there is a significant difference at the 5% level. This could imply that certain extracurricular activities or focused additional practice may benefit specific skills but are not universally effective.

No significant differences were found in academic results based on participation in English clubs or gender differences among students. This suggests that while extracurricular activities like English clubs are valuable, they do not necessarily translate into better academic performance. Similarly, gender does not appear to play a significant role in determining academic success in English at the VNUA.

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USING PISA-APPROACHED EXERCISES IN TEACHING BIOLOGY 10 TO DEVELOP SCIENTIFIC COMPETENCE AND APPLICATION OF LEARNED KNOWLEDGE AND SKILLS IN STUDENTS

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ABSTRACT

The 2018 General Education Program emphasizes the transition from merely assessing knowledge to a comprehensive evaluation of students' competencies. To meet the requirements of this shift in competency-based assessment, teachers must also adapt, particularly through the use of PISA-oriented exercises. These exercises allow students to explore and acquire new knowledge or self-assess through various teaching activities. PISA focuses on evaluating three main competencies: Mathematical literacy, Reading literacy, and Science literacy. Among these, Science literacy refers to an individual's ability to use scientific knowledge to solve problems related to the natural world through human activity, contributing to life and the sustainable development of the natural world. In this article, we used theoretical research methods and expert methods to clarify the concept of PISA-oriented exercises, science literacy within PISA, the ability to apply acquired knowledge and skills in Grade 10 Biology, the process of designing PISA-oriented exercises with illustrative examples, and how to use these exercises in Grade 10 Biology instruction. If teachers regularly use PISA-oriented exercises in Biology 10 lessons, across various teaching activities, students will have numerous opportunities to develop skills necessary for the subject-specific competencies in Biology as well as general competencies. This approach will also help students meet the competency-based evaluation standards required for current university admissions.

Keywords: PISA-approached exercises, Biology 10, scientific competence

1. INTRODUCTION

Vietnam is currently implementing the 2018 General Education Program with a focus on developing students' qualities and competencies [1]. Vietnam continues to participate in the 2022 PISA cycle and subsequent cycles to systematically and scientifically assess learners' competencies. PISA is used as a tool to reflect on Vietnam's teaching and learning practices to determine whether they truly meet the requirements for innovation and international integration in education [2].

Since 2012, several publications in Vietnam have explored the application of PISA's assessment approach to the practice of general education, particularly through the use of PISA-oriented tasks to develop students' competencies across different subjects. Through our research, we have found that the Grade 10 Biology curriculum is constructed around key topics, including cell biology, microbiology and virology, biology and sustainable development, and biology in the future. These topics are closely connected to real-life human activities, providing an excellent foundation for teachers to use PISA-oriented tasks in Grade 10 Biology to foster scientific competencies and the ability to apply learned knowledge and skills.

This article provides an overview of the levels of scientific competency assessment in PISA and the ability to apply acquired knowledge and skills in Grade 10 Biology. From this, we design PISA-oriented exercises to illustrate how to teach the topic of enzymes (Grade 10 Biology).

2. LITERATURE REVIEW

Globally, several studies have examined scientific competency, focusing on its definition, structure, and manifestation, which have garnered significant attention from scientists and educational research organizations. Scientific competency in PISA has been developed and refined by the OECD through various assessment cycles. PISA 2006 defined scientific competency as consisting of: identifying scientific issues, explaining scientific phenomena, and using scientific evidence. By PISA 2018, the framework for scientific competency was expanded to include: explaining phenomena scientifically, evaluating and designing scientific research, and interpreting data and evidence scientifically [4]. Some typical studies include: The research group led by Dadan Rosana has developed assessment instruments of the PISA model to measure students' problem-solving skills and scientific literacy in junior high schools [7]. Teig et al. (2022) reported a systematic review of studies investigating science teaching and learning: over two decades of TIMSS and PISA [8]. Anwar et al. (2015) presented the biology science-based PISA framework implications for the enhancement of students' scientific literacy [9]...

In Vietnam, since 2014, numerous research studies on competency-based teaching have been published, providing a foundation for the implementation of competency-based education in the country's educational system. The research group led by Trung Đình Le and Hoi Thi Thanh Phan has published studies on the processes, measures, methods, and organizational strategies for teaching aimed at developing both general and subject-specific competencies in various subjects [6]. Author Nga Thi Viet Nguyen has conducted research on developing skills for assessing students' scientific competencies according to the PISA framework in the teaching of biology at the secondary education level [5].

