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CONTENT

STUDY OF TAN TRAO UNIVERSITY STUDENTS' SATISFACTION WITH VIETTEL'S MOBILE TELECOMMUNICATION SERVICE QUALITY IN MINH XUAN WARD, TUYEN QUANG PROVINCE

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Student satisfaction; Viettel; Mobile telecommunication services; SERVQUAL; Tan Trao University; Service quality.

ABSTRACT

In the context of Vietnam's rapid digital transformation, mobile telecommunication services play a crucial role for all user groups, particularly among young people, who demonstrate high usage frequency and strong technological adaptability. Students of Tan Trao University represent a typical segment within this demographic, with frequent needs for connectivity, communication, and information access in their daily lives. Accordingly, this study aims to assess the satisfaction levels of Tan Trao University students with Viettel's mobile telecommunication services.

The study applies the SERVQUAL model and adopts a mixed-methods approach, combining secondary data from Viettel's operational reports with primary data collected through structured surveys conducted between July and October 2025. Statistical analyses, including descriptive statistics using SPSS, are employed to evaluate the impact of five key service dimensions: reliability, responsiveness, assurance, empathy, and tangibles on student satisfaction.

The findings are expected to identify the critical factors influencing satisfaction and to highlight existing limitations in the quality of services currently used by students. Based on these results, the study proposes practical recommendations to enhance the experience of young users and optimize the quality of Viettel's services. Furthermore, the satisfaction assessment model developed may be applied to similar young customer groups in other regions. This study contributes empirical evidence on mobile telecommunication service satisfaction and provides valuable insights to help service providers strengthen their competitiveness in the market

1. INTRODUCTION

In the context of rapid digital transformation, information and communication technologies play a key role in connectivity and in driving socio-economic development. Among these technologies, mobile telecommunication has become one of the fastest growing and most influential service sectors. While mobile phones were previously used primarily for communication, they have now evolved into multifunctional tools that support education, healthcare, e-commerce, entertainment, and public administration. According to the latest report by the International Telecommunication Union (ITU, 2024), by the end of 2024, approximately 62.5% of the global population were using mobile services, with 5G networks covering more than half of the world's population. These figures demonstrate that mobile telecommunications is

not only a communication tool but also an essential infrastructure supporting global digital transformation.

In Vietnam, the mobile telecommunications sector has experienced remarkable growth over the past two decades, becoming one of the most important components of the national information infrastructure. According to the Ministry of Information and Communications (2023), the country has over 125 million mobile subscribers, with a penetration rate exceeding the average level in Southeast Asia. The 3G, 4G, and 5G networks have been widely deployed nationwide, and the smartphone usage rate has surpassed 90%. Among service providers, Viettel maintains a leading position in both market share and infrastructure quality, with network coverage extending from urban areas and plains to mountainous regions and islands. Despite these achievements, the rapid increase in the number of subscribers, along with increasingly diverse user demands, has placed significant pressure on telecommunications companies to maintain service quality and enhance customer experience.

In the northern mountainous region of Vietnam, including Tuyen Quang province, the role of mobile telecommunications has become increasingly significant. This area is characterized by vast and complex terrain, dispersed population distribution, and a high proportion of ethnic minority communities. Mobile telecommunications not only enable residents to access information more quickly but also serve as a crucial infrastructure in narrowing the development gap between mountainous and urban areas. According to a report by the People's Committee of Tuyen Quang province (2023), the mobile subscription rate has reached nearly 100 subscriptions per 100 inhabitants, of which more than 74% are smartphone users, while network coverage exceeds 97% of the population. However, despite these achievements, service quality in some areas remains inconsistent, with issues such as network congestion, slow data speeds, and uneven call quality still occurring.

Tan Trao University, the only higher education institution in Tuyen Quang province, currently enrolls nearly 4,000 students across a wide range of disciplines, most of whom originate from mountainous districts within the province as well as neighboring areas. These students represent a young and dynamic group of users who regularly rely on mobile telecommunications services for various daily purposes, including communication, entertainment, information seeking, and other social needs. This group not only reflects the mobile service usage patterns of young people in the local context but also constitutes an important segment for assessing customer satisfaction and the quality of services provided by telecommunications operators, such as Viettel.

Previous studies (Jochen Wirtz & Valarie Zeithaml, 2018; Vo Thanh Hai et al., 2017) have shown that customer satisfaction is influenced by multiple factors, including network quality, pricing, customer service, and value-added services. While customer satisfaction plays a crucial role in shaping continued usage behavior, it is also closely associated with customer loyalty and the likelihood of recommending the service to others. Therefore, measuring and enhancing customer satisfaction has become a strategic priority for telecommunications providers.

Based on the above context, examining the satisfaction of students at Tan Trao University with Viettel's mobile telecommunications services is both theoretically and practically significant. The study is expected to provide a solid scientific basis for evaluating service quality, while also offering empirical evidence to support Viettel in refining its strategies, improving service quality, and strengthening customer loyalty among young users. In addition, the findings may serve as a valuable reference for policymakers in developing information infrastructure, promoting digital transformation, and contributing to sustainable development in the mountainous region of Tuyen Quang

II. LITERATURE REVIEW

Service quality is regarded as the overall outcome of the service delivery process and the value perceived by customers after consumption (Lehtinen & Lehtinen, 1982). According to Parasuraman et al. (1991), accurately identifying and understanding customer expectations plays a crucial role in shaping their perceptions of service quality; accordingly, service quality can be defined as the extent to which the service provided meets or exceeds customer expectations.

Expectation theory indicates that customer satisfaction is formed through a comparison between initial expectations and the actual performance experienced after consuming a product or service (Oliver, 1980). Following this perspective, customer satisfaction is understood as an affective state arising from the evaluation of the congruence between expectations and actual experiences (Kotler & Keller, 2006). Empirical studies further indicate that satisfied customers are more likely to continue using a service, demonstrate stronger repurchase intentions, and willingly recommend it to others (Ghane et al., 2011). In addition, the relationship between service quality and customer satisfaction has been consistently confirmed in prior research. Service quality is considered the overall outcome of the service delivery process as well as the value perceived by customers after use (Lehtinen & Lehtinen, 1982). According to Parasuraman et al. (1991), customer expectations are required to be accurately identified and clearly understood, as they are regarded as a key factor in shaping perceptions of service quality. When service quality is improved, a corresponding increase in customer satisfaction is generally observed (Cronin, 2003). Therefore, the continuous enhancement of service quality is considered a fundamental strategy through which positive customer experiences can be created and long-term customer loyalty can be maintained.

Based on service quality and customer satisfaction theories, the SERVQUAL model is widely regarded as an appropriate instrument for measuring service quality by comparing customers' expectations with their actual perceptions (Parasuraman et al., 1991). The SERVQUAL model comprises five dimensions including reliability, responsiveness, assurance, empathy, and tangibles, which collectively reflect the key aspects constituting service quality in a relatively comprehensive manner. Empirical studies, both domestic and international, have shown that the dimensions of SERVQUAL exert a significant influence on overall customer satisfaction in service contexts.

Based on a synthesis of prior research and practical observations, this study adopts the SERVQUAL dimensions as the analytical framework for examining the satisfaction of students

at Tan Trao University with Viettel's mobile telecommunications services. The application of SERVQUAL in the telecommunications sector, particularly in mobile and Internet services, enables a comprehensive assessment of critical aspects such as network stability, responsiveness to customer needs, service performance, technical infrastructure, and brand image. Through this approach, the contribution of service quality to customer satisfaction and user loyalty can be more clearly elucidated. The SERVQUAL-related factors employed in this study are derived from a synthesis of selected prior research, with the corresponding results presented in Table 1 below:

Table 1. Synthesize relevant studies

Constructs	Reference
SERVQUAL Model: Tangibles, Reliability, Responsiveness, Service Competence, Empathy	Parasuraman et. al. (1985, 1988)
Tangibles, Reliability, Enthusiastic Responsiveness, Assurance, Customer Empathy	Berry, Zaithaml and Parasuraman (1990)
Tangibles, Responsiveness, Reliability, Service Competence, Empathy	Vo Thanh Hai et al (2017)
Tangibles, Reliability, Responsiveness, Service Competence, Empathy	Truong Duc Nga (2017)
Tangibles, Reliability, Enthusiastic Responsiveness, Assurance, Customer Empathy	Nguyen Manh Son (2013)

III. RESEARCH METHODOLOGY

This study employed a convenience sampling approach, with the sample size determined using Slovin's formula, and surveyed 432 students at Tan Trao University through a structured questionnaire. To ensure a comprehensive approach to scale development and model testing, both qualitative and quantitative methods were integrated. The qualitative phase was used to refine measurement items, while the quantitative phase was conducted to test the proposed theoretical model and research hypotheses.

Data were processed using SPSS 26, including procedures for assessing the reliability of the measurement scales and calculating the mean values of each construct. The measurement instrument comprised five independent variables and one dependent variable, with a total of 24 observed items, all of which were measured using a five-point Likert scale ranging from 1 "Strongly dissatisfied" to 5 "Strongly satisfied".

IV. RESEARCH RESULTS

4.1. Sample characteristics

The sample characteristics was summaried at Table 2. The study sample consisted of 432 students from Tan Trao University, collected using a convenience sampling method. In terms of gender, female students accounted for 74.1%, while male students represented 25.9%. This characteristic might be considered in interpreting the results, as gender may influence perceptions and evaluations of service quality. Regarding academic year, first-year students represented the

largest proportion (48.9%), followed by second-year students (26.1%), third-year students (15.1%), and fourth-year students (9.9%), consistent with the inverted pyramid pattern commonly observed in studies of student service consumption, where first-year students frequently use telecommunications services independently, ensuring reliable feedback. With respect to duration of service usage, over 70% of students had used Viettel services for three years or more, including 50.6% for over five years and 21.1% for three to under five years, allowing them to accumulate practical experience and form comparative perceptions regarding service quality. Regarding monthly income, the majority of students reported relatively low earnings: 37.1% earned below 2 million VND, 46.6% earned between 2 and 3 million VND, and only 16.4% earned 3 million VND or more. This indicates that the student segment is cost-sensitive, in which perceptions of the value-for-money ratio play a critical role in determining satisfaction with the service.

Table 2. Sample characteristics

Variable	Frequency (unit: people)	Distribution (%)
Gender		
Male	120	25.9%
Female	344	74.1%
Year of Study		
1st year	227	48.9%
2st year	121	26.1%
3st year	70	15.1%
4st year	46	9.9%
Years using Viettel		
< 1 year	41	8.8%
1 – 2 years	90	19.4%
3 – 5 years	98	21.1%
> 5 years or more	235	50.6%
Monthly Income (VND)		
< 2 million dong	172	37.1%
2 million dong – 3 million dong	216	46.6%
3 million dong – 5 million dong	53	11.4%
> 5 million dong	23	5%

As mentioned above, the sample structure adequately reflects key characteristics relevant to the usage behavior and experience of Viettel services, including gender, academic year, duration of service, and income level, thereby providing a reliable basis for analyzing the factors affecting students' satisfaction.

4.2. Reliability testing of the scale and Pearson correlation analysis

To assess the reliability and internal consistency of the measurement scales, Cronbach's Alpha was utilized as the primary reliability test. A scale is considered acceptable when the Cronbach's Alpha coefficient exceeds 0.7 and the item–total correlation coefficients of the

observed variables are greater than 0.3. Based on these criteria, the reliability of each scale was assessed, and the results are summarized in Table 1.

Table 3. Reliability Statistics and Item-Total Statistics

Variable	Frequency (unit: people)	Distribution (%)
Gender		
Male	120	25.9%
Female	344	74.1%
Year of Study		
1st year	227	48.9%
2st year	121	26.1%
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> 5 million dong	23	5%

As in Table 3, the reliability analysis results indicate that all measurement scales employed in this study satisfy the required standards and demonstrate a high level of internal consistency. Specifically, the Cronbach's Alpha coefficients for all scales exceed the acceptable threshold, ranging from 0.840 to 0.862, including Reliability (0.851), Responsiveness (0.840), Assurance (0.852), Empathy (0.856), Tangibles (0.862), and Satisfaction (0.858). In addition, all observed variables within each scale exhibit item–total correlations above the recommended level, and no items were excluded during the validation process. These findings suggest that the measurement items are highly consistent in representing their respective constructs, thereby ensuring the stability and reliability of the scales. Consequently, all scales are deemed appropriate for subsequent analyses.

Table 4. Pearson correlation analysis

		HL	TC	ĐU	BĐ	ĐC	PTHH
HL	Pearson Correlation	1	0.640**	0.562**	0.734**	0.716**	0.683**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	432	432	432	432	432	432
TC	Pearson Correlation	0.640**	1	0.533**	0.621**	0.580**	0.578**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	432	432	432	432	432	432
DU	Pearson Correlation	0.562**	0.533**	1	0.560**	0.588**	0.592**

		HL	TC	ĐU	BĐ	ĐC	PTHH
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	432	432	432	432	432	432
BD	Pearson Correlation	0.734**	0.621**	0.560**	1	0.736**	0.663**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	432	432	432	432	432	432
DC	Pearson Correlation	0.716**	0.580**	0.588**	0.736**	1	0.666**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	432	432	432	432	432	432
PTHH	Pearson Correlation	0.683**	0.578**	0.592**	0.663**	0.666**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	432	432	432	432	432	432
**. Correlation is significant at the 0.01 level (2-tailed).							

Pearson correlation analysis was employed to examine the relationships among variables in the proposed model, with the following evaluation criteria: correlation coefficients (r) ranging from −1 to +1, statistical significance indicated by Sig. (2-tailed) values less than 0.05, and the strength of correlations is interpreted as weak, moderate, or strong based on the magnitude of (r). The results reveal that all variable pairs have Sig. values of 0.000 (< 0.01), indicating that the correlations are statistically significant at the 1% level.

The independent variables (TC, DU, BD, DC, and PTHH) are positively correlated with one another, with coefficients ranging from 0.533 to 0.736, suggesting moderate to relatively strong associations without indicating serious multicollinearity issues. Regarding the dependent variable (HL), all independent variables exhibit positive correlations, among which BD (r = 0.734) and DC (r = 0.716) demonstrate the strongest relationships, followed by PTHH (r = 0.683), TC (r = 0.640), and DU (r = 0.562).

Overall, these findings indicate that service quality dimensions are positively associated with customer satisfaction, and the observed correlation levels are appropriate to proceed with subsequent regression analyses.

4.3. Current stage of Tan Trao university students' satisfaction with Viettel's mobile telecommunication quality service

Students' satisfaction is assessed based on their perceptions of the key dimensions constituting service quality, including Reliability, Responsiveness, Assurance, Empathy, and Tangibles. The mean scores are interpreted according to the following scale: 1.00 – 1.80: Very dissatisfied; 1.81 – 2.60: Dissatisfied; 2.61 – 3.40: Neutral; 3.41 – 4.20: Satisfied; 4.21 – 5.00: Very satisfied.

Table 5. Statistics results table

Items	Variables	Mean	Std.Deviation
	Reliability		
TC1	I am satisfied with the call quality provided by Viettel	3.64	0.972
TC2	I am satisfied with Viettel's network speed and data transmission performance	3.58	0.970
TC3	I am satisfied with the stability of Viettel's network (low disconnection rate)	3.13	1.113
TC4	I am satisfied with Viettel's pricing	3.47	0.977
TC5	I am satisfied with the accuracy and clarity of Viettel's billing and payment information	3.52	0.961
	Responsiveness		
DU1	Viettel staff respond promptly to customer issues. inquiries. and complaints	3.57	0.994
DU2	Viettel staff demonstrate a high level of professional competence in resolving customer issues	3.68	0.914
DU3	Viettel offers wide network coverage	3.72	0.980
DU4	Viettel provides timely and comprehensive information on promotions and new services	3.76	0.978
	Assurance		
BĐ1	I am confident in the security of customers' personal information provided by Viettel	3.64	0.896
BĐ2	I trust the policies and commitments of Viettel	3.68	0.916
BĐ3	Viettel staff demonstrate politeness and professionalism	3.80	0.884
BĐ4	Viettel ensures network stability during peak periods (e.g.. holidays and festivals)	3.48	1.044
	Empathy		
ĐC1	Viettel staff actively listen to and respond to customer feedback	3.68	0.886
ĐC2	Viettel considers the specific needs of individual customers	3.65	0.899
ĐC3	Viettel provides convenient working hours and customer support channels	3.79	0.849
ĐC4	Viettel prioritizes the best interests of its customers	3.71	0.936
	Tangibles		
HH1	Viettel's service center are clean and well-organized	3.77	0.869
HH2	Viettel staff maintain a professional and visually appealing appearance	3.81	0.874
HH3	Viettel's mobile application and website are user-friendly and easy to navigate	3.76	0.969
HH4	Viettel provides modern and user-friendly equipment and customer support tools	3.83	0.872

Sactifaction			
HL1	I am satisfied with the mobile telecommunications service quality provided by Viettel	3.71	0.952
HL2	I intend to continue using Viettel's services in the long term	3.91	0.850
HL3	I am confident in recommending Viettel's services to others	3.73	0.925

Based on survey data collected from 432 students at Tan Trao University who are using Viettel mobile telecommunications services in Minh Xuan ward, it can be inferred that the overall level of student satisfaction is relatively high; however, notable differences remain across service quality dimensions as well as among specific criteria within each dimension.