Through the study of research works and materials from both domestic and international authors, it is evident that these authors have addressed various issues related to competency-based teaching in general and in specific subjects, as well as methods and tools for assessing students' competencies during the teaching process of Biology in particular and other subjects in general. However, no research has been conducted on the use of PISA-oriented exercises in teaching Grade 10 Biology to develop students' scientific competencies and their ability to apply acquired knowledge and skills.

3. THEORETICAL BASIS AND RESEARCH METHODOLOGY

a. Theoretical Research Methods

The study employs several theoretical research methods, including analysis, synthesis, classification, systematization, and generalization, to examine relevant literature:

- Review of legal documents related to the research topic, such as the 2018 General Education Curriculum, the 2018 Biology Curriculum, and the current educational development strategy in Vietnam.

- Examination of educational materials, theories, and teaching methodologies, as well as competencies, biology-specific competencies, competency assessment, and competency-based exercises.

- Investigation of PISA-related documents.

- Study of the Biology 10 curriculum and textbooks.

b. Expert Consultation

The study involves consulting with leading scientists and experts in teaching methodologies to develop a system of PISA-approached exercises for teaching Biology 10. These exercises aim to enhance students' scientific competence and the ability to apply their acquired knowledge and skills.

4. RESULTS

4.1. PISA-Approached Exercises

PISA-approached exercises are designed based on PISA assessment principles and have a similar structure to PISA exercises. They aim to develop students' ability to apply their learned knowledge and skills, enhance reasoning capabilities, and solve problems related to mathematics, reading comprehension, and science.

The types of questions used in these exercises include:

- **Short response questions:** requiring brief answers.

- **Open-constructed response questions:** requiring detailed answers, where the scoring may involve multiple parts.

- **Close-constructed response questions:** requiring specific responses based on provided answers.

- **Multiple choice questions:** objective questions with several answer choices.

- **Yes-No or True-False complex questions.**

4.2. Science competency in PISA

Definition

The term "Science competency" encompasses a broad range of competencies that include three specific scientific abilities. Competency is not only about knowledge and skills (OECD, 2003) but also involves the ability to mobilize cognitive and non-cognitive resources in a given context.

"Scientific knowledge," as used in this framework, includes both scientific knowledge and knowledge about science. Scientific knowledge pertains to the natural world, covering key fields such as physics, chemistry, biological sciences, earth sciences, space sciences, and fundamental

scientific technology. Science knowledge pertains to the means ("scientific inquiry") and purposes ("scientific explanation") of science.

Characteristics of the PISA Definition of Science Competency

The PISA definition of science competency involves four interrelated aspects:

- **Context:** Recognizing situations related to science and technology.
- **Knowledge:** Understanding the natural world based on scientific knowledge, which includes knowledge about the natural world and science itself.
- **Competencies:** Demonstrating Science competency, which includes identifying scientific issues, explaining phenomena scientifically, and using scientific evidence.
- **Attitude:** Exhibiting interest in science, supporting scientific inquiry, and motivating responsible actions, such as conserving natural resources and protecting the environment.

Levels of Assessing Science Competency in PISA

Table 2.1. Outlines the levels of assessing Science competency in PISA 2015

Level	The performance ability of students
1	Students possess limited scientific knowledge and can apply it to only a few familiar situations. They can present scientific explanations clearly and follow given directions based on provided evidence.
2	Students have basic scientific knowledge to provide suitable explanations in familiar contexts or draw conclusions based on simple research. They can reason directly and offer literal interpretations of scientific research outcomes or technological problem-solving.
3	Students can identify scientific issues clearly described in various contexts. They know how to select facts and knowledge to explain phenomena and apply models or research plans. At this level, students can interpret and use scientific concepts from different perspectives and apply them directly. They can construct brief conclusions using facts and make inferences based on scientific knowledge.
4	Students can effectively work with situations and issues related to clear phenomena, requiring them to reason about the role of science or technology. They know how to select and integrate explanations from various scientific and technological principles, linking these explanations to aspects of real-life situations. At this level, students reflect on their actions and connect their decisions to scientific knowledge and evidence.
5	Students can identify scientific components in various complex life situations, apply scientific concepts and knowledge to these situations, and know how to compare, select, and evaluate appropriate scientific evidence to respond to real-life scenarios. At this level, students demonstrate well-developed research abilities, appropriately linking knowledge and providing deep insights into situations. They know how to construct evidence-based explanations and arguments based on thorough analysis.
6	Students consistently identify, explain, and apply scientific knowledge across various complex life situations. They know how to link explanations and multiple information sources, using evidence from these sources to support their decisions. Students exhibit advanced scientific thinking and reasoning clearly and coherently, using scientific understanding to support solutions for unfamiliar scientific and technological situations. At this level, students effectively use scientific knowledge to build theoretical foundations supporting decisions and proposals concerning human, social, and global situations.

These levels range from recognizing simple scientific concepts to applying scientific knowledge and reasoning in complex, real-world situations. The levels are designed to evaluate students' ability to understand and apply scientific knowledge, interpret data, and engage in scientific reasoning.

Competency in Applying Learned Knowledge and Skills According to the PISA Approach

The ability to apply learned knowledge and skills is one of the three specific competencies in the subject of Biology (Biological cognition; exploring the living world; applying learned knowledge and skills). In this study, we focus on the competency of applying learned knowledge and skills to analyze and design exercises aimed at developing this competency in students.

Table 2.2. Criteria and Students's Level of Developing learned knowledge and skill application competency

Column Head	Level of Developing learned knowledge and skill application competency		
	Level 1	Level 2	Level 3
Applying knowledge to explain and evaluate common natural and life phenomena	Explain and evaluates familiar natural and life phenomena that have been encountered in lessons	Explain unfamiliar natural and life phenomena not previously encountered in lessons	Evaluate unfamiliar natural and life phenomena not previously encountered in lessons
Applying knowledge to explain, evaluate, and identify some technological models at an appropriate level	Explain and evaluate familiar technological models encountered in lessons at an appropriate level	Explain and evaluate unfamiliar technological models not previously encountered in lessons at an appropriate level	Identifies unfamiliar technological models not previously encountered in lessons at an appropriate level
Demonstrating appropriate attitudes and behaviors to protect human health and the natural environment	Correctly recognizes appropriate behaviors to protect human health and the environment	Identifies and differentiates appropriate behaviors to protect human health and the environment	Demonstrates appropriate behaviors to protect human health and the environment
Proposing solutions to protect human health, the natural environment, human health and the environment, etc.	Proposes familiar solutions encountered in lessons to protect human health and the environment	Proposes similar but unfamiliar solutions not encountered in lessons to protect human health and the environment	Proposes unfamiliar solutions not encountered in lessons to protect human health and the environment

The table outlines the criteria and different levels of development for students' ability to apply their acquired knowledge and skills in various contexts. It emphasizes progressive competency development from basic to advanced levels, where students are expected to integrate their scientific understanding with practical applications in real-life scenarios. The levels range from recognizing and applying fundamental concepts in familiar situations to more complex applications requiring higher-order thinking and problem-solving skills.

Designing PISA-Approached Exercises in Teaching Biology 10 to Develop Reading Comprehension and learned knowledge and skill application competency in Students

Process for Designing PISA-Approached Exercises in Teaching Biology 10.

Based on the analysis of PISA competency assessment and the Biology 10 curriculum, we propose the following steps for designing PISA-approached exercises in teaching Biology 10 in figure 1.

Illustrative Example

We illustrate the step-by-step process of designing PISA-approached exercises in teaching Biology 10, focusing on the topic of enzymes.

Step 1: Select Appropriate Content Units Aligned with Educational Objectives. Based on the program's objectives and the required learning outcomes (regarding qualities and

competencies) of the Biology 10 curriculum, we chose the topic of enzymes to develop PISA-approached exercises.

Step 2: Define Learning Outcomes Based on Lesson Objectives, Topics, and Content. The learning outcomes for the enzyme topic are identified as follows:

- Define the concept, structure, and mechanism of enzyme action.