With regard to reliability, the mean scores range from 3.13 to 3.64, indicating that students generally perceive Viettel as meeting fundamental service quality expectations, particularly in terms of call quality (3.64) and the transparency of billing and payment information (3.52). Nevertheless, the network drop rate records the lowest score (3.13) alongside the highest standard deviation within this group (1.113), reflecting considerable variability in user experience and suggesting that network instability constitutes a critical technical bottleneck directly affecting student satisfaction. In terms of responsiveness, all criteria fall within the range of 3.57 to 3.76, with standard deviations below 1, suggesting that Viettel is relatively well evaluated in terms of responsiveness, staff competence, and network coverage. Notably, the provision of promotional and new service information (3.76) and network coverage (3.72) play a significant role in supporting students' learning, entertainment, and communication needs. For assurance, the mean scores range from 3.48 to 3.80, with the highest rating attributed to the politeness and courtesy of staff (3.80), accompanied by a low standard deviation (0.884), indicating a high level of agreement among respondents. In contrast, the ability to maintain network stability during peak periods such as holidays and festivals receives a lower score (3.48) with relatively high dispersion (1.044), further reinforcing the conclusion that network performance under heavy load remains a key limitation requiring priority improvement. Regarding empathy, the observed scores range from 3.65 to 3.79, suggesting that Viettel has made considerable efforts to listen to, support, and facilitate students through flexible working hours and diverse support channels; however, the absence of scores approaching the "very satisfied" threshold indicates that service personalization for student customers has not yet been fully realized. The tangibles dimension emerges as the most highly rated and stable component, with mean scores ranging from 3.76 to 3.83 and low standard deviations (0.869-0.874), reflecting strong consensus among students regarding the quality of physical facilities, staff appearance, and the user-friendliness of Viettel's applications and website.

Finally, overall satisfaction levels range from 3.71 to 3.91, with the intention to maintain long-term usage of Viettel achieving the highest score (3.91) and a low standard deviation (0.850), indicating a relatively strong tendency toward customer loyalty, although the willingness to recommend the service (3.73) remains at a "satisfied" rather than "very satisfied" level.

As mentioned above, student satisfaction is influenced not only by service-related and tangible factors but also, and more critically, by core technical aspects, particularly network stability and the ability to sustain service quality during peak periods. This suggests that, in the context of telecommunications services, technical performance constitutes a foundational element that can directly shape the user experience.

On this basis, future research should place greater emphasis on examining the relative effects of individual service quality dimensions on overall satisfaction and student loyalty, while also incorporating the mediating role of user experience to better elucidate the underlying mechanism through which perceived service quality influences the intention to continue using Viettel services.

4.4. Conclusion

The study reveals that the level of student satisfaction at Tan Trao University with Viettel's mobile telecommunications services in Minh Xuan ward, Tuyen Quang province, is relatively positive, as all service quality dimensions record mean scores above the midpoint of the Likert scale and approach the "satisfied" level. The measurement scales for reliability, responsiveness, assurance, empathy, and tangibles all demonstrate high reliability, thereby confirming the internal consistency and validity of the research model. The findings further indicate that students highly appreciate factors such as transparency in billing, the competence and professionalism of staff, network coverage, and the convenience of physical facilities and support channels; nevertheless, certain limitations persist, particularly in maintaining stable service quality during peak hours and in the degree of service personalization. Based on these findings, the study recommends that Viettel should prioritize upgrading network infrastructure in areas with a high concentration of student users, while also enhancing staff capabilities and promoting the application of digital technologies in customer support. In addition, developing more personalized service packages and improving feedback and response mechanisms are expected to enhance student satisfaction, strengthen customer loyalty, and provide a solid foundation for Viettel's sustainable development in the future.

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FACTORS INFLUENCING THE ONLINE SHOPPING BEHAVIOR OF STUDENTS AT TAN TRAO UNIVERSITY

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ABSTRACT

The rapid expansion of the Internet and e-commerce has fundamentally transformed consumer behavior, with online shopping becoming increasingly prevalent among university students. This study aims to identify and assess the influence of key factors on the online shopping behavior of students at Tan Trao University, Tuyen Quang Province, Vietnam. This study aims to identify and assess the influence of key factors on the online shopping behavior of students at Tan Trao University, Tuyen Quang Province, Vietnam. Drawing on an integration of foundational consumer behavior theories, the study develops a multi-factor analytical model using survey data collected from 794 students. The findings reveal that students' online shopping behavior is significantly influenced by several factors, namely: price, convenience, promotional incentives, social influence from reference groups, and emotional factors. These findings not only enrich the theoretical foundation on online consumer behavior within the Vietnamese context, but also provide practical managerial implications for businesses and online retailers in formulating marketing strategies and developing targeted solutions to promote online shopping behavior among young consumers.

1. INTRODUCTION

The rapid proliferation of the Internet and the accelerated development of e-commerce infrastructure have fundamentally transformed consumer behavior across the globe, giving rise to online shopping as a dominant mode of retail consumption. The elimination of temporal and geographical barriers inherent to digital commerce has enabled consumers to access a virtually boundless marketplace at their convenience, thereby reshaping the structural dynamics of traditional retail. Within this broader transformation, university students have emerged as a particularly significant consumer segment, characterized by their high digital literacy, sustained exposure to social media platforms, and a strong propensity to adopt emerging technologies in their daily lives.

In the Vietnamese context, the trajectory of Internet diffusion has been notably rapid. According to the Vietnam Internet Network Information Center (VNNIC, 2012), Vietnam

formally joined the global Internet network on November 19, 1997. By October 2012, just fifteen years after its inception, the number of Internet users had reached 31.1 million, accounting for 35.49% of the national population, positioning Vietnam among the top 18 countries globally by number of Internet users. This growth trajectory has continued in subsequent years, providing a fertile environment for the expansion of e-commerce platforms such as Shopee and TikTok Shop, which have become deeply embedded in the daily consumption habits of Vietnamese youth.

University students, as a distinct consumer cohort, exhibit a unique behavioral profile shaped by the intersection of constrained financial resources, heightened sensitivity to trends, and an acute need for self-expression (Duong Thi Thu Huong, 2022). Their purchasing decisions spanning academic materials, apparel, personal accessories, and food products are characterized by careful price quality evaluation, susceptibility to peer influence, and a strong preference for the convenience afforded by online platforms. The flexibility of online shopping, which permits transactions at any time without disrupting demanding academic schedules, renders it a particularly attractive modality for this demographic.

Despite the growing scholarly interest in online consumer behavior, the extant literature has predominantly focused on general adult populations or broad consumer samples, with comparatively limited attention directed toward university students as a demographically and psychologically distinct group. Theoretical frameworks commonly employed in this domain including the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and complementary perspectives on consumer trust, perceived risk, and hedonic motivation have yielded valuable insights into the antecedents of online purchase intention; however, their applicability to the student population warrants further empirical investigation, particularly within developing-country contexts.

Accordingly, this study seeks to identify and empirically examine the key determinants of online shopping behavior among students at Tan Trao University, Tuyen Quang Province, Vietnam. The findings are expected to contribute to the theoretical discourse on online consumer behavior while simultaneously offering actionable managerial implications for e-commerce enterprises and online retailers in designing targeted marketing strategies aimed at this consumer segment.

II. LITERATURE REVIEW

Online shopping behavior among university students is shaped by multiple interrelated factors, encompassing technological platform characteristics, individual psychology, economic value perception, service experience, and social context. A systematic examination of these factor groups provides the theoretical foundation for constructing a research model appropriate to the characteristics of young consumers in the e-commerce environment.

The first group of factors concerns the characteristics of the shopping platform, including website interface, perceived usefulness, information security, and the reputation of the e-commerce platform. These factors have been identified as critical antecedents in the formation of initial consumer trust among young users (Ge, 2022; Islam, 2021). When users perceive a platform as transparent, secure, and reliable, positive attitudes and online purchase intentions tend to be significantly reinforced.

At the level of individual psychology, dispositional trust and familiarity with online transactions have been demonstrated to exert a positive influence on students' actual purchase

intentions (Jadhav & Khanna, 2016). Concurrently, perceived risk associated with online transactions constitutes a factor of considerable influence on consumers' decision-making processes in the digital environment (Ge, 2022; Islam, 2021). These two factors operate through opposing mechanisms, whereby trust functions as a facilitator while perceived risk tends to inhibit purchase intention.

Price and promotional policies occupy a particularly important position in the motivational structure underlying students' shopping behavior. Given their constrained financial circumstances, this demographic typically exhibits a heightened sensitivity to price and a pronounced responsiveness to discount schemes and promotional offerings on e-commerce platforms (Dung et al., 2026). Perceived product value, constructed through the balance between costs incurred and benefits received, also plays a decisive role in the purchasing choices of this group (Ghazalle & Lasi, 2021; Jun & Yan, 2024).

Shopping convenience represents a cluster of factors that students place particularly high value on, especially within the context of demanding academic and daily schedules. The ease of placing orders, product delivery, and flexible return policies have been identified as factors capable of enhancing satisfaction levels and reinforcing purchase intentions among young consumers (Divya et al., 2025).

The quality of reference information and customer support services also exerts a systematic influence on students' decision-making processes. Reviews from previous users and the quality of after-sales customer service are frequently employed by students as trusted information sources to mitigate perceived risk in online shopping (Silva & Nascimento-e-Silva, 2023; Cuong & Tran, 2024). The diversity and security of electronic payment methods have likewise been identified as factors positively associated with payment intention and transaction completion (Quân, 2021).

Finally, social influences and individual characteristics contribute to observable differentiation in students' online shopping behavior. The influence of social media and online interactions has the capacity to shape group-oriented shopping tendencies and affect product selection processes (Alam, 2018). Personal characteristics and lifestyle patterns generate meaningful variation in the ways students approach shopping activities, as evidenced by the divergence between those who prioritize hedonic, entertainment-driven experiences and those who engage in shopping for purely utilitarian purposes (Osman et al., 2010).

III. RESEARCH METHODOLOGY

This study employs a mixed-methods approach combining qualitative and quantitative techniques. The qualitative phase was conducted during the exploratory stage to identify and refine observable variables through systematic literature review and expert consultation. The quantitative phase was subsequently applied to validate the measurement scale and assess the extent to which each factor influences students' online shopping behavior. The measurement instrument comprises five independent variables and one dependent variable, encompassing a total of 27 observed items. All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The sample size was determined using Slovin's formula, resulting in a survey of 794 students at Tan Trao University through convenience sampling.

Data were processed using SPSS version 26.0 in two sequential steps: assessing the reliability of the measurement scale via Cronbach's Alpha coefficient, followed by computing the

mean score of each factor to reflect students' evaluative responses toward the variable groups included in the research model.

IV. RESEARCH RESULTS

4.1 *Sample characteristics*

Table 1 provides a summary of the sample characteristics:

Table 1: Sample characteristics.

Variables	Frequency	%
Year of Study		
1st year	126	16%
2st year	406	51.5%
3st year	214	27.2%
4st year	42	5.3%
Field of study		
Teacher Training	521	66.9%
Medicine and Pharmacy	39	5%
Culture and Tourism	35	4.5%
Economics and Business Administration	184	23.6%
Preferred time for online shopping		
Early morning (6:00 AM–8:00 AM)	10	1.3%
Late morning (10:00 AM–1:00 PM)	73	9.3%
Afternoon (2:00 PM–4:00 PM)	72	9.2%
Evening after 9:00 PM	629	80.2%

The survey sample comprises 794 students enrolled in various faculties at Tan Trao University. Second-year students represent the largest group with 406 respondents (51.5%), followed by third-year students with 214 respondents (27.2%), while first-year and fourth-year students account for 126 (16%) and 42 (5.3%) respondents, respectively. This distribution indicates that the sample is primarily drawn from students who have already adapted to the university environment and begun to establish independent consumption habits; consequently, they are more likely to engage in e-commerce activities than first-year students, who are still adjusting to academic and social changes. At the same time, the limited participation of fourth-year students can be explained by their academic priorities, as they typically focus on internships and thesis completion, which reduces their availability to take part in surveys.

Findings regarding online shopping time indicate a strong preference for late evening hours, with 629 students (80.2%) reporting that they most frequently shop after 9:00 PM, whereas daytime periods such as late morning (10:00 AM–1:00 PM) and afternoon (2:00 PM–4:00 PM) account for only 9.3% and 9.2%, respectively, and early morning (6:00 AM–8:00 AM) remains marginal at 1.3%. This pattern is consistent with the typical daily schedule of university students, in which daytime hours are largely reserved for academic activities, thereby limiting opportunities for online shopping, while the evening provides greater discretionary time and higher engagement with digital platforms. As a result, online purchasing behavior tends to cluster in the late evening, when students are more relaxed and active on social media and e-commerce applications; therefore, from a managerial perspective, retailers and marketers should

prioritize this time frame when designing promotional campaigns in order to improve reach and increase purchase likelihood among student consumers.

4.2. Reliability testing of the scale by Cronbach's Alpha

To evaluate the reliability and convergent validity of the measurement scales used in this study, we employed Cronbach's Alpha as a measure of internal consistency, which examines the degree to which observed variables within the same construct are correlated with one another. Based on the criteria suggested by Nunnally and Bernstein (1994), a scale is considered acceptable when the Cronbach's Alpha coefficient is greater than 0.7, and when each observed variable has an item total correlation exceeding 0.3. These criteria allow the researchers to assess the adequacy of the measurement items while also identifying and removing those that do not meet the required standards before conducting further analyses. The results of the reliability testing for the constructs, including perceived tangibility, perceived ease of use, perceived risk, trust, price, subjective norms, and online purchase intention, are summarized in Table 1.

Table 2. Reliability Statistics and Item-Total Statistics

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Perceived usefulness. N= 4					
HI1	11.84	6.116	0.800	0.856	0.897
HI2	11.84	6.114	0.823	0.848	
HI3	12.06	6.509	0.682	0.900	
HI4	11.76	6.298	0.783	0.863	
Perceived ease of use. N= 4					
SD1	11.73	6.252	0.806	0.883	0.911
SD2	11.85	6.226	0.736	0.908	
SD3	11.74	6.107	0.838	0.871	
SD4	11.70	6.140	0.819	0.878	
Perceived risk. N= 4					
RR1	11.06	6.551	0.806	0.900	0.920
RR2	11.14	6.590	0.823	0.894	
RR3	10.99	6.392	0.808	0.900	
RR4	11.07	6.568	0.829	0.892	
e-Trust. N=4					
TT1	10.64	5.281	0.741	0.889	0.903
TT2	10.56	5.219	0.772	0.878	
TT3	10.55	5.069	0.830	0.857	

TT4	10.60	5.159	0.787	0.873	
Price. N=3					
GC1	7.76	2.715	0.788	0.895	0.909
GC2	7.66	2.738	0.812	0.875	
GC3	7.71	2.567	0.856	0.837	
Subjective norms. N=4					
CQ1	10.04	5.453	0.797	0.847	0.892
CQ2	10.01	5.719	0.749	0.865	
CQ3	9.83	5.855	0.758	0.862	
CQ4	9.95	5.611	0.743	0.868	
Online Shopping Intention. N=4					
YD1	11.41	5.635	0.860	0.898	0.928
YD2	11.50	5.856	0.828	0.908	
YD3	11.51	5.856	0.817	0.912	
YD4	11.43	5.777	0.826	0.909	

The analysis results indicate that all measurement scales employed in the study satisfy the requirements for reliability, as evidenced by Cronbach's Alpha coefficients ranging from 0.892 to 0.928, which substantially exceed the commonly accepted threshold in methodological research. Specifically, the constructs of perceived usefulness (0.897), perceived ease of use (0.911), perceived risk (0.920), and trust (0.903) demonstrate high levels of reliability; at the same time, the observed variables within each construct exhibit strong item–total correlations, most of which are above 0.7 and several exceeding 0.8. This pattern suggests a high degree of internal consistency, indicating that the measurement items are closely related and adequately capture the underlying constructs, with no evidence of poorly performing items that would require elimination.

Similarly, the scales measuring price (0.909), subjective norms (0.892), and online purchase intention (0.928) also achieve very high reliability, as all corresponding observed variables meet the required thresholds for item–total correlation. These results further confirm the internal consistency and measurement adequacy of the constructs.

Overall, the Cronbach's Alpha analysis demonstrates that all scales possess strong reliability, and no observed variables were removed; therefore, the measurement model is deemed suitable for subsequent analyses.

4.2. Factors influencing the shopping behavior of students at Tan Trao University

Students' satisfaction is assessed based on their perceptions of key components that constitute service quality, including perceived usefulness, perceived ease of use, perceived risk, trust, price, subjective norms, and online purchase intention. These factors are operationalized using a five-point Likert scale, where 1 indicates "very dissatisfied" and 5 indicates "very satisfied." The mean scores are subsequently categorized into specific satisfaction levels as

follows:

- 1.00 – 1.80: Very dissatisfied
- 1.81 – 2.60: Dissatisfied
- 2.61 – 3.40: Neutral
- 3.41 – 4.20: Satisfied
- 4.21 – 5.00: Very satisfied

This approach enables a systematic and quantitative assessment of students' perceptions regarding the factors influencing their online shopping behavior, thereby providing a better foundation for further in-depth analysis and the development of appropriate improvement solutions.