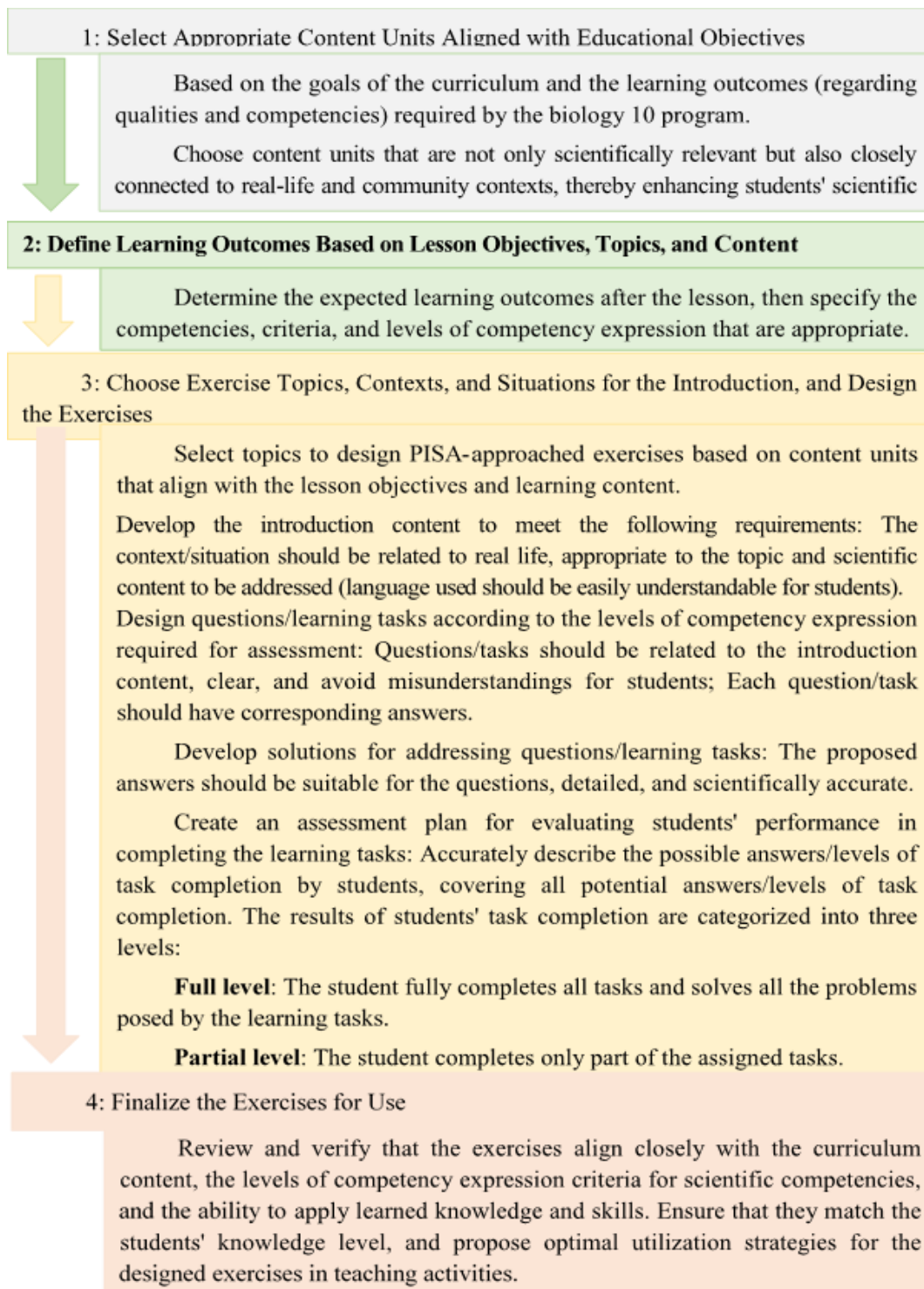


Figure 1. Four steps for designing PISA-approached exercises in teaching Biology 10

Explain the role of enzymes in metabolic processes and energy transformation.

Analyze the factors affecting the catalytic activity of enzymes.

Apply the understanding of enzymes to explain certain practical issues.

From these outcomes, competencies and criteria are determined according to Table 2.1 and 2.2 to design PISA-approached exercises suitable for assessment at levels 2 and 3.

Step 3: Choose Exercise Topics, Contexts, and Situations for the Introduction, and Design the Exercises.

Based on the enzyme content unit, aligned with the lesson objectives and learning content, we design the following PISA-approached exercise as an illustration:

Diet Involving Raw Food

Raw foods have not been cooked or processed and are not exposed to heat. This diet often includes fermented foods, sprouted grains, seeds, and raw fruits and vegetables. Many people following a raw food diet, vegetarianism, or veganism have eliminated animal products from their diet, focusing mainly on plant-based foods. However, a few still consume raw dairy products, fish, and even raw meat.

Most of these individuals believe that raw foods are more nutritious than cooked foods, as enzymes and some nutrients are destroyed during cooking, and cooked foods are perceived to be harmful. While eating raw fruits and vegetables offers some health benefits, there are potential issues with a strict raw food diet.

It is challenging to adhere to a strict raw food diet, and few people maintain a fully raw diet for a long time. Moreover, cooking is required to eliminate bacteria and microorganisms in certain foods. A fully raw diet that includes fish and meat poses a risk of foodborne illness.

Questions:

- Identify which type of food is healthier to consume raw rather than cooked.

A. Fruits, raw vegetables, broccoli, cabbage, onions, garlic.

B. Fruits, raw vegetables, mushrooms, tomatoes, carrots, legumes.

C. Meat, fish, mushrooms, tomatoes, carrots, legumes, asparagus.

D. Meat, fish, broccoli, cabbage, onions, garlic.

- Some people believe raw foods are more nutritious than cooked foods because:

A. Most human enzymes work best between 35°C and 40°C.

B. Enzymes are sensitive to temperature and easily denature at high temperatures.

C. The enzymes in foods change during cooking, causing an enzyme deficiency in the body.

D. Raw foods improve digestion and increase nutrient absorption from foods.

- Provide dietary recommendations for a healthy diet involving raw foods.