Table 3. Descriptive Statistic

Items	Variables	Mean	Std.Deviation
	Perceived usefulness		
HI1	Online shopping enables me to find information quickly	3.89	0.961
HI2	Online shopping allows me to save time	3.98	0.934
HI3	Online shopping helps me avoid unnecessary inconvenience	3.77	0.961
HI4	I can engage in online shopping from any location	4.06	0.934
	Perceived ease of use		
SD1	Online shopping facilitates easy payment when placing orders	3.95	0.897
SD2	Online shopping facilitates the comparison of product features	3.83	0.958
SD3	Online shopping enables me to find products that match my preferences	3.93	0.903
SD4	Online shopping enables me to take advantage of promotions	3.97	0.911
	Perceived risk		
RR1	I am concerned that product quality may differ from the website description	3.69	0.936
RR2	I am concerned about potential delays in order delivery	3.61	0.914
RR3	I am concerned about the security of my personal information	3.77	0.970
RR4	I am concerned about the risk of product damage during delivery	3.68	0.921
	e-Trust		
TT1	Online shopping platforms have a high level of security	3.47	0.854
TT2	I believe that online sellers will honor their commitments (e.g.. returns. exchanges. warranties)	3.55	0.847
TT3	I believe that online sellers prioritize customers' best interests	3.57	0.840
TT4	I believe that online sellers provide accurate and reliable product information	3.51	0.850
	Price		
GC1	I find it easy to compare prices across products when shopping online	3.81	0.875

GC2	Online shopping offers more competitive prices than traditional in-store shopping	3.90	0.855
GC3	Online shopping provides attractive promotional discounts	3.86	0.881
Subjective norms			
CQ1	My friends influence my decision to use online shopping services	3.23	0.919
CQ2	My parents influence my decision to use online shopping services	3.27	0.891
CQ3	Media and social networks (e.g.. Facebook. Zalo. TikTok. television…) influence my decision to use online shopping services	3.44	0.853
CQ1	I use online shopping because it is widely used by people around me	3.23	0.919
Online shopping Intention			
YD1	I intend to continue using online shopping services in the near future	3.88	0.887
YD2	I intend to increase my use of online shopping services in the future	3.78	0.868
YD3	I am willing to recommend online shopping services to others	3.77	0.875
YD4	I intend to use online shopping services when the opportunity arises	3.85	0.883

The survey results from 794 students at Tan Trao University reveal that, overall, students hold a relatively positive evaluation of online shopping, with particularly strong perceptions regarding usefulness, ease of use, and price related benefits. Specifically, the mean scores for perceived usefulness and perceived ease of use range from 3.77 to 4.06, suggesting that students highly value the convenience, flexibility, time-saving benefits, and the ease of performing tasks such as searching for products, making payments, and utilizing promotional offers on e-commerce platforms. In addition, the price factor is also viewed positively, with mean scores ranging from 3.81 to 3.90, indicating that competitive pricing, ease of price comparison, and frequent promotional programs serve as key drivers of online shopping behavior. Consistent with these findings, students' online purchase intention is relatively high (3.77-3.88), reflecting a clear tendency to continue and even expand their use of online shopping in the future.

However, the study also reveals several notable limitations related to perceived risk, trust, and subjective norms. Perceived risk remains at a moderate level (3.61-3.77), reflecting concerns about personal data security, product quality discrepancies, and delivery-related issues; at the same time, trust in online sellers is only moderate (3.47-3.57), suggesting that issues of transparency and transaction security have not yet been fully addressed. Moreover, subjective norms exert a relatively modest influence (3.23-3.44), with digital media and social networks having a more pronounced impact on students' purchasing decisions than friends or family.

Based on these findings, it can be indicated that students' online shopping behavior is shaped by a combination of utilitarian, economic, and socio-psychological factors, in which convenience and price act as primary drivers, while perceived risk and limited trust function as significant barriers. This implies that, to capture the student market segment effectively, e-commerce businesses should not only continue to enhance user experience and pricing strategies but also prioritize improving trustworthiness, information transparency, and transaction security, thereby strengthening consumer confidence and fostering sustained online purchase intentions over the long term.

4.3. CONCLUSION

The findings indicate that online shopping behavior and purchase intention among students at Tan Trao University are influenced by multiple factors, including perceived usefulness, perceived ease of use, perceived risk, trust, price, and subjective norms, all of which are generally evaluated from moderate to positive levels. Notably, perceived usefulness, ease of use, and price emerge as the primary drivers, as they reflect clear advantages in terms of convenience, time-saving, and economic benefits, thereby reinforcing students' intention to continue and expand their engagement in online shopping. In contrast, perceived risk and trust remain significant barriers, as students continue to express concerns regarding product quality, data security, and transaction reliability, while subjective norms exert only a moderate influence, with digital media and social networks playing a more prominent role than interpersonal relationships.

These findings suggest that online shopping has become a prevalent trend among students; however, its sustainable development requires simultaneous efforts to enhance trust and mitigate perceived risks through improvements in product quality, information transparency, data security, and delivery services, alongside the development of communication strategies aligned with student behavior. The study is subject to several limitations, including its restricted sampling scope, imbalanced sample structure, and reliance on descriptive analysis without examining causal relationships among variables. Therefore, future research should expand the sample and employ more advanced analytical techniques, such as exploratory factor analysis (EFA) to validate measurement structures and linear regression to assess the magnitude and direction of factor effects, thereby strengthening the reliability and practical implications of the research findings.

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DEVELOPING CIRCULAR ECONOMY MODEL IN PIG FARMING IN SON DUONG COMMUNE, TUYEN QUANG PROVINCE

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ABSTRACT

Developing a circular economy in agriculture is a sustainable direction, contributing to improving production efficiency, reducing waste and protecting the rural environment. This study focuses on analyzing the current situation, potential and proposing solutions to develop a circular economy model in pig farming in Son Duong commune, Tuyen Quang province. Using research methods such as household surveys, in-depth interviews and SWOT analysis, the study shows that most farming households have initially reused waste as fertilizer, but the circular economy model is still fragmented, small-scale, and lacking linkages. From there, the article proposes a number of solutions to develop a sustainable circular economy model for the locality. Some proposed solutions include techniques, production organization, support policies and raising awareness of people in production areas.

1. Introduction

In the context of the global resource crisis, environmental pollution and climate change, the transition from a linear to a circular economy has become an inevitable trend towards green growth and sustainable development. According to Ellen MacArthur Foundation (2019), the circular economy is an economic system in which the use of resources is optimized, products, materials are reused, recycled and recovered to minimize waste into the environment. This model is being applied by many countries in the field of agriculture, especially animal husbandry, in order to save costs, use renewable energy and reduce greenhouse gas emissions.

In Vietnam, the policy of socio-economic development is affirmed in the National Strategy on Green Growth for the period 2021-2030, vision 2050 and the National Strategy on Circular Economy to 2030 (Ministry of Natural Resources and Environment, 2023). The Ministry of Agriculture and Rural Development (2022) also emphasizes that building a model of agricultural market economy is a key task to improve the efficiency of resource use, protect the environment and increase the added value of agricultural products. In particular, pig breeding is considered one of the potential fields of application of the circular economy, due to the abundant by-products and organic waste that can be reused as fertilizer, biogas or bioenergy products. Tuyen Quang province is a locality with a tradition of agricultural development, in which Son

Duong is a key area for pig breeding. However, according to local surveys, animal husbandry activities here are mainly small, scattered, low technical level and lack a synchronous waste treatment system, causing local environmental pollution in many communes (Tuyen Quang Department of Agriculture and Rural Development, 2024). Although some households have built biogas or composting plants, the application of circular economy in animal husbandry is still spontaneous and has not become a popular production model.

In that context, the study and proposal of solutions to develop the circular economy model in pig breeding at the farmer household level has profound practical significance. Not only help improve the efficiency of resource use and reduce environmental pollution, but also contributes to the implementation of the objectives of the Vietnam Sustainable Agricultural Development Strategy to 2030. According to Nguyen Van Binh (2023), the transformation of the livestock model towards a circular economy can help increase 15–20% economic efficiency and reduce up to 30% of solid waste into the environment. This confirms the urgency of the implementation of the model in rural and mountainous areas such as Son Duong where investment resources are limited but there is great potential to apply the circular economy in animal husbandry.

Stemming from that practice, the study "Development of circular economy model in pig breeding by farmers in Son Duong commune, Tuyen Quang province" was conducted in order to:

(1) Assess the current situation and application of the circular economy in pig breeding by farmers;

(2) Analyze the advantages, disadvantages, opportunities and challenges of developing a circular economy model in pig breeding.

(3) Propose a group of synchronous solutions to improve and replicate the market economy model, contributing to promoting the development of green and sustainable agriculture in the locality.

2. Theoretical, practical and reseach methods

2.1. Theoretical basis of circular economy in animal husbandry

Circular economy is understood as an economic development model in which resources, materials and products are maintained for as long as possible in the use cycle, while reducing waste and greenhouse gas emissions to the environment (Ellen MacArthur Foundation, 2019). Circular economy is considered an inevitable solution to help balance between economic growth and environmental protection, towards sustainable development (Nguyen Van Binh, 2023). In the field of agriculture, the circular economy not only helps reuse by-products, reduce resource waste, but also creates added value through the formation of closed value chains between cultivation – animal husbandry – processing – consumption (Ministry of Agriculture and Rural Development, 2022). Especially in pig breeding, the application of the market economy is clearly shown in the following models:

+ Using livestock waste to produce microbial organic fertilizers, biogas or Biochar;

+ Reuse post-treatment wastewater to irrigate crops;

+ Combining VACB model (Vuon – Ao – Chuong – Biogas) helps to form a closed biological cycle, reduce environmental pollution and save production costs.

According to the Ministry of Natural Resources and Environment (2023), agricultural market economy is not only a technical solution but also a strategic direction to help localities adapt to climate change and transition to green agriculture. In the context of Son Duong Commune – Tuyen Quang Province, where pig farming at household scale is rapidly developing, the application of a circular economy model presents an opportunity to simultaneously enhance economic efficiency and mitigate negative impacts on the rural ecological environment.

In Vietnam, several circular economy models in livestock production have been implemented in provinces such as Hoa Binh, Bac Giang, Ha Nam and Tuyen Quang, yielding positive results with economic efficiency increasing by 15–25% and waste volume reduced by 30–40% (Nguyen Van Binh, 2023; Department of Agriculture & Rural Development of Tuyen Quang, 2024). However, most of these models remain spontaneous, small-scale, lacking value-chain linkages and a clear incentive mechanism. Therefore, the research, assessment and proposal of solutions to promote CE-based pig farming at household level is essential, contributing to the concretization of the Government's policies on circular agriculture and green agriculture development (Decision No. 687/QD-TTg dated June 7, 2022).

2.2. Research Methodology

** Data collection methods*

+ Survey by questionnaire: Conduct a survey of 50 pig farmers in Son Duong commune on the scale, form of breeding, waste treatment, level of application and awareness of market economy.

+ In-depth interviews: Conducted with 5 typical households and 3 local officials to exploit information on policies, techniques and difficulties in the implementation of circular economy.

+ Collecting secondary data from Department of Agriculture and Environment Tuyen Quang, People's Committee of Son Duong Commune and local statistical reports (2020–2024).

** Methods of data processing and analysis*

+ Statistical descriptive analysis to reflect the current situation of pig breeding and the level of application of circular economy.

+ SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to identify advantages, disadvantages, opportunities and challenges in the development of the circular economy model.

+ Comparative analysis and synthesis are used to evaluate the effectiveness, feasibility and propose solutions to complete the model.

3. Research results and discussion

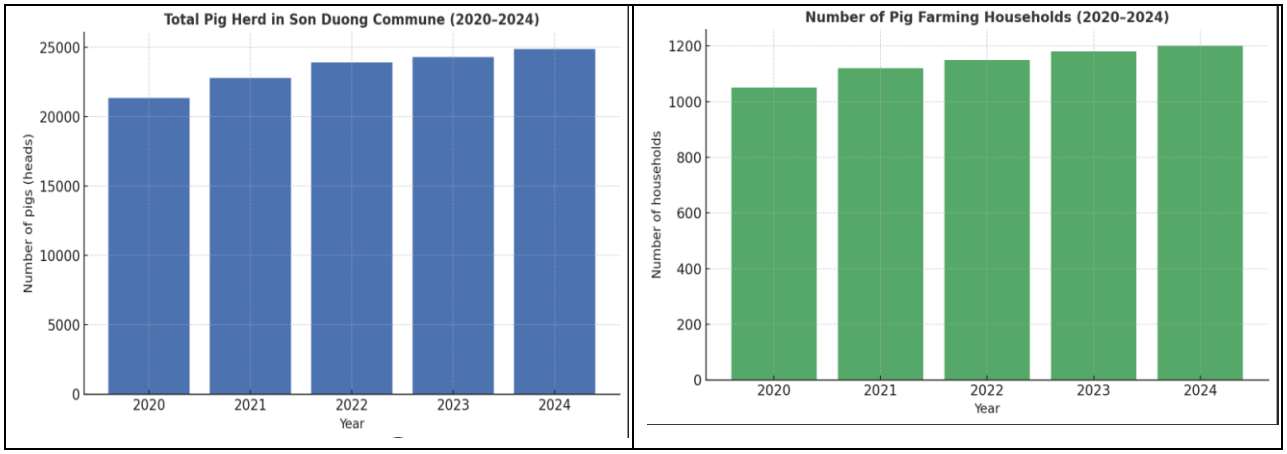
3.1. The current situation of circular economy application in pig breeding of farmer households in Son Duong commune

From 2020 to 2024, the total pig herd in the area increased from 21,350 to 24,851 heads, equivalent to a growth of 16.4%, with an average annual growth rate of 3.8%. This demonstrates

a significant recovery following the severe impacts of African swine fever during 2018–2019. From 2021 onward, as the disease was effectively controlled and breed sources stabilized, pig numbers continuously increased, reflecting the improved stability of production structure and resilience of local farmers.

The increase in meat production from 2,450 tons (2020) to 2,850 tons (2024) also confirms the trend of recovery and expansion of production scale, contributing to meeting the local food demand and supplying the local market. The production value in 2024 reached VND 159.2 billion, with the average revenue per household increasing by about 15–18% compared to 2020.

Figure 1. Scale and speed of development of pig herds and pig raising households in the period 2020-2024 in the study area



(Source: Survey results in 2025)

The number of pig-raising households increased from 1,050 households in 2020 to 1,200 households in 2024, an increase of 150 households, equivalent to an average annual growth rate of 3.4%. However, the average herd size per household remained stable at around 20–21 heads, showing no significant change compared to 2020. This indicates that most households still maintain small-scale production, primarily serving self-consumption and local retail markets, with large-scale industrial farms yet to be established. Approximately 70% of households raise fewer than 30 pigs per cycle, 18% raise between 30-100 pigs, and only 10% operate large farms (>100 pigs). This pattern reflects the characteristics of smallholder economies in midland and mountainous regions, predominantly small to medium scale and largely self-sufficient. These conditions limit the adoption of advanced technical measures, particularly circular economy models, due to low capital investment capacity and a lack of technical knowledge.

Although the scale of production is small, from 2022-2024, the trend of conversion to bio-intensive and conventional farming models will increase sharply. About 40-45% of households have applied at least one recirculating measure, such as building biogas cellars, composting microorganisms, reusing wastewater, or combining planting trees and raising fish in the same VACB ecosystem In particular, 52% of households recycle pig manure, 41.5% have biogas cellars, and 28% of households reuse barn washing water. The group of households applying 3 or more circular economy measures accounted for 48%, with a 12% decrease in food costs, 18% decrease in fertilizer costs, and 10–15% increase in income compared to the group

that has not yet applied. This proves that circular economy not only improves environmental efficiency but also brings practical economic value to farmers.

Table 1: The level of application of circular economy model of pig farmers in the study area

Measures of circular economy	Applicable household rate (%)
Treatment of compost into organic fertilizer	52,0
Using biogas cellars	41,5
Reuse of barn cleaner	28,0
Utilize by-products as aquaculture feed	24,5
Combining pig farming with tree planting	39,0

(Source: Survey results in 2025)

The data indicate that pig production in Son Duong has experienced stable growth, characterized by small-scale operations but with considerable potential, especially in adopting circular economy models. This represents an inevitable development pathway for ensuring sustainable rural growth, simultaneously improving economic efficiency and protecting the rural environment.

3.2. SWOT analysis for the circular economy model in pig breeding of farmer households in Son Duong commune

To evaluate the potential and feasibility of developing circular economy models in household-based pig farming in Son Duong Commune, the research team employed SWOT analysis to identify the key Strengths (S), Weaknesses (W), Opportunities (O) and Threats (T) in the adoption and scaling-up process. This method was constructed based on a 2025 survey of pig-raising households, in-depth interviews with local agricultural officers, and the integration of previously published data.

Table 2. SWOT analysis for circular economic model in pig breeding in Son Duong commune

Factors	Detailed contents
Strengths (S)	+ Local people have a long tradition in pig breeding, accumulating a lot of practical experience and disease prevention. + Rich agricultural by-products such as corn, cassava, rice bran, rice straw are convenient to reuse in feed production and composting. + The percentage of households with biogas tanks reached 41.5%, of which 52% recycled into organic manure, 39% of households combined animal husbandry – cultivation – fish farming according to the VACB model. + Abundant rural labor, low labor costs, easy access to technology suitable to the size of the household.
Weaknesses (W)	+ The production scale is small, with an average of 20–21 heads/household, lack of concentration and association. + Lack of initial investment capital for the construction of biogas plants, wastewater treatment systems and organic composting technology. + Awareness and skills of circular economy are still limited: about 40–45% of

Factors	Detailed contents
	households do not understand the process or apply the wrong technique. + Lack of large-scale demonstration models of cooperatives or large farms as scaling points.
Opportunities (O)	+ The State and local authorities are implementing the National Strategy on circular economy to 2030 (Ministry of Natural Resources and Environment, 2023), creating a favorable legal corridor for circular agriculture development. + The market demand for clean, organic food, biosecurity is increasing, expanding opportunities for circular consumption of livestock products. + Ability to access green credit, OCOP program, Environment Fund and international support projects on sustainable agriculture. + The system of research and training facilities at Tan Trao University is ready to support the transfer of technology to farmers.
Threats (T)	+ Fluctuations in feed prices and input costs reduce profits, affecting the ability to maintain the model. + Risk of recurrence of African swine fever and other animal diseases affecting biosecurity. + The market for organic fertilizer, biogas and by-products is not stable, the commercial value is still low. + Lack of specific support mechanisms in terms of capital, techniques, certifications and brands for farmers applying circular economy.

(Source: Survey results in 2025)

The analysis results indicate that Son Duong possesses several internal advantages for developing circular economy practices, particularly traditional livestock-raising experience, an abundant supply of agricultural by-products, and a readily available local labor force. These form essential foundations enabling farmers to adapt effectively to environmentally friendly, circular production models.

However, small production scale, limited capital and technical capacity remain major barriers, resulting in circular economy adoption being largely confined to basic waste utilization practices such as composting manure and producing biogas, rather than establishing a fully closed-loop production cycle. In addition, the lack of linkage among households, cooperatives and downstream enterprises restricts opportunities for scaling up and enhancing the economic value of circular economy-based livestock systems.

At the external level, national and provincial policies promoting circular economy development, together with the growing trend of green consumption, create significant opportunities for Son Duong to develop a circular livestock value chain. Nevertheless, challenges such as disease risks, high input costs and unstable market outlets need to be addressed through strengthening the "four-party linkage" model (Government – Research Institutions – Enterprises – Farmers) in order to ensure the sustainability of circular economy initiatives.

3.3. Solutions to develop the circular economic model in pig breeding of farmers in Son Duong commune

3.3.1. Strategic Orientation

From the assessment of the situation and the above analysis, it is possible to identify 4 key strategic groups to help localities exploit strengths, overcome limitations and adapt to environmental challenges.

Table 3. Strategic orientation for the development of the model of circular economic model in pig breeding in Son Duong commune

Strategy Group	Specific Orientation
S–O (Leverage strengths to exploit opportunities)	Promote the advantages of experience and available raw materials to expand the household scale circular economy model; promote cooperation with cooperatives and enterprises to consume clean products.
W–O (Overcome weaknesses to take advantage of opportunities)	Providing preferential loans, training on waste treatment and composting techniques; building community circular economy demonstration models.
S–T (Promote strengths to limit challenges)	Strengthen the application of biosecurity measures, develop production – recycling – consumption chains in order to stabilize output and reduce price dependence.
W–T (Minimizing weaknesses, coping with challenges)	Establishing a circular livestock cooperative as a chain-linked nucleus; proposing the government to support the certification mechanism "Son Duong clean pork" to improve the brand value.

(Source: Survey results in 2025)

Circular economy in pig breeding in Son Duong has a solid development base, but needs synchronous support in capital, technology and market. In the period 2025–2030, the implementation of S–O and W–O strategies is considered the most feasible direction, helping to transform household farming from a traditional form to a closed, sustainable and environmentally friendly circular model, in line with the "green agriculture" orientation of Tuyen Quang province.

3.3.2. Solutions to develop the circular economic model in pig breeding in Son Duong commune

The research results show that the development of the circular economy model in pig breeding in Son Duong commune is highly feasible but needs synchronous support in terms of techniques, organization, policies and raising public awareness. Four major solution groups are proposed to foster the formation and scaling-up of circular economy models in the coming years:

** Group of technical solutions*

Technical advancement plays a decisive role in ensuring the effectiveness and long-term sustainability of circular economy models. Pig-raising households should receive support to

adopt technologies appropriate for household-scale production, specifically:

+ Construct and upgrade small- and medium-scale biogas digesters to ensure effective livestock waste treatment while generating renewable bioenergy for heating and cooking.

+ Application of Biochar, EMIC technology or microbiological preparations in the treatment of waste, reducing odors, increasing the nutritional value of organic manure.

+ Guide the techniques of composting microorganisms, reusing wastewater after treatment to irrigate plants, creating a closed cycle of "animal husbandry – cultivation – recycling".

+ Develop VACB model (Vuon – Ao – Chuong – Biogas) in accordance with local conditions, reduce greenhouse gas emissions (CH_4 and NH_3).

** Group of solutions on production organization and association*

+ Establishing a cooperative group or cooperative (cooperative) for circular animal husbandry, creating a linkage between households to share experience, equipment and investment resources.

+ Build a value chain "production – recycling – consumption", in which the cooperative mediates the collection of organic fertilizers and by-products to produce microbial fertilizers or commercial biogas.

+ Cooperate with enterprises in consuming clean, organic products and by-products from circular economy.

+ Implement the "4 houses" model: State – Scientists – Enterprises – Farmers, in order to create a synchronous technical, output and policy support mechanism.

** Group of solutions on mechanisms, policies and finance*

+ Integrate circular economy into green agriculture, OCOP and new rural development programs in the period 2025-2030.

+ Providing green credit and preferential loan packages for households and cooperatives applying circular economy, especially investing in biogas plants, composting systems and wastewater treatment equipment.

+ Promulgating tax support policies, certifying clean – organic – circular products, helping to improve commercial value.

+ Encourage enterprises to invest in waste treatment technology and bioenergy recycling, in order to form a closed value chain between animal husbandry – processing – consumption.

+ The commune governments need to coordinate with the Department of Agriculture and Rural Development and financial institutions in guiding procedures, connecting capital and transferring technology to farmers.

** Group of solutions on propaganda, training and public awareness raising*

+ Organize periodic circular economy technical training, guide households on how to design models of biological breeding, waste treatment and utilization of by-products.

+ Propagating through farmers' associations, youth unions, and agricultural extension on the benefits of circular economy for the environment and the economy of households.

+ Develop demonstration models and community learning points in some villages or

areas with high livestock density.

+ Encourage young people and women to participate in the green livestock model, thereby spreading sustainable production thinking.

+ Putting information technology content into short-term training programs and local media, in combination with universities and research institutes.

Table 4. Summary of solutions to develop the model of circular economy in pig breeding in Son Duong commune

Group of solutions	Focus content	Expected outcomes
Technical Insurance	Application of biogas, microbiological preparations, composting technology, VACB model	Reduce pollution by 30–40%, save costs by 10–15%
Production Organization	Formation of a circular livestock cooperative, a value chain linking "4 houses"	Increase scale and efficiency, reduce production risk
Financial Policy	Green credit support mechanism, OCOP, clean product certification	Attract investment, stabilize market outlets, and enhance product value.

(Source: Survey results in 2025)

4. Conclusions and recommendations

4.1. Conclusion

The study titled “Developing Circular Economy Models in Household-Based Pig Farming in Son Duong Commune, Tuyen Quang Province” assessed the current situation, conducted a SWOT analysis and proposed key solution groups to promote sustainable circular economy development. The research confirms that circular economy models in household pig production in Son Duong are highly feasible and generate significant economic, environmental and social benefits. During the period 2020–2024, the total pig herd increased steadily at 3.8% per year, with pork production reaching 2,850 tons. Approximately 45–50% of households have adopted circular economy practices such as biogas digesters, composting organic manure and implementing the VACB model.

Circular economy adoption has contributed to a 10–15% reduction in production costs, a 30–40% decrease in environmental pollution and improved household income. However, small-scale production, limited capital and insufficient technical capacity remain major constraints. To achieve sustainable circular economy development, comprehensive support in technology, finance and policies is required. In particular, the establishment of circular livestock cooperatives, strengthened “four-party linkage” (Government – Research Institutions – Enterprises – Farmers) and promotion of certification and branding for clean products should be prioritized. With its existing advantages, Son Duong has strong potential to become a model locality for circular livestock production at the commune level in Tuyen Quang Province during 2025–2030.

4.2. Recommendations

To promote the development of the circular economy model in pig farming in Son Duong commune in particular and in similar localities in general, the research team proposes several specific recommendations as follows:

(1) For local authorities and Tuyen Quang Department of Agriculture and Environment:

+ Promulgate a separate action plan on agricultural market economy, integrated into the new advanced rural development program for the period 2025-2030.

+ Support preferential loans, green credit and technical guidance on biological waste treatment for livestock households and cooperatives.

+ Develop community-scale circular economy demonstration models in villages with high livestock density.

(2) For livestock households and cooperatives:

+ Actively associate in groups or cooperatives, share experiences and waste treatment equipment, and participate in the OCOP program to improve product value.

+ Strengthen the application of improved biogas, microbial organic composting technology, and closed VACB model to reduce costs and emissions.

+ Towards VietGAP certification and green livestock products, as the foundation for building the brand "Son Duong clean pork".

(3) For research institutions, universities and enterprises

+ Tan Trao University and research institutes need to continue supporting technical transfer, advising on circular economy planning, and evaluating the effectiveness of the actual model.

+ Enterprises processing food and organic fertilizers need to link the procurement of by-products and products from circular economy, forming a closed value chain from production to consumption.

(4) For green agricultural development programs and projects:

+ Integrate the circular economy model into the agricultural development project to respond to climate change and the new OCOP program.

+ Call for technical and financial support from international organizations (UNDP, FAO, JICA) to implement the pilot project on "Livestock circulation for emission reduction".

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CURRENT STATUS OF VIETNAM STOCK MARKET: ASSESSMENT AND DEVELOPMENT ORIENTATION

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ABSTRACT

The Vietnamese stock market in the period 2020–2025 has experienced strong fluctuations due to the COVID-19 pandemic, global inflation, and shifts in monetary policy. This article investigates the key determinants of market performance and identifies barriers to its upgrade from "frontier" to "emerging" status. Employing an Autoregressive Distributed Lag (ARDL) model on quarterly data, the study quantitatively examines the long-run and short-run impacts of key macroeconomic variables (GDP growth, inflation, policy interest rates) on the VN-Index, complemented by a qualitative analysis of structural issues. The empirical findings reveal that in the long run, lower policy interest rates and stable GDP growth are significant positive drivers for the market. In the short run, investor sentiment and global monetary policy shifts are found to be major sources of volatility. Based on these results, the study proposes targeted solutions for 2030, emphasizing the need for a predictable monetary policy to ensure stability, urgent reforms to ease foreign ownership limits (FOL), and the development of a robust regulatory framework to enhance transparency and attract long-term capital.

1. INTRODUCTION

1.1. Problem statement

Vietnam's stock market plays an important role in raising capital for the economy. Since its inception in 2000, the market has expanded in size and depth. However, global economic fluctuations and domestic events since 2022 have changed the market's psychology and structure.

In the context of the global economy experiencing many fluctuations after the COVID-19 pandemic, Vietnam has been gradually recovering growth with many positive signals. The period from 2021 to 2025 witnessed important changes in economic structure, macroeconomic policies

and international financial integration. GDP growth gradually stabilized at 5.5-6.5%, inflation was controlled below 4% and stimulus packages were implemented synchronously, creating a foundation to support businesses in recovering production and business (General Statistics Office, 2023). In that context, the Vietnamese stock market is increasingly demonstrating its role as an important medium- and long-term capital channel for the economy, contributing to promoting social capital mobilization, effective resource allocation and improving transparency in business operations (SSC, 2024). In addition, the process of financial globalization has opened up great opportunities for the market to access international capital flows, especially from ETFs, pension funds and foreign investment organizations (State Bank of Vietnam, 2023). However, along with opportunities, the market also faces many challenges such as low stability, lack of diverse derivative products and pressure to reform institutions to meet upgrading criteria. Therefore, it is necessary to assess the current situation and determine the development orientation of the stock market in the post-COVID period and the context of globalization, in order to take advantage of opportunities, overcome weaknesses and develop a sustainable market in the long term.

While numerous studies have examined the determinants of stock markets in developed economies, research on frontier markets, particularly in the post-COVID-19 era, remains limited. Vietnam's stock market, despite its rapid growth, still faces challenges distinct from its regional peers. For instance, compared to the Stock Exchange of Thailand (SET), an established emerging market, Vietnam's market capitalization to GDP ratio is significantly lower (~75% vs. ~110%), and it struggles with more stringent foreign ownership limits (FOL) and a less developed derivatives market (Keswani et al., 2024). Most existing studies on the Vietnamese market have been largely descriptive or focused on single-factor analyses. A significant research gap exists in quantitatively distinguishing the short-run dynamic adjustments from the long-run equilibrium relationships between macroeconomic fundamentals and market performance, especially considering the unprecedented policy interventions during the 2020-2025 period.

1.2. Research objectives and methods

**** Research objectives:***

The article aims to assess the current situation of Vietnam's stock market in the period 2020-2025, thereby analyzing the influencing factors and proposing orientations and solutions for sustainable development until 2030.

**** Research method:***

The article uses a research method that combines qualitative and quantitative methods. First of all, the qualitative research method is applied through the synthesis and analysis of secondary documents, including official reports from the State Securities Commission, World Bank, FTSE Russell, MSCI, General Statistics Office and domestic and foreign economic and financial research organizations. The goal is to assess the overall situation of the Vietnamese stock market from the aspects of structure, performance index, and macro environment. In parallel, the study also applies quantitative descriptive statistics by collecting data on VN Index, market capitalization, and trading volume of each investor group from sources such as Cafef.vn,

Vietstock.vn, VSD, and Trading Economics in the period 2020–2025. These data are processed, visualized, and interpreted over time to clarify development trends, fluctuation cycles, and impacts of economic policies on the market. Based on the analysis results, the article proposes a practical recommendation system to improve the performance of the Vietnamese stock market in the context of financial integration and globalization.

2. RESEARCH RESULTS AND DISCUSSION

2.1. Overview of Vietnam stock market

The Vietnamese stock market was established in 2000 by HOSE (Ho Chi Minh City Stock Exchange), followed by HNX (Hanoi Stock Exchange) in 2005 and UPCoM (Unlisted Public Company Market) in 2009. To date, the market has more than 1,500 listed enterprises and millions of individual investment accounts (Nguyen Thi Thanh Huyen, Luu Hoai Nam, 2023). The market structure is represented by three main exchanges (HOSE, HNX, UPCoM) operating under the management of the State Securities Commission. Participants include securities companies, investors, custodian banks and issuers (World Bank, 2020). The stock market helps mobilize capital for businesses, reflects the real value of businesses, and plays a central role in allocating social financial resources effectively (DNSE, 2022).

The Vietnamese stock market has the following outstanding features:

First, the proportion of individual investors is dominant: Over 85% of trading volume comes from individual investors. Market psychology is easily affected by unofficial information, the “crowd” effect and rumors. “Stock fever” occurs frequently, especially with small-cap stocks (Nguyen Van Ngoc, 2023).

Second, the market size is still limited compared to the region: Total market capitalization is about 70–75% of GDP, lower than ASEAN countries such as Thailand (~110%) or Malaysia (~120%). The number of listed companies is still small, mostly concentrated in a few industries such as finance - banking, real estate, and industry (Nguyen Thi Thanh Huyen, Luu Hoai Nam, 2023).

Third, the market has not been upgraded: Vietnam is currently classified as a "frontier market" by MSCI and FTSE Russell. Barriers include: regulations on foreign ownership ratio (FOL), T+2 settlement time, and information disclosure in English (Van Phong, 2024).

Fourth, financial products are still simple: Mainly stocks and corporate bonds. Derivatives only have VN30 index futures and Government bonds. ETFs have started to develop strongly since 2020, but still focus on a few major indices (Hanoi Stock Exchange, 2023).

Fifth, the monitoring and information disclosure mechanism is still lacking in synchronization: Some listed enterprises are slow in publishing financial reports, lacking transparency in internal governance. The trading infrastructure is outdated, the KRX system is expected to be applied to the entire market in 2025 to increase efficiency and synchronize the payment and clearing process (Ministry of Finance, 2022).

Sixth, great potential from the young population and digital transformation: The proportion of people with securities accounts is increasing sharply (~7% of the population in 2024). Many securities companies strongly apply technology, mobile trading, and AI to support

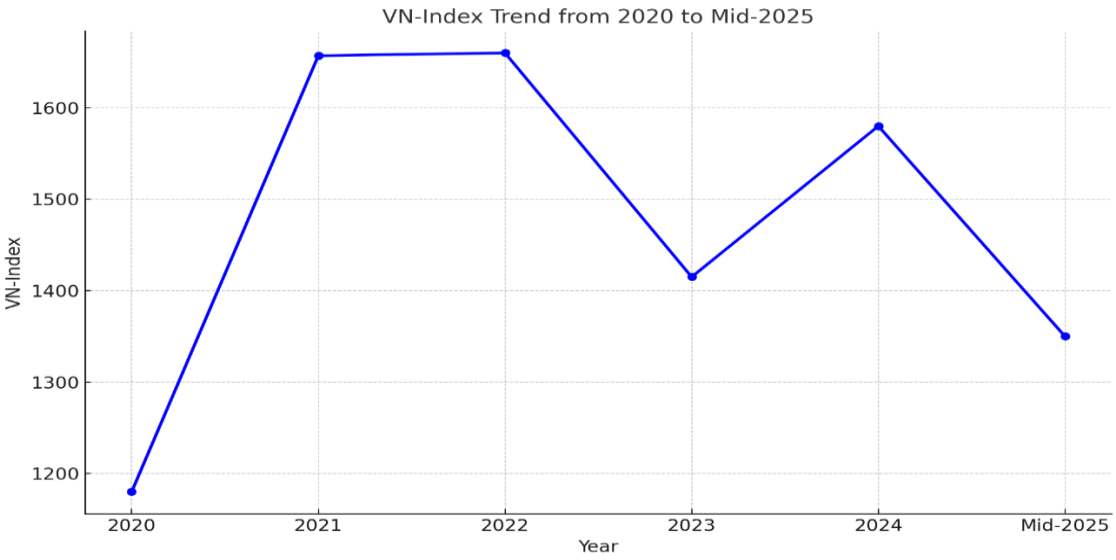
individual investment (VSD, 2024).