(Open-ended response space for students to write their answers)

Answers:

- Question 1: A

- Question 2: B

- Question 3:

Full Level:

Consume a balanced diet with all four nutrient groups: proteins, glucides, lipids, vitamins, and minerals according to the body's needs.

Choose and use foods that can be eaten raw or cooked healthily.

Raw foods should be fresh and sourced from reliable suppliers.

Avoid overcooking or over-frying meats and fish.

Partial Level: Correct answers to 2-3 points above.

Unachieved Level: Incorrect answers or no response.

Step 4: Finalize the Exercises for Use

After designing the PISA-approached exercises, it is necessary to review and ensure that they align with the curriculum content, competency criteria, and levels of expression of scientific competency and the ability to apply learned knowledge and skills. Ensure that they are appropriate for the students' knowledge level and propose optimal utilization strategies for the designed exercises in various teaching activities.

Teachers can use the exercises after completing the enzyme lesson to assess students. Questions 1 and 2 assess students' Science competency and their ability to apply knowledge and skills at level 2, while question 3 assesses these competencies at level 3. Additionally, teachers may use these exercises to facilitate discovery-based learning during new knowledge formation activities, highlight the influence of temperature on enzyme activity, or reinforce and expand enzyme knowledge post-lesson. This approach allows for the incorporation of PISA-approached exercises into various Biology 10 teaching activities through diverse teaching methods and techniques to achieve educational objectives.

4.3. Utilization of PISA-Approached Exercises in Teaching Biology 10 to Develop Reading Comprehension and learned knowledge and skill application competency

4.3.1. Utilization in New Knowledge Formation Activities

PISA-approached exercises in Biology 10 are used in new knowledge formation activities, typically involving problem-based scenarios that are relatively simple and fundamental. These exercises are designed to enable students to independently explore new knowledge or do so under the guidance of the teacher, thereby fostering student engagement. These exercises are most effective when combined with active teaching methods and techniques, such as discovery learning, problem-solving, inquiry-based questioning, cooperative group learning, and brainstorming.

4.3.2. Utilization in Practice Activities

In practice activities, if teachers do not develop a diverse and rich set of exercises, they cannot effectively engage students. Exercises that are too easy may not attract the interest of high-achieving students, while overly difficult exercises may pressure average students. Therefore, PISA-approached exercises in Biology 10 not only aim to enhance and reinforce learned knowledge and skills but also create familiarity and relevance. Since these exercises are designed based on real-life situations, they help students practice and develop their ability to apply learned knowledge and skills.

4.3.3. Utilization in Application Activities

For practical knowledge content related to daily life or content requiring extended research time, teachers can ask students to research and complete exercises at home, either individually or in groups. Subsequently, students can present their findings in class, allowing for group discussions, exchanges, and evaluations of the completed tasks.

4.3.4. Utilization in Assessment

PISA-approached exercises in Biology 10 are utilized in assessing students' knowledge and skills. Aligning with the overall trend of educational reform, assessments should not only evaluate learning outcomes but also focus on assessing competencies. This approach extends beyond recalling knowledge to emphasize the ability to apply knowledge to solve complex tasks and address real-world problems. Thus, using PISA-approached exercises in Biology 10 during assessments contributes to achieving this goal.

5. CONCLUSION

In conclusion, if teachers regularly use PISA-approached exercises in Biology 10 for each content area, they can effectively train various skills at different levels. This approach develops Science competency as defined by PISA and the ability to apply acquired knowledge and skills in Biology among students.

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AGRICULTURAL UNIVERSITY PUBLISHING HOUSE

Trau Quy - Gia Lam - Hanoi

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Publication Responsibility:

DO LE ANH

Publisher Director

Text Editor:

CHU TUAN ANH

Cover designer:

M.Sc. TA PHUONG THUY

Layout:

CHU TUAN ANH

ISBN: 978 - 604 - 924 - 837 - 5

NXBHVNN - 2024

Printed 50 copies, paper size 21,5 × 29,5cm, Printing unit: ANH DUONG PRINTING COMPANY LIMITED

Add: Binh Minh, Trau Quy, Gia Lam, Hanoi

Publishing license No 4563-2024/CXBIPH/2-202/ĐHNN

Publishing decision No 99/QĐ-NXB-HVN on 3 December 2024

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