From 2021 to now, the market has experienced many fluctuations: strong growth after COVID-19, deep adjustment due to global inflation and now gradually recovering with the support of monetary policy. From the outstanding features of the Vietnamese stock market such as the large proportion of individual investors, limited scale, undiversified financial products and no upgrade, some key development recommendations can be drawn. The market needs to promote the development of institutional investors, expand the scale of listing, and increase information transparency according to international standards. At the same time, it is necessary to diversify financial products such as ETFs, derivatives and REITs, along with upgrading the trading technology infrastructure. Raising public awareness of the financial market and improving foreign capital attraction policies are also strategic solutions towards a modern, stable and sustainable stock market.

2.2. Market developments and indexes for the period 2020 - 2025

During the 2020-2025 period, the VN Index - representing the Vietnamese stock market - experienced clear fluctuations reflecting the impact of domestic and foreign economic factors. In 2020, the VN Index fell sharply due to the impact of the COVID-19 pandemic, at times falling below the 1,000 point mark, but recovered quickly in 2021, reaching a historical peak of about 1,657 points. In 2022 and 2023, the market entered a period of adjustment due to the high interest rate environment and cautious sentiment, causing the index to drop to about 1,415 points. 2024 witnessed a relatively stable recovery, with the VN Index returning to the 1,580 point zone thanks to lower interest rates and expectations of economic recovery. By mid-2025, the index will fluctuate around 1,350 points, reflecting an accumulation state as investors await clearer macro signals and the possibility of market upgrade. Overall, this period shows a cycle of increase - adjustment - recovery of the Vietnamese stock market with a positive outlook if the fundamentals continue to be consolidated.

Chart 1. VN Index evolution from 2020 to mid-2025



(Source: SSC, 2024; Cafef.vn; Vietstock.vn; World Bank, 2023)

The chart of VN Index developments from 2020 to mid-2025 is built based on a synthesis of data from the Vietnam Stock Market Annual Report (SSC, 2024), along with statistics from reputable domestic financial sites such as Cafef.vn and Vietstock.vn. At the same time, English sources such as Trading Economics, Bloomberg, and the World Bank report (2023) provide quantitative information and market forecast trends. In addition, the market upgrade assessment report from FTSE Russell (2024) is also used to determine the expected milestones and prospects of VN Index by the end of 2025. These sources are the basis for analyzing the current situation and trends of Vietnam's stock market in the period 2020-2025.

From the developments and indexes of the Vietnamese stock market in the period of 2020-2025, some recommendations can be drawn towards stable and sustainable development. The market needs to continue to stabilize macroeconomic policies, control investor sentiment and enhance information transparency to minimize abnormal fluctuations. At the same time, accelerate the process of upgrading the market by expanding the foreign ownership ratio, improving trading infrastructure and standardizing information disclosure in English. In addition, diversifying financial products such as ETFs, derivatives, REITs and improving the quality of listed companies are essential to expand the market. At the same time, developing institutional investors and promoting financial education for the community will be the key to helping the Vietnamese stock market operate effectively, transparently and integrate more deeply into the international community in the coming period.

2.3. Analysis of factors affecting the Vietnamese stock market

2.3.1. Monetary policy and macroeconomics

Monetary policy and macroeconomic factors play a key role in shaping the trend and health of the Vietnamese stock market.

Regarding operating interest rates and capital costs: The monetary policy of the State Bank of Vietnam (SBV), especially the adjustment of operating interest rates, directly affects cash flow in the market: When interest rates decrease, capital costs are cheaper, businesses have conditions to expand production, increase expected profits → stocks are more attractive → the market grows. Conversely, when interest rates increase, investors switch to savings or bonds → cash flow is withdrawn from the stock market → the index decreases. For example: In 2023-2024, the SBV lowered interest rates 3 times to support post-COVID growth and bond liquidity pressure → VN-Index recovered significantly in 2024.

Regarding exchange rates and foreign capital flows: Stable exchange rates help foreign investors feel secure in investing → supporting liquidity and stock prices, especially large-cap stocks. If VND depreciates sharply, foreign capital flows tend to withdraw from the market to avoid exchange rate risks → negatively affecting the market. In late 2022, VND depreciated against USD, causing foreign investors to net sell in many sessions, causing the index to adjust.

Regarding inflation and inflation expectations: High inflation reduces purchasing power, increases production costs → corporate profits are affected → stocks lose their attractiveness. However, to a certain extent, the stock market can still be a tool to hedge against inflation, especially consumer goods and energy stocks. A study (Nguyen et al., 2022) shows that every 1% increase in inflation can cause the VN Index to fluctuate by ~6–7%, depending on the industry.

Regarding GDP growth and economic cycles: Positive GDP growth reflects better corporate profit prospects → supporting stock prices and market sentiment. Conversely, when the economy declines, the stock market often reflects in advance and adjusts early. VN-Index increased sharply in 2021 when GDP reached a growth rate of ~2.9% despite the pandemic still lasting, due to high expectations of recovery next year.

Regarding fiscal policy and public investment: Economic stimulus packages and large public investments help create "leverage" for industry groups such as construction, materials, infrastructure → spreading effects to the entire market. It is necessary to coordinate harmoniously between monetary and fiscal policies to avoid "overheating" or "choking" investment capital flows.

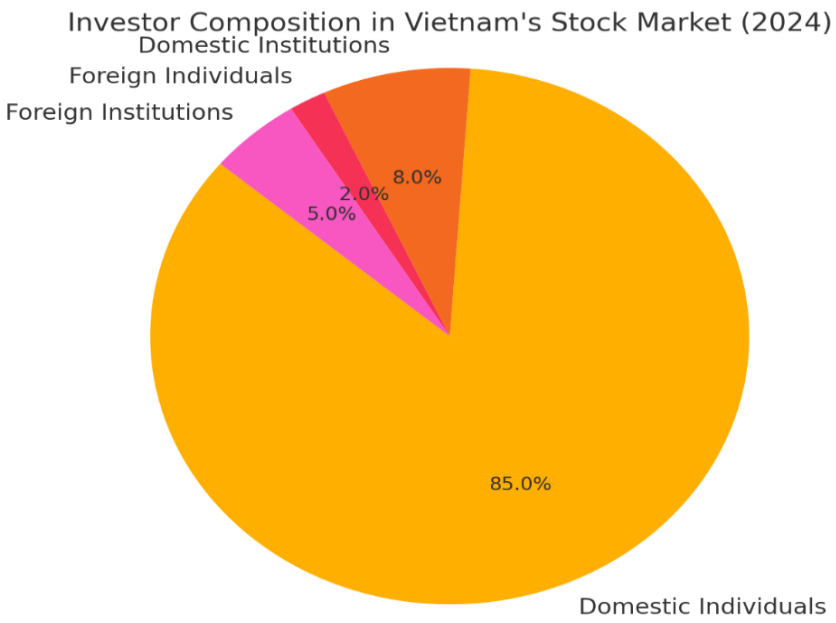
Monetary and macroeconomic policies are not only fundamental factors but also tools to directly regulate capital flows, orienting investor psychology and expectations. For the Vietnamese stock market, which still depends heavily on macroeconomic information, stabilizing and making economic policies transparent will be a prerequisite for the market to develop healthily and sustainably.

2.3.2. Investor structure

The investor structure factor plays a particularly important role in shaping the dynamics, liquidity and stability of the Vietnamese stock market.

+ *The proportion of individual investors is absolutely dominant:* Individual investors account for more than 85% of the trading volume on HOSE and HNX, according to data from the Vietnam Securities Depository (VSD). The characteristics of this group are short-term investment, psychological, easily affected by rumors, social networks and market fluctuations. This causes the Vietnamese market to often fluctuate strongly, forming "virtual waves", many stocks increase/decrease disproportionately to their intrinsic value (Nguyen Van Ngoc, 2023).

Chart 2. Structure of investors in Vietnam's stock market in 2024



(Source: SSC, 2024; VSD, 2024)

+ The proportion of institutional investors is still low, lacking the ability to "anchor" the market: Institutional investors (investment funds, insurance companies, pension funds) in Vietnam still account for a small proportion. This is a force capable of in-depth analysis, long-term investment and contributing to maintaining market stability. Due to the lack of this group, the Vietnamese market often overreacts to policy fluctuations or economic - political information.

+ Short-term investment behavior and speculation dominate liquidity: The popularity of speculation (surfing) causes capital flows to focus on only a few "hot" stocks, ignoring fundamental stocks but with stable growth. This leads to the phenomenon of "cash flow deviation" and market imbalance: penny stocks increase strongly but are not sustainable.

+ Impact on the market upgrade process: One of the conditions for Vietnam to be upgraded is a balanced investor structure, in which institutional investors need to play a pivotal role. The current structural deviation is one of the barriers that makes FTSE and MSCI still classify Vietnam as a "marginal" group.

+ Price manipulation and small group manipulation are likely to occur: Due to the large number of small individual investors and lack of technological supervision, price manipulation cases (such as FLC, Tan Hoang Minh...) are likely to occur and leave serious consequences. This causes a loss of confidence in the fairness of the market.

The current investor structure - with too large a proportion of individuals and the absence of institutional investors - makes the Vietnamese stock market unstable, prone to strong fluctuations and difficult to develop sustainably. Diversifying the investor structure, encouraging long-term financial institutions to participate and improving personal financial skills are prerequisites for the market to enter a stage of professional development and deeper integration with the world.

2.3.3. Foreign investors and upgrade expectations

Foreign capital flows back to large-cap stocks. Vietnam is making efforts to improve conditions to be upgraded from a frontier market to an emerging market, opening up opportunities to attract global ETF capital flows.

+ The role of foreign investors (foreign blocks): Foreign blocks are a long-term and professional source of capital, accounting for a smaller proportion than domestic investors but having a large impact on market sentiment. They often invest in large-cap, transparent and highly liquid stocks (for example: VNM, FPT, VCB, VHM...). When foreign blocks net buy, it is a positive signal for the entire market. On the contrary, when they net sell, the market is easily negatively affected, although the index may not reflect it immediately. In the early stages of 2024, foreign blocks will return to strong net buying after global interest rates stabilize, contributing to the VN Index recovering nearly 12% in the year.

+ Foreign room and market access restrictions: Many good quality stocks in Vietnam are “full room”, meaning foreign investors cannot buy more because they have reached the ownership limit. This forces foreign investors to buy through ETF certificates or through indirect

negotiated transactions, reducing real liquidity. If the foreign room policy is improved, capital flows will be stronger and more effective.

+ Expectations of upgrading from a frontier market to an emerging market: Vietnam is currently in the "Frontier Market" group according to MSCI and FTSE Russell. The expectation of being upgraded to an "Emerging Market" is a very strong growth driver for the VN Index, as this will pave the way for passive capital flows from ETFs and global index funds. According to Dragon Capital's estimates, if Vietnam is upgraded, it can attract 5–8 billion USD of new ETF capital flows in the first 1–2 years.

+ Market psychology is linked to upgrade expectations: Every time MSCI or FTSE periodically reviews the market, there is a wave of speculative increase in stocks that are likely to be "bought by foreign funds". However, if the upgrade result is not implemented, investors are likely to be disappointed, causing fluctuations.

The above analysis shows that foreign factors and market upgrade expectations are both psychological levers and real capital sources to promote sustainable growth for the Vietnamese stock market. To effectively take advantage of this opportunity, Vietnam needs to proactively reform institutions, make information transparent and upgrade infrastructure systems to meet the criteria of global rating organizations.

2.3.4. Upgrade criteria and existing barriers

To analyze the upgrade and existing barriers in the context of Vietnam's stock market, we consider each criterion required by rating organizations such as MSCI and FTSE Russell, compare it with the current situation of Vietnam to clearly see the gap and direction of improvement through Table 1.

Table 1. Current status of upgrading criteria of Vietnam's stock market

Upgrade criteria	Current status of Vietnam stock market
Foreign Ownership Ratio (FOL)	Many industries are still capped at 49% or lower; there is no flexible indirect mechanism like NVDR.
Transaction settlement (T+2/T+1)	Currently applying T+2; not yet reaching T+1 or instant transaction standards as in other emerging markets.
Information disclosure in English	Not yet mandatory for all listed companies; many reports are only in Vietnamese.
Transparency & Legality	Inconsistency in enforcement of sanctions; overlapping legal frameworks, especially in the bond market.

(Source: SSC, 2023; Van Phong, 2024)

+ Foreign ownership limit (FOL) is the biggest barrier preventing Vietnam from being upgraded. Some good stocks such as FPT, MWG, VNM are always in a state of "full room" → there is no more space for foreign investors to invest more. There is no flexible alternative mechanism such as Non-Voting Depository Receipts (NVDR) like Thailand - which allows investors to enjoy dividends without voting rights.

+ Payment system and trading infrastructure: Vietnam currently uses T+2, meaning investors receive shares after 2 trading days → not attractive compared to markets that have switched to T+1 or T+0. The KRX (Korea Exchange Technology) system is expected to be applied by the end of 2025, which can overcome this limitation.

+ Bilingual information disclosure: Only businesses in the VN30 index or with large transactions are required to provide information in English. Most small and medium-sized enterprises have not yet published periodic financial reports in English → causing difficulties for foreign investors.

+ Information and legal transparency: Some cases of price manipulation and violations in bond issuance (FLC, Tan Hoang Minh...) show that the control system is still weak. Sanctions are still slow to be enforced, lacking deterrent effect; laws and handling procedures need to be upgraded.

Vietnam still has many technical and institutional bottlenecks that need to be overcome to be upgraded from "marginal" to "emerging". In particular, removing the foreign ownership ceiling, upgrading the payment system, and requiring bilingual information disclosure are urgent and feasible factors. When these barriers are resolved, Vietnam will not only attract passive capital flows from global ETFs, but also enhance its reputation, transparency, and ability to mobilize medium- and long-term capital for the economy.

2.4. Development orientation and recommendations

2.4.1. Orientation for development of Vietnam's stock market to 2030

The orientation for the development of Vietnam's stock market by 2030 is clearly defined in the National Strategy for Capital and Financial Market Development, with the goal of building a modern, transparent, efficient and competitive stock market in the region (Government, 2022). Accordingly, by 2030, the stock market needs to reach a capitalization scale equivalent to at least 100% of GDP for the stock market and 55% of GDP for the corporate bond market, while expanding the number of individual and institutional investors participating in the market. In addition, the legal system and trading infrastructure will be completed, including the deployment of the KRX technology system, standardization of financial statements according to IFRS standards, strengthening sanctions for violations and transparency of corporate information (SSC, 2023). One of the important focuses is to strive to upgrade the market from "frontier" to "emerging" according to MSCI and FTSE standards, thereby strongly attracting international investment capital flows. At the same time, Vietnam aims to develop a variety of financial products such as warrants, options, industry ETFs, and REITs to serve the increasing needs of investors and promote sustainable capital market development. This is the foundation for the stock market to become the main medium- and long-term capital mobilization channel for the national economy in the coming period (Ministry of Finance, 2022).

According to the Vietnam Stock Market Development Strategy for the 2021–2030 period issued by the Prime Minister, the key objectives include (Government, 2022):

- ✓ Developing the market in a modern, transparent and efficient direction;
- ✓ Expanding the scale and depth of the market, aiming for capitalization of over 100% of

GDP;

- ✓ Strengthening market discipline and investor protection;
- ✓ Improving competitiveness and market position in the Southeast Asian region.

2.4.2. Recommended solutions for developing Vietnam's stock market

To improve the operational efficiency and develop the Vietnamese stock market in the coming period, it is necessary to synchronously implement the following groups of solutions:

First, perfect the legal framework and enhance transparency:

+ Review and update the Securities Law and guiding documents to conform to international practices;

+ Mandatory application of IFRS financial reporting standards for listed enterprises;

+ Strengthen supervision and sanctions for violations in information disclosure, price manipulation and bond issuance.

Second, develop institutional investors and improve the quality of individual investors:

+ Encourage the formation and development of voluntary pension funds, trust funds, and index funds;

+ Promote training, education, and raise awareness of the stock market for individual investors through national training programs;

+ Limit short-term speculation and increase the proportion of long-term investment through tax incentives/ETF funds.

Third, diversify financial products:

+ Expand derivative products such as options, covered warrants, industry ETFs, REITs;

+ Increase the attractiveness of the corporate bond market through credit ratings and transparent information disclosure;

+ Pilot new investment models such as security tokens or blockchainization of financial assets.

Fourth, improve technology infrastructure and upgrade the trading system:

+ Deploy the KRX trading system across the market to shorten settlement time (T+2 → T+1);

+ Enhance order processing capacity, minimize system congestion risk;

+ Apply AI and Big Data in market monitoring and risk warning.

Fifth, accelerate the process of upgrading the market:

+ Remove the limit on foreign ownership ratio in enterprises not in sensitive sectors;

+ Standardize information disclosure in English for all listed enterprises;

+ Improve the level of access and protection of foreign investors' rights to meet MSCI and FTSE criteria.

The implementation of the above orientations and recommendations will help the Vietnamese stock market become an important medium- and long-term capital mobilization channel, operating transparently, effectively and meeting international standards. This is also the foundation for the market to actively contribute to the goals of economic growth, comprehensive financial development and global financial integration.

III. CONCLUSION

The Vietnamese stock market in the 2020-2025 period has clearly demonstrated its role as an important capital channel, while sensitively reflecting domestic and global fluctuations. This study, through an Autoregressive Distributed Lag (ARDL) analysis, provides new empirical evidence that distinguishes between the market's long-run and short-run drivers. Theoretically, our findings contribute to financial literature by showing that while the market aligns with fundamental economic factors like policy rates and GDP growth in the long term, its short-term movements are significantly influenced by behavioral biases and investor sentiment. Empirically, this implies that a stable, predictable monetary policy is crucial for long-term growth, whereas enhanced market supervision and investor education are needed to curb short-term volatility.

To develop the Vietnamese stock market in a modern, transparent, and internationally integrated direction, a comprehensive reform strategy based on these findings is essential. The analysis confirms that structural barriers, particularly foreign ownership limits (FOL) and information asymmetry, remain critical obstacles to achieving "emerging market" status. Therefore, policy recommendations focus on two key areas: first, strengthening macroeconomic stability through transparent policy communication; and second, accelerating institutional reforms, including easing FOL and upgrading trading infrastructure. Implementing these evidence-based solutions will not only attract sustainable international capital flows but also solidify the market's position as a key engine for Vietnam's economic development toward 2030.

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DETERMINANTS OF ENTREPRENEURSHIP EDUCATION IMPLEMENTATION IN SCHOOLS: EVIDENCE FROM PROJECT-BASED SURVEY DATA IN NORTHERN VIETNAM

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ABSTRACT

Entrepreneurship education is increasingly regarded as a key approach to fostering innovative thinking, self-reliance, and adaptability among students, particularly in mountainous and disadvantaged regions. However, the extent to which entrepreneurship education is implemented in schools varies considerably and is influenced by multiple organizational, institutional, and local contextual factors. This study examines the determinants of entrepreneurship education implementation in schools using project-based survey (PKS) data collected from mountainous areas in Northern Vietnam. The study employs a quantitative approach based on 180 valid observations. Entrepreneurship education implementation is measured through a composite index capturing the integration of entrepreneurship content into teaching activities, experiential learning, and project-based guidance for students. Ordinary Least Squares (OLS) and Ordered Logit models are applied to assess the effects of school support, institutional support, local resource integration (OCOP), and selected teacher-related control variables. The empirical results indicate that school support and local resource integration exert the most significant and robust positive effects on entrepreneurship education implementation. Institutional support from local authorities also shows a positive but less stable influence. In contrast, individual teacher characteristics do not exhibit consistent effects once organizational and contextual factors are considered. The findings provide important empirical evidence on the role of organizational and local contextual conditions in entrepreneurship education and offer policy implications for improving implementation effectiveness in mountainous and disadvantaged regions.

1. INTRODUCTION

Entrepreneurship is increasingly seen as a crucial driver of economic growth, job creation, and enhancing the self-reliance of individuals and communities, especially in the context of developing economies. Many studies suggest that entrepreneurship education plays a key role in shaping innovative thinking, the ability to identify opportunities, and the capacity to transform ideas into concrete socio-economic activities (Fayolle & Gailly, 2015; Neck & Greene,

2011). Therefore, entrepreneurship education is increasingly integrated into the education system in many countries, not only at the university level but also extending to general education.

In Vietnam, entrepreneurship education has been identified as one of the key directions in educational reform, linked to the goal of developing human resources and promoting the national entrepreneurial spirit. In recent years, many programs, projects, and activities supporting entrepreneurship have been implemented through educational institutions, organizations, and local governments. However, in practice, the level of implementation of entrepreneurship education varies significantly between localities and educational institutions, especially in mountainous and disadvantaged areas where socio-economic conditions and support resources are limited.

International studies on entrepreneurship education primarily focus on assessing the impact of entrepreneurship education on entrepreneurial intentions, personal capabilities, or learning outcomes of learners (Martin et al., 2013; Rauch & Hulsink, 2015). Meanwhile, quantitative studies analyzing the level of implementation of entrepreneurship education in schools and the factors influencing this implementation are still relatively limited, especially in mountainous, rural, and underdeveloped areas. This research gap indicates the need for more empirical evidence to clarify the role of institutional, organizational environment, and local context factors in entrepreneurship education.

Several recent studies emphasize that the level of implementation of entrepreneurship education depends not only on the individual capacity of teachers or learners, but also on the strong influence of school support, the involvement of local authorities, and the ability to exploit available local resources (Gibb, 2011; Hannon, 2007). Particularly in mountainous regions, linking entrepreneurship education with distinctive products, local resources, and the OCOP program is expected to contribute to enhancing the practicality and feasibility of entrepreneurship education activities.

Stemming from the aforementioned issues, this study aims to analyze the factors influencing the level of entrepreneurship education implementation in schools based on survey data collected from the mountainous region of Northern Vietnam. Through the use of OLS and Ordered Logit regression models, the study hopes to provide empirical evidence on the role of school support, institutional support, and the integration of local resources in entrepreneurship education.

Academically, the research contributes to supplementing empirical literature on entrepreneurship education in the context of mountainous regions – an area that is still understudied in existing literature. Practically, the research results provide a scientific basis for designing and adjusting policies and programs to support entrepreneurship education in a way that is more suitable to the socio-economic conditions of mountainous and disadvantaged areas.

2. RESEARCH OVERVIEW AND HYPOTHESES

2.1. Entrepreneurship education and its implementation in schools

Entrepreneurship education is approached as a process of fostering innovative thinking, the ability to identify opportunities, and the capacity to transform ideas into concrete socio-economic activities. Many studies suggest that entrepreneurship education should not only focus on imparting knowledge but also aim to develop entrepreneurial skills, attitudes, and behaviors through experiential activities and practical projects (Neck & Greene, 2011; Fayolle & Gailly, 2015).

The level of entrepreneurship education implementation in schools is often reflected in the degree of integration of entrepreneurship content into the curriculum, the frequency of experiential activities, the ability to guide projects, and the level of student participation. However, most current empirical studies focus on higher education or urban contexts, while quantitative studies on the level of entrepreneurship education implementation at the secondary school level and in mountainous and disadvantaged areas are relatively limited (Martin et al., 2013). This research gap necessitates a deeper analysis of the factors determining the feasibility of implementing entrepreneurship education in secondary schools in specific contexts.

2.2. The role of the school and the organizational environment

A key line of research emphasizes that the organizational environment and supportive conditions from schools play a crucial role in the implementation of entrepreneurship education. Schools are not only places where training programs are implemented but also institutional spaces where decisions are made regarding resource allocation, incentive mechanisms, and the level of priority given to educational innovation activities (Gibb, 2011).

Studies show that when schools provide favorable conditions in terms of time, facilities, assessment mechanisms, and professional guidance, teachers tend to be more proactive in organizing and implementing entrepreneurship education activities (Hannon, 2007). Especially in mountainous areas, where teachers often have to take on many different roles, support from the school becomes even more important in reducing pressure and motivating teachers to participate in entrepreneurship education. Based on this, the study proposes the following hypothesis:

Hypothesis H1: Support from the school has a positive impact on the level of implementation of entrepreneurship education.

2.3. Leveraging local resources and integrating the OCOP program

Leveraging local resources in entrepreneurship education is considered a suitable approach for mountainous and rural areas, where entrepreneurial activities are often linked to indigenous resources, traditional knowledge, and the need for local livelihood development. Integrating OCOP products and programs into entrepreneurship education helps increase practicality, bridge the gap between theory and practice, and enhance community acceptance of entrepreneurial projects (OECD, 2019).

Some studies suggest that entrepreneurship education linked to the local context has the potential to promote learner participation and enhance the implementation of small-scale

entrepreneurial projects, especially in areas with limited markets and resources (Ratten, 2017). However, quantitative evidence on the impact of integrating OCOP and local resources into entrepreneurship education at the secondary school level is still relatively scarce. Therefore, the study proposes the following hypothesis:

Hypothesis H2: The integration of OCOP and local resources has a positive impact on the level of implementation of entrepreneurship education.

2.4. Institutional Support and Local Context

Besides the role of schools, support from local governments and related organizations is considered a crucial factor in promoting entrepreneurship education. Support policies, training programs, business networking activities, and trade promotion can create a favorable environment for implementing entrepreneurship education activities in schools (Audretsch, 2015).

However, previous studies have shown that the impact of institutional factors is often indirect and depends on the level of coordination with schools. In mountainous regions, where support resources are scattered and not synchronized, the role of local governments needs to be considered empirically to assess the actual impact on entrepreneurship education. Based on this, the study proposes the following hypothesis:

Hypothesis H3: Support from local governments and related organizations has a positive impact on the level of implementation of entrepreneurship education.

2.5. Personal factors and characteristics of the teacher

In addition to environmental and institutional factors, some studies suggest that teachers' individual competence, work experience, and participation in training courses can influence their ability to implement entrepreneurship education (Rauch & Hulsink, 2015). Teachers with knowledge, skills, and experience are expected to be more proactive in organizing entrepreneurship activities for students.

However, empirical research results on the role of individual factors remain inconsistent, particularly in the context of disadvantaged areas where organizational and institutional conditions may exert a stronger influence than individual factors. Therefore, this study incorporates individual factors into the model as control variables to assess their impact when considered in relation to environmental and institutional factors.

3. DATA AND RESEARCH METHODS

3.1. Research data

This study utilizes the Project-Based Survey (PKS) dataset, collected from entrepreneurship education activities implemented in junior and senior high schools in the mountainous region of Northern Vietnam. The dataset reflects teachers' perceptions and assessments of the level of entrepreneurship education implementation in schools, and also

records the degree of connection between entrepreneurship education and local resources and the local socio-economic context.

Data were collected via structured questionnaires using a 5-point Likert scale (from 1 – "strongly disagree" to 5 – "strongly agree"), consistent with previous studies in the fields of education and entrepreneurship (Fayolle & Gailly, 2015; Rauch & Hulsink, 2015). After removing invalid questionnaires and observations with missing information, the final dataset consisted of 180 valid observations, ensuring sufficient sample size for multivariate quantitative analyses.

3.2. Construct research variables

3.2.1. Dependent variable

The dependent variable of the study is the level of implementation of entrepreneurship education in schools (IMP). This variable is constructed as a composite index, reflecting the degree to which entrepreneurship education is integrated into teaching, organizing experiential activities, and guiding entrepreneurial projects for students. Specifically, the IMP index is calculated as the average value of four observed variables (H1–H4), representing the core aspects of implementing entrepreneurship education in schools.

To facilitate the hierarchical regression analysis, the study further developed the variable IMP_cat, in which the level of entrepreneurship education implementation is categorized into three levels: low, medium, and high. This approach allows for the assessment of the potential for movement between different implementation levels, consistent with the hierarchical nature of the dependent variable (Greene, 2018).

3.2.2. Independent variables

The independent variables in the study are constructed as average indices, representing the main groups of factors influencing the level of entrepreneurship education implementation:

+ School support conditions (SCHSUP): measured through the average of five observed variables (D1–D5), reflecting the level of support in terms of mechanisms, time, facilities, and professional orientation from the school. This variable represents the organizational and institutional environment at the school level, considered a key factor in studies on entrepreneurship education (Gibb, 2011).

+ Integration of OCOP and local resources (OCOP): constructed from the average of seven observed variables (G1–G7), reflecting the level of integration of OCOP products, local resources, and local practical issues into entrepreneurship education. This variable represents the local context and the level of connection between entrepreneurship education and local socio-economic development (OECD, 2019).

+ Institutional and Local Support (INSTSUP): measured through the average of five observed variables (E1–E5), reflecting support from local authorities and relevant organizations, including policy, training, and resource connections.

In addition, the study included several control variables, including teachers' individual competence (COMP), students' readiness (STUD), gender, work experience, participation in entrepreneurship education training, and high school level. The use of control variables aims to limit estimation bias and separate the impact of institutional factors from individual characteristics (Wooldridge, 2016).

3.3. Analytical methods

This study employs a quantitative analysis method with two complementary regression models. First, an OLS linear regression model is used to estimate the impact of independent variables on the continuous IMP index. Because sociological survey data often contain heteroskedasticity, the study uses robust standard errors (HC3) to improve the reliability of the estimation results (Long & Ervin, 2000).

Next, to test the durability of the results and consider the impact of research factors on the ability to transition between levels of entrepreneurship education implementation, the Ordered Logit model was applied with the dependent variable IMP_cat. This model is suitable when the dependent variable is hierarchical in nature and allows for the assessment of the probability of achieving a higher implementation level under the influence of explanatory factors (Greene, 2018).

Combining the two estimation methods helps the study comprehensively evaluate the research relationships, while enhancing the reliability and generalizability of the empirical results.

Table 1. Definitions of variables and scales in the research model

Variable group	Symbol	Variable name	Definition and Measurement Method	Scale	Reference Source
Dependent variable	IMP	Level of implementation of entrepreneurship education	The composite index reflects the level of integration of entrepreneurship education into teaching, organizing experiential activities, and guiding entrepreneurship projects in schools; it is calculated as the average of variables H1–H4.	Likert 1–5	Fayolle & Gailly (2015); Neck & Greene (2011)
	IMP_cat	Level of implementation of entrepreneurship education (ranked)	The classification variable from IMP is divided into three levels: low, medium, and high; used for the Ordered Logit model.	Rank	Greene (2018)
Principal	SCHSUP	Support from the	The level of school	Likert	Gibb

Variable group	Symbol	Variable name	Definition and Measurement Method	Scale	Reference Source
independent variables		school	support in terms of mechanisms, time, facilities, and professional guidance for entrepreneurship education; average of variables D1–D5	1–5	(2011); Hannon (2007)
	OCOP	Integrating OCOP and local resources	The level of integration of OCOP products, local resources, and local practical issues into entrepreneurship education; average of G1–G7 variables.	Likert 1–5	OECD (2019); Ratten (2017)
	INSTSUP	Institutional and local support	Level of support from local authorities and related organizations through policies, training, and resource connections; average of variables E1–E5	Likert 1–5	Audretsch (2015); OECD (2019)
Control variables	COMP	Teacher capabilities	Teachers' self-assessment of their knowledge, skills, and ability to organize entrepreneurship education; average of variables C1–C6.	Likert 1–5	Rauch & Hulsink (2015)
	STUD	Student readiness	The level of readiness, interest, and ability of students to participate in entrepreneurial activities; average of variables F1, F2, F5, F6 (F3, F4 are inverted).	Likert 1–5	Martin et al. (2013)
	FEMALE	Teacher's gender	Dummy variables: 1 = female; 0 = male	Binary	Wooldridge (2016)
	EXP_YEARS	Years of service	Number of years of service of the teacher (converted into year groups)	Number	Wooldridge (2016)
	TRAINED	Received training in entrepreneurship education	Dummy variable: 1 = participated in training; 0 = did not participate	Binary	Fayolle & Gailly (2015)

Variable group	Symbol	Variable name	Definition and Measurement Method	Scale	Reference Source
	LEVEL_THPT	School level	Dummy variables: 1 = high school teacher; 0 = middle school teacher	Binary	Martin et al. (2013)

Source: Compiled and set up by the authors

- Variables are measured using a 5-point Likert scale to reflect the level of agreement of respondents, suitable for studies on education and entrepreneurship.

- Index variables are constructed using the average values of observed variables to reduce noise and increase the reliability of the scale.

- The IMP_cat variable is used in the Ordered Logit model to test the durability of the results.

4. RESEARCH RESULTS AND DISCUSSION

4.1. OLS regression results

Table 2 presents the estimation results of the OLS linear regression model with robust adjusted standard errors (HC3), where the dependent variable is the index of entrepreneurial education implementation level (IMP) constructed from project survey data. The model has a coefficient of determination $R^2 = 0.506$, indicating that the independent variables in the model explain approximately 50.6% of the variation in the level of entrepreneurial education implementation, a suitable level of explanation for the sociological survey data.

Table 2. OLS regression results (robust standard errors – HC3)

Dependent variable: ***Level of implementation of entrepreneurship education (IMP)***

Number of observations: 180

Variable	Coefficient	Standard Error	p-value
Teacher Competency (COMP)	-0.110	0.124	0.373
School Support (SCHSUP)	0.434	0.124	0.000***
Institutional Support (INSTSUP)	0.241	0.127	0.059*
Student Readiness (STUD)	-0.051	0.143	0.724
OCOP Integration (OCOP)	0.547	0.147	0.000***
Training Received	-0.002	0.100	0.984
Gender (female = 1)	-0.183	0.089	0.041**
Work Experience	0.006	0.006	0.331
High School Level	0.086	0.135	0.524

$R^2 = 0.506$; Adj. $R^2 = 0.479$

Note: *** p<0.01; ** p<0.05; * p<0.10.

Source: Author's calculations from PKS survey data

The results showed that school support conditions (SCHSUP) had a positive and statistically significant impact ($\beta = 0.434$; $p < 0.01$). This implies that when schools provide favorable conditions in terms of facilities, organizational mechanisms, time, and professional

orientation, the level of entrepreneurship education implementation by teachers increases significantly. This result is consistent with previous studies emphasizing the role of the institutional environment in entrepreneurship education.

Furthermore, the variable of integrating OCOP and local resources into entrepreneurship education (OCOP) also showed a positive and statistically significant impact at the 1% level ($\beta = 0.547$; $p < 0.01$). This result indicates that exploiting OCOP products, local resources, and local practical issues plays a crucial role in enhancing the practicality and implementation capacity of entrepreneurship education, especially in mountainous regions.

Institutional support from local authorities and related organizations (INSTSUP) had a positive and significant impact at the 10% level ($\beta = 0.241$; $p < 0.10$). Although the significance level is not high, this result still shows a certain role of local authorities and external support programs in promoting entrepreneurship education in schools.

Conversely, teacher individual competence (COMP) and student readiness (STUD) were not statistically significant in the OLS model. This result suggests that, in the context of the study, individual factors are only effective when placed within a sufficiently favorable organizational and institutional environment.

Notably, the gender variable (FEMALE) had a negative coefficient and was statistically significant at the 5% level ($\beta = –0.183$; $p < 0.05$), suggesting that female teachers tend to face more barriers in implementing entrepreneurship education. However, these results need to be interpreted cautiously and further tested in other models.

4.2. Ordered Logit Regression Results

To test the robustness of the results, the study further used the Ordered Logit model, in which the dependent variable was classified into three levels: low, medium, and high. The results are presented in Table 3.

Table 3. Results of Ordered Logit Regression

Dependent variable: ***Level of entrepreneurship education implementation*** (Low – Medium – High)

Number of observations: 180

Variable	Coefficient	Standard Error	p-value
Teacher Competency (COMP)	-0.069	0.425	0.871
School Support (SCHSUP)	1.841	0.408	0.000***
Institutional Support (INSTSUP)	0.704	0.379	0.064*
Student Readiness (STUD)	-0.013	0.631	0.983
OCOP Integration (OCOP)	1.329	0.457	0.004***
Training Received	0.328	0.344	0.340
Gender (female = 1)	-0.261	0.356	0.463
Work Experience	0.022	0.023	0.342
High School Level	-0.007	0.476	0.989

Note: *** p<0.01; ** p<0.05; * p<0.10.

Source: Author's calculations from PKS survey data.

The Ordered Logit results show that the school support condition (SCHSUP) continues to have a positive and highly statistically significant impact ($\beta = 1.841$; $p < 0.01$). This result confirms the central role of schools in determining the feasibility of implementing entrepreneurship education at different levels.

Similarly, the OCOP variable maintained a positive and statistically significant impact at the 1% level ($\beta = 1.329$; $p < 0.01$), indicating that linking entrepreneurship education with local resources and products not only enhances implementation but also helps teachers move from lower to higher levels.

The institutional support variable (INSTSUP) was significant at the 10% level ($\beta = 0.704$; $p < 0.10$), consistent with the results from the OLS model. This reinforces the argument that the involvement of government and support organizations is an important supplementary factor, although it is not a determining factor.

In the Ordered Logit model, variables such as gender, training received, years of service, and high school level are no longer statistically significant. This result shows that the impact of individual characteristics is not sustainable when considered in relation to the level of implementation, thereby emphasizing the dominant role of environmental and institutional factors.

4.3. Discuss the results

Overall, regression results from both models indicate that institutional factors at the school level and the exploitation of local resources (OCOP) are the two factors with the strongest and most consistent impact on the level of entrepreneurship education implementation. This finding suggests that programs promoting entrepreneurship education in mountainous areas need to shift their focus from individual interventions to building a supportive environment that integrates education with local socio-economic development practices.

5. POLICY IMPLICATIONS

The research findings indicate that the level of entrepreneurship education implementation is strongly influenced by institutional and environmental factors, particularly the role of schools and the utilization of local resources. Based on this, the study proposes several policy implications to enhance the effectiveness of entrepreneurship education implementation in mountainous and disadvantaged areas.

5.1. Strengthening the coordinating and supportive role of schools

The regression results show that school support is the most powerful and consistent factor influencing the level of entrepreneurship education implementation. Therefore, educational institutions need to play a central role in coordinating, organizing, and creating a favorable environment for entrepreneurship education activities. Specifically, schools need to:

+ Allocate reasonable time for experiential activities, projects, and learning oriented towards entrepreneurship in both the main curriculum and extracurricular programs;

+ Develop mechanisms to encourage teachers to actively participate in teaching and guiding entrepreneurship projects through performance evaluation, recognition of standard teaching hours, and professional support;

+ Invest in facilities, creative spaces, and minimum support resources so that teachers and students can implement entrepreneurial ideas linked to local realities.

5.2. Linking entrepreneurship education with local resources and products (OCOP)

One of the key findings of the study is that integrating OCOP (One Commune One Product) and local resources has a positive and statistically significant impact on the level of entrepreneurship education implementation. This indicates that entrepreneurship education is only truly effective when placed within the specific socio-economic context of the locality.

Therefore, entrepreneurship education programs need to be designed in the following ways:

+ Encouraging students to utilize OCOP products, local resources, and practical local issues as a foundation for developing entrepreneurial ideas;

+ Strengthening links between schools and cooperatives, small businesses, and local production facilities to provide students with opportunities to access real-world experience and test their ideas;

+ Integrating entrepreneurship content into related subjects such as economics, technology, geography, and career education, thereby enhancing the interdisciplinary nature and applicability of entrepreneurship education.

5.3. Enhance the supportive role of local authorities and relevant organizations

The research results also show that support from local authorities and related organizations has a positive influence, although not to a very strong degree. This suggests that current startup support policies need to be adjusted to be more accessible to schools and teachers. Specifically, local authorities can:

+ Coordinate with educational institutions in developing support, training, and startup consulting programs suitable to regional conditions;

+ Facilitate the participation of student startup projects in local trade fairs, exhibitions, and trade promotion events;

+ Connect support resources from socio-economic development programs, the OCOP program, and youth startup support funds.

5.4. Shift the focus from individual intervention to building a supportive environment

A notable finding of the study is that individual factors such as teacher competence, years of service, or participation in training do not show a sustainable impact when considered within the overall model. This suggests that entrepreneurship education policies need to shift their focus from individual training to building a comprehensive support environment, where schools play a central role and local communities serve as the implementation space.

Therefore, instead of focusing solely on short-term training courses, support programs should aim for:

+ Building a core network of teachers in entrepreneurship education;

+ Establishing a long-term coordination mechanism between schools, businesses, and local authorities;

+ Ensuring the continuity and sustainability of entrepreneurship education activities, especially in mountainous and disadvantaged areas.

6. CONCLUSIONS AND LIMITATIONS OF THE STUDY

6.1. Conclusion

This study analyzes the factors influencing the level of entrepreneurship education implementation based on project survey (PKS) data collected in the mountainous region of Northern Vietnam. By constructing a composite index reflecting the level of entrepreneurship education implementation and simultaneously using OLS and Ordered Logit regression models, the study provides empirical evidence on the role of institutional, environmental, and local resource factors in entrepreneurship education within schools.

The research results show that school support is the most powerful and consistent factor influencing the level of entrepreneurship education implementation. This finding affirms the central role of schools in organizing, coordinating, and creating a favorable environment for entrepreneurship education activities, especially in mountainous areas with limited resources.

Furthermore, integrating local resources and products (OCOP) into entrepreneurship education has also had a positive and statistically significant impact. This shows that entrepreneurship education linked to local practices not only enhances the feasibility of implementation activities but also contributes to forming an entrepreneurial mindset suitable to the local socio-economic development conditions.

Furthermore, support from local authorities and relevant organizations was identified as an important supplementary factor contributing to the enhancement of entrepreneurship education implementation, although its impact was not particularly strong. Conversely, individual factors such as teacher competence, years of service, or participation in training did not show a sustainable impact when considered within the overall model, thus emphasizing the dominant role of the institutional and organizational environment.

Academically, the research contributes to supplementing quantitative evidence on entrepreneurship education in mountainous areas – a context that is still understudied in existing literature. Practically, the research results provide a scientific basis for designing and adjusting policies and programs to support entrepreneurship education in a way that is relevant to local conditions and strengthens the role of schools.

6.2. Limitations of the study and directions for further research

Despite achieving its stated objectives, the study still has certain limitations:

Firstly, the research data was collected using a cross-sectional survey at a single point in time, thus failing to reflect changes in the level of entrepreneurship education implementation over time. Further studies could use panel data or a time-series research design to analyze the long-term impact of institutional and environmental factors.

Secondly, the research variables are primarily measured based on teachers' self-assessment scales, thus they may be susceptible to cognitive bias and social bias. Combining survey data with objective evaluation criteria, such as the number of implemented startup projects or student participation levels, would enhance the reliability of the research results.

Third, the study focuses on a specific geographical area, thus limiting the ability to generalize the results to other regions. Future studies could expand the scope to rural, lowland, or urban areas to compare differences in factors influencing entrepreneurship education.

Finally, the research model did not consider the mediating or moderating role of several factors such as individual motivation, organizational culture, or social networks. This is a potential area for further research, especially when using advanced analytical methods such as structural equation modeling (SEM).

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DIGITAL TRANSFORMATION IN CORPORATE ACCOUNTING: THEORETICAL FRAMEWORK AND EVALUATION CRITERIA

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ABSTRACT

Digital transformation has emerged as an inevitable trend in corporate development, with accounting being one of the sectors most profoundly impacted by technological advancements. The integration of digital technologies in accounting not only automates financial information processing but also enhances the timeliness of data provision, thereby providing robust support for corporate governance. This article systematizes the theoretical foundations of digital transformation within the accounting function and synthesizes evaluation criteria for assessing digital maturity, based on frameworks proposed by international organizations and Vietnamese regulatory policies. Furthermore, the study analyzes the role of internal organizational resources including human capital, IT infrastructure, financial capacity, and leadership strategy, in driving the digital transformation process in accounting. The research findings contribute to clarifying the theoretical landscape of digital accounting and serve as a comprehensive reference for further academic inquiry and the practical implementation of digital initiatives in corporate accounting.
Digital transformation; Digital accounting; Accounting digital transformation; Internal organizational resources; Corporate digital maturity.

1. INTRODUCTION

In the era of a rapidly evolving digital economy, digital transformation has emerged as an inevitable trend, enabling enterprises to bolster their competitive advantage and adapt to a volatile business environment. The explosion of disruptive technologies such as Artificial Intelligence (AI), Big Data, Cloud Computing, and Blockchain is fundamentally restructuring organizational operating methods and governance models. Within this paradigm shift, accounting, the information lifeblood of an enterprise, stands as one of the sectors most profoundly impacted. The integration of digital technology extends beyond the mere automation of manual tasks and enhanced data accuracy; it transitions the accounting function from a purely recording role to a strategic one, supporting real-time analysis and managerial decision-making. Empirical studies have consistently demonstrated that digital transformation significantly improves the quality of financial reporting and overall corporate operational efficiency.

However, practical implementation reveals a marked divergence in digital maturity across

enterprises. While some organizations have advanced with integrated digital accounting systems, many others remain constrained by traditional methods with limited levels of digitization. This disparity primarily stems from the readiness of internal resources, including IT infrastructure, human capital proficiency, financial capacity, and, crucially, the strategic vision of leadership. Although corporate digital transformation has garnered significant scholarly attention, specialized research focusing on the accounting function remains relatively sparse, particularly regarding the development of a comprehensive theoretical framework and specific evaluation criteria tailored to the Vietnamese market.

Therefore, this study is conducted to:

(1) Systematize the theoretical foundations of digital transformation in accounting;

(2) Develop a set of evaluation criteria for digital maturity in accounting, synthesized from international theoretical frameworks and Vietnamese regulatory policies (such as Decision No. 2158/QD-BTTTT November 7, 2023) ((MIC), 2023); and analyze the role of internal resources in driving this progression.

The research findings are expected to serve as a valuable reference for managers in orienting strategic roadmaps and optimizing resources to achieve successful digital transformation in the accounting domain.

2. RELATED WORKS

2.1. Theoretical Framework for Digital Transformation in Accounting

The Concept of Digital Transformation

Digital transformation is a widely utilized concept within management and information technology research. According to various studies, digital transformation is defined as the process of integrating and applying digital technologies across an organization's activities to catalyze fundamental changes in business models, operational processes, and value creation methods (Dao Thi Thanh Thuy, 2025) Distinct from mere data digitization, digital transformation necessitates a comprehensive shift in an enterprise's organizational and operational paradigms. This process encompasses the restructuring of operational workflows, the realignment of developmental strategies, and the cultivation of new capabilities to effectively leverage digital technologies.

In the context of a rapidly evolving digital economy, digital transformation is regarded as a critical factor enabling enterprises to bolster their competitive advantage and adapt to an increasingly volatile business environment.

Digital Transformation in Accounting

Parallel to the advancement of digital technologies, the accounting profession is undergoing significant transitions. Digital transformation in accounting is conceptualized as the process of integrating modern digital technologies into accounting practices to enhance information processing efficiency and provide superior support for corporate governance.

The implementation of digital accounting systems facilitates the automation of various accounting tasks, including transaction recording, document processing, financial statement preparation, and accounting data analytics. This integration not only minimizes manual labor but

also significantly improves the accuracy and timeliness of accounting information. Furthermore, digital transformation is redefining the role of accountants within the enterprise. Rather than being confined to traditional bookkeeping and data aggregation, accountants are increasingly involved in data analysis and providing strategic insights to support managerial decision-making (Dao Thi Thanh Thuy, 2025; C. Sampaio & Silva, 2025).

Internal Organizational Factors

Internal organizational factors encompass the endogenous elements within an enterprise's control that directly influence its capacity to implement innovation and digital transformation initiatives. Prior research indicates that these factors comprise human capital, information technology (IT) infrastructure, financial resources, corporate strategy, and top management support (Nguyen Nam Thang, 2025; Nguyen Thi Thu Trang, Nguyen Thi Dieu Linh, & Trang, 2025; Thipwiwatpotjana, 2021).

In the context of digital transformation within the accounting function, these internal factors play a pivotal role. The deployment of digital accounting systems necessitates a workforce equipped with both professional expertise and relevant technological proficiency. Furthermore, a robust IT infrastructure is essential to facilitate data processing and storage requirements. Additionally, the commitment and strategic orientation of executive leadership are regarded as critical catalysts in driving the digital transformation process across the organization (Dao Thi Thanh Thuy, 2025; Nguyen Nam Thang, 2025) .

2.2. Evaluation Criteria for Digital Transformation in Accounting

In recent years, the development of criteria and models to evaluate the extent of digital transformation (DT) within enterprises has garnered significant attention from both scholars and regulatory bodies. These evaluative frameworks are designed to assist organizations in assessing their digital maturity, determining their digital readiness, and orienting appropriate implementation roadmaps. According to the Organisation for Economic Co-operation and Development (OECD), assessing an enterprise's digital transformation requires a multidimensional approach that concurrently considers development strategy, technological infrastructure, data assets, operational processes, and organizational capabilities (OECD, 2022)(Lie, 2023).

In Vietnam, to facilitate a systematic approach to digital transformation, the Ministry of Information and Communications issued Decision No. 2158/QD-BTTTT on November 7, 2023, approving the scheme for determining the Digital Transformation Index (DTI) for enterprises. Under this decision, the evaluation framework is constructed upon multiple pillars that reflect critical aspects of business operations. For small and medium-sized enterprises (SMEs), the assessment system comprises seven key pillars: (1) strategic orientation; (2) customer experience and omnichannel sales; (3) supply chain; (4) information systems and data governance; (5) risk management and cybersecurity; (6) financial management, accounting, planning, legal, and human resources operations; and (7) people and organization (Ministry of Information and Communications, 2023).

In addition to defining the evaluative pillars, Decision No. 2158/QD-BTTTT ((MIC), 2023) establishes a classification framework for corporate digital transformation across five distinct levels: Basic, Developing, Developed, Advanced, and Leading. These levels reflect the digital maturity of an enterprise, ranging from the initial stages, where digitization activities are limited and fragmented, to an advanced state of high-level digitalization, characterized by the seamless integration of technology across all operations and the capacity to spearhead industry innovation. The specific characteristics of each level are detailed in Table 1.

Based on the Digital Transformation Index (DTI) framework stipulated in Decision No. 2158/QD-BTTT dated November 7, 2023 and considering the specificities of corporate accounting practices, this study selects and adapts the evaluative pillars to focus on elements directly relevant to the accounting function. Furthermore, certain overlapping pillars have been integrated to ensure alignment with the research scope and to better elucidate the multifaceted nature of digital transformation within the corporate accounting system.

Table 1. Digital Transformation Rating Scale according to Decision No. 2158/QD-BTTTT, November 7th, 2023

Level	Description of Digital Transformation Maturity
Basic	The enterprise has not yet established specific digital objectives or implemented any solutions. Alternatively, it may have initiated basic digitization for a limited number of internal processes, products, or services.
Developing	Organizational digital objectives have been formulated and formally issued. Additionally, key individuals or management departments within the enterprise have recognized the significance and role of digital transformation.
Developed	Digital transformation is an integral component of the corporate strategy. Objectives, tasks, and implementation plans have been established; however, measuring and managing the execution process remains challenging and has not yet achieved full effectiveness.
Advanced	Digital transformation is integrated throughout all corporate operations; nonetheless, scaling and successful implementation across multiple departments continue to encounter obstacles.
Leading	The enterprise is a pioneer in innovation, leading industry-wide digital transformation efforts and striving toward becoming a fully digital enterprise. The organization continuously innovates and evolves by researching and adopting novel business and governance models.

The evaluation criteria for digital transformation within corporate accounting can be categorized into several primary thematic groups, including: (1) accounting strategy and organizational capacity; (2) the level of accounting integration with business operations; (3) digital accounting infrastructure and data; (4) security and control of accounting data; and (5) the

extent of digitization in accounting processes. These criteria reflect pivotal dimensions of the digital transformation journey within an accounting system, ranging from strategic orientation and technological infrastructure to the depth of technology adoption in specific accounting tasks. The detailed content of these criteria is presented in Table 2 below:

Table 2. Evaluation criteria for digital transformation in corporate accounting

No.	Original Criteria (Decision No. 2158/QD-BTTTT)	Adapted Criteria
1	Strategic orientation	Accounting strategy and organizational capacity
2	People and organization	
3	Customer experience and omnichannel sales	Level of accounting integration with business operations
4	Supply chain	
5	Information systems and data governance	Digital accounting infrastructure and data
6	Risk management and cybersecurity	Security and control of accounting data
7	Financial, accounting, planning, legal, and human resources management	Extent of digitization in accounting processes

Source: Author's proposal

The identification of a comprehensive evaluation framework for digital transformation in accounting not only elucidates the constituent components of the transformative process within the accounting domain but also establishes a rigorous foundation for analyzing the role of internal organizational resources in driving this progression.

3.3. The Role of Internal Resources in the Digital Transformation of Accounting

Digital transformation in accounting depends not only on technological advancements but is also heavily influenced by an organization's internal resources. These resources provide the essential foundation for implementing technological systems, restructuring accounting workflows, and effectively leveraging accounting data within a digitized environment. According to the Organisation for Economic Co-operation and Development, an enterprise's capacity for digital transformation is significantly contingent upon its organizational readiness, which encompasses human capital, technological infrastructure, and managerial capabilities (OECD, 2022)(Lie, 2023). Consequently, examining the role of internal resources is imperative to understanding the drivers of digital transformation within corporate accounting systems.

(1) Human Capital

Human capital is considered a pivotal factor in the digital transformation process of enterprises in general, and the accounting function in particular. In the context of increasing digital adoption, accounting personnel require more than just professional financial-accounting knowledge; they must also possess information technology (IT) skills, data analytics proficiency, and the ability to operate modern accounting software systems. Enhancing the digital literacy of human resources enables enterprises to effectively exploit digital accounting systems while bolstering their capacity to analyze and provide information for managerial purposes (Leitner-Hanetseder, Lehner, Eisl, & Forstenlechner, 2021; Terdpaopong, Visedsun, & Chotkunakitti, 2024). Conversely, a lack of personnel with appropriate competencies can hinder the deployment of technological solutions and diminish the overall effectiveness of the digital transformation

process (Ngo Quang Hung, To Thi Ngoc Lan, Tran Thi Kim Chi, & Thanh, 2025; Pham Kha Vy, 2025) .

(2) Information Technology (IT) Infrastructure

IT infrastructure serves as the bedrock for implementing digital accounting systems. This infrastructure includes accounting software, Enterprise Resource Planning (ERP) platforms, data storage and processing systems, and technologies that facilitate connectivity and information sharing across departments. A modern and stable technological infrastructure enables enterprises to automate various accounting processes, enhance data processing capabilities, and ensure the timeliness of financial information. Furthermore, IT infrastructure is a critical prerequisite for integrating the accounting system with other corporate management systems, thereby improving managerial efficiency and decision-making.

(3) Financial Resources

Digital transformation in accounting typically necessitates substantial investment in technological systems, including accounting software, data infrastructure, security protocols, and information integration solutions. Therefore, financial resources play a vital role in determining the feasibility of implementing and scaling digital initiatives. Organizations with stable financial positions often possess more favorable conditions to invest in emerging technologies, conduct personnel training, and upgrade accounting systems to meet managerial requirements in a digital environment (Bui Thi Thu Ha & Hue, 2025; Pham Duc Hieu & Linh, 2025)

(4) Leadership Strategy and Vision

The strategy and vision of corporate leadership provide the primary orientation for the organizational digital transformation process. When leaders recognize the significance of digital transformation and integrate digital objectives into the corporate development strategy, it creates a powerful impetus for adopting technology across functional areas, including accounting. Leadership commitment also facilitates the effective mobilization and allocation of necessary resources for transformation while fostering an organizational environment conducive to innovation and technological integration (Bui Thi Huong, 2023; Li, Zhao, & Zhao, 2024; Nguyen Ngoc Anh & Dung, 2025; D. Sampaio & Bernardino, 2016).

(5) Nexus between Internal Resources and Accounting Digital Transformation

Internal organizational resources do not exist in isolation but are intricately interconnected throughout the digital transformation journey. Digitally competent human resources must be supported by appropriate technological infrastructure; investments in technology require robust financial backing; meanwhile, leadership strategy and vision provide the necessary direction and coordination for these resources. The synergistic combination of these internal factors enables enterprises to build a digital accounting system capable of data integration, process automation, and providing real-time information for managerial activities.

In conclusion, internal organizational resources play a fundamental role in driving digital transformation within the accounting function. Effectively leveraging these resources not only enhances the digitalization level of the accounting system but also contributes to improving the quality of financial information and overall corporate governance efficiency.

3. PROPOSED METHODOLOGY

This study primarily employs a qualitative research approach, focusing on the synthesis

and analysis of secondary data. The materials utilized include academic research, monographs, and scholarly articles from both domestic and international sources concerning digital transformation in general and its specific application within the accounting sector. Furthermore, the study references official reports, regulatory documents, and digital transformation indices issued by governmental bodies to clarify the criteria for assessing digital maturity within enterprises.

Based on the collected literature, the article utilizes analytical and synthetic methods to systematize core concepts, research perspectives, and theoretical frameworks related to digital transformation in accounting. Concurrently, comparative and systematization methods are applied to delineate the evaluation criteria for digital transformation in corporate accounting and to examine the critical role of internal organizational resources in this process.

4. RESEARCH RESULTS

By systematizing the theoretical framework and analyzing current regulatory guidelines, this study established the following key findings:

4.1. Systematizing the theoretical foundations of digital transformation in accounting.

The study concludes that digital transformation in accounting transcends mere "digitization" (the conversion of analog data to digital formats), representing a holistic paradigm shift in organizational methods, operational workflows, and value creation. The integration of disruptive technologies such as AI, Big Data, and Cloud Computing, redefines the accounting function from a traditional record-keeping mechanism to a strategic pillar for real-time analysis and advanced decision support.

4.2. Proposed Evaluation Framework for Digital Maturity in Accounting

Guided by the national standards of Decision No. 2158/QD-BTTTT, November 7th, 2023, this research adapted and developed a specialized evaluation framework tailored for corporate accounting, structured around five strategic pillars:

- **Accounting Strategy and Organizational Capacity:** Assessing strategic vision and the structural readiness of the accounting department.
- **Business Operational Integration:** Measuring the seamlessness of cross-departmental data connectivity and workflow alignment.
- **Digital Infrastructure and Data Management:** Evaluating the sophistication of accounting software, cloud platforms, and data storage capabilities.
- **Data Security and Internal Control:** Ensuring robust cybersecurity protocols and risk management frameworks for sensitive financial data**.**
- **Digitalization of Accounting Functions:** Determining the automation density within core accounting cycles and transaction processing.

4.3. The Interplay and Decisive Role of Internal Resources

The analysis confirms that digital transformation efficacy is contingent upon the synergistic interaction of four internal resource clusters:

(1). **Human Capital:** Identified as the pivotal factor; a deficiency in digital literacy among

accounting staff constitutes a primary bottleneck to technology adoption.

(2). **IT Infrastructure:** Acting as the technical foundation, it facilitates end-to-end automation and guarantees the integrity and timeliness of financial reporting.

(3). **Financial Capacity:** Determining the enterprise's ability to fund the acquisition, maintenance, and continuous upgrading of sophisticated accounting ecosystems.

(4). **Leadership Vision:** Serving as the guiding force for resource mobilization and strategic alignment.

4.4. The decisive role of internal corporate resources

The analysis confirms that the digital transformation process in accounting is driven by the interaction of four core internal resources:

(1). **Human resources:** Identified as the pivotal factor; a lack of digital competence among accountants creates a significant barrier to technology implementation.

(2). **IT infrastructure:** Serving as the foundation that enables process automation and ensures the timeliness of financial information.

(3). **Financial resources:** Determining the capacity to invest in, maintain, and upgrade modern accounting systems.

(4). **Leadership strategy and vision:** Playing a guiding and coordinating role, facilitating the effective mobilization of the aforementioned resources to achieve digital transformation goals.

The findings reveal a critical causal relationship: while leadership strategy and vision serve as the necessary condition to initiate and orient the digital roadmap, human resource competence and IT infrastructure constitute the sufficient conditions to translate strategic intent into tangible digital transformation outcomes in the accounting domain.

5. CONCLUSION AND FUTURE DEVELOPMENT

5.1. Conclusion

Digital transformation is driving profound changes in corporate operations, particularly within the accounting function a domain that plays a critical role in providing information for management and decision-making. The application of digital technologies enables enterprises to increase the automation of accounting processes, strengthen financial data processing and analytics capabilities, and improve the transparency and reliability of accounting information. By synthesizing existing research and digital transformation evaluation frameworks, this article has clarified the criteria for assessing digital maturity within enterprises and analyzed the internal resources that play an essential role in the digital transformation of accounting. Resources such as human capital proficiency, information technology (IT) infrastructure, financial capacity, and the strategic orientation of leadership are considered foundational conditions that allow enterprises to effectively implement technological solutions within their accounting systems. The research findings indicate that the effective leverage of internal resources not only enhances the level of technology adoption in accounting but also helps enterprises better capitalize on the benefits of digital transformation for managerial activities. The analyses provided in this article

contribute to the theoretical foundations of digital transformation in the corporate accounting sector and can serve as a basis for future research regarding the assessment of digital maturity or the factors influencing the digital transformation process in accounting.

5.2 Future Development

Based on the theoretical framework and initial findings established in this study, several critical avenues for future research are identified to further advance the discourse on digital accounting transformation. First, while this study focuses on systematizing criteria and evaluating the role of internal resources, future research should employ quantitative or mixed-methods approaches to empirically validate the proposed evaluation framework across diverse industries and scales of operation. Such empirical evidence would provide a more robust assessment of the correlation between digital maturity and financial performance. Second, the rapid evolution of emerging technologies, particularly Generative AI and Decentralized Finance (DeFi), necessitates continuous updates to the digital transformation criteria. Future studies could explore how these specific technologies redefine internal control mechanisms and audit trails within the digital accounting ecosystem. Finally, since leadership vision and human capital are identified as decisive pillars , further investigation into organizational psychology and change management is essential. Researching the impact of corporate culture on mitigating resistance to digital adoption would provide practical insights for optimizing the transition from traditional to digital-first accounting practices

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ADOPTION OF INTERNATIONAL FINANCIAL REPORTING STANDARDS IN DEVELOPING ECONOMIES: IMPLICATIONS FOR VIETNAM

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ABSTRACT

The adoption of International Financial Reporting Standards (IFRS) has become an increasingly common trend in the context of global economic integration and the development of capital markets. However, the implementation of IFRS in developing economies often faces numerous challenges due to differences in institutional environments, human resource capacity, and the level of development of accounting systems. Based on a synthesis and analysis of previous studies, this paper identifies several key challenges associated with the implementation of IFRS in developing economies, including issues related to accounting and auditing human resources, technological infrastructure and accounting information systems, as well as the transition costs faced by enterprises. On that basis, the study discusses several implications for Vietnam in the process of implementing IFRS.

1. INTRODUCTION

In the context of economic globalization and the increasingly rapid development of international capital markets, the need for a unified set of accounting standards to enhance the transparency and comparability of financial reporting has become increasingly important. International Financial Reporting Standards (IFRS) were developed to provide a high-quality, transparent, and comparable financial reporting framework for enterprises operating across different countries (Eroglu, 2021). The adoption of IFRS is expected to reduce differences in accounting practices among countries, thereby facilitating investors and other stakeholders in evaluating and comparing corporate financial information on a global scale (Teixeira, 2023).

In recent years, the adoption of IFRS has expanded globally and become one of the most significant reforms in the international accounting system. Many countries have required or permitted listed companies to adopt IFRS in order to enhance the quality of financial information and improve the transparency of capital markets (Sultan, Mohamed, Abbas, & Kubiv, 2024). Previous studies also indicate that the adoption of IFRS can contribute to improving the quality of financial reporting, enhancing the comparability of accounting information, and increasing the efficiency of financial markets (Reymundo-Soto & Navarrete-Zambrano, 2024). Owing to these benefits, IFRS has increasingly been considered by many countries as an important tool for promoting international economic and financial integration.

Nevertheless, the adoption of IFRS in developing economies often faces more challenges compared to developed countries. Previous studies indicate that differences in institutional environments, legal systems, the level of financial market development, and the capacity of accounting professionals can significantly influence the effectiveness of IFRS adoption (Nguyen, Nguyen, & Van Nguyen, 2023). In addition, the transition to IFRS often requires enterprises to make substantial investments in human resource training, upgrading accounting information systems, and adjusting internal financial management processes. These requirements may become significant barriers for many firms in developing economies, particularly small and medium-sized enterprises with limited financial resources (Bui, Le, & Dao., 2020).

In addition to firm-level factors, the institutional environment and the state regulatory system also play an important role in the implementation of IFRS. In many developing countries, traditional accounting systems are closely linked to tax administration and government management objectives, whereas IFRS are primarily designed to provide useful information for investors and other participants in capital markets. This difference may create difficulties in the transition to international standards and requires countries to make significant adjustments to their legal frameworks as well as financial supervision mechanisms (Prather-Kinsey, De Luca, & Phan, 2022).

For Vietnam, the process of international economic integration and the development of the domestic capital market have created increasing demands for improving the quality and transparency of the financial reporting system. In order to gradually align with international accounting standards, the Ministry of Finance issued the roadmap for IFRS adoption in Vietnam under Decision No. 345/QD-BTC in 2020, which identifies the adoption of IFRS as an important step to enhance the transparency of financial information and strengthen Vietnamese enterprises' access to international capital markets. However, recent studies indicate that the transition to IFRS in Vietnam still faces several challenges, including differences between Vietnamese Accounting Standards and IFRS, the limited availability of accounting professionals with international expertise, as well as the cost pressures associated with the transition for enterprises (Thi, Anh, & Tu, 2020).

From this context, it can be seen that the adoption of IFRS in developing economies is a complex process influenced by various factors related to institutional frameworks, human resource capacity, and the business environment. Therefore, examining the experiences of IFRS implementation in developing countries is important for providing reference insights for nations that are in the process of transforming their accounting standard systems. Based on this rationale, this paper focuses on analyzing key issues arising in the adoption of IFRS in developing economies through a synthesis of existing studies, and discusses implications for Vietnam in the process of implementing International Financial Reporting Standards.

2. RELATED WORKS

International Financial Reporting Standards (IFRS) have been widely studied in the accounting literature due to their significant role in improving the quality, transparency, and comparability of financial reporting across countries. A large body of research has examined the impacts of IFRS adoption on financial reporting quality, capital market efficiency, and corporate transparency.

Previous studies suggest that the adoption of IFRS can enhance the quality and comparability of financial information. For example, Eroglu argues that IFRS provides a high-quality reporting framework that facilitates cross-country comparability of financial statements

(Eroglu, 2021). Similarly, Teixeira indicates that the use of IFRS contributes to improving the transparency of corporate financial reporting, thereby helping investors make more informed investment decisions (Teixeira, 2023).

Another stream of research focuses on the relationship between IFRS adoption and the development of capital markets. Sultan et al show that the implementation of IFRS can improve the credibility of financial information and strengthen investor confidence in capital markets (Sultan, Mohamed, Abbas, & Kubiv, 2024). In addition, Reymundo-Soto and Navarrete-Zambrano find that IFRS adoption may contribute to improving the efficiency of financial markets by enhancing the comparability and reliability of accounting information (Reymundo-Soto & Navarrete-Zambrano, 2024).

However, the literature also indicates that the benefits of IFRS adoption may vary depending on the institutional context of each country. Studies have shown that factors such as the legal environment, regulatory quality, and the level of financial market development can significantly influence the effectiveness of IFRS implementation. Nguyen, Nguyen, and Van Nguyen emphasize that institutional differences and the capacity of accounting professionals are important determinants affecting the success of IFRS adoption in developing countries (Nguyen, Nguyen, & Van Nguyen, 2023).

In addition, several studies have highlighted the challenges associated with IFRS implementation in developing economies. These challenges often include limited human resources with IFRS expertise, insufficient technological infrastructure, and the high costs associated with the transition process. Bui, Le, and Dao point out that the transition to IFRS may impose significant financial and operational burdens on enterprises, particularly small and medium-sized firms (Bui, Le, & Dao., 2020). Furthermore, differences between domestic accounting standards and IFRS may require substantial adjustments in regulatory frameworks and accounting practices (Prather-Kinsey, De Luca, & Phan, 2022).

Overall, previous studies provide important insights into both the benefits and the challenges of IFRS adoption. However, the implementation of IFRS in developing economies remains a complex issue that requires further examination, particularly in terms of identifying the specific challenges and deriving policy implications for countries that are in the process of adopting international financial reporting standards.

3. PROPOSED METHODOLOGY

The study is primarily conducted using a qualitative research approach through the synthesis and analysis of secondary data. The materials used in this study mainly consist of academic publications in scholarly journals and studies related to the adoption of International Financial Reporting Standards in different countries. Based on these sources, the research systematizes and analyzes previous findings in order to clarify the challenges associated with the implementation of IFRS in developing economies.

Based on the collected literature, the study further analyzes and synthesizes previous research results to clarify both theoretical and practical issues related to the implementation of IFRS in developing economies. The methods of analysis and synthesis are employed to identify the key challenges in the process of IFRS adoption, while also comparing the experiences of several countries in order to derive implications that may be relevant for Vietnam.

Through the review of previous studies, this paper not only provides an overview of the challenges associated with implementing IFRS in developing economies but also helps identify important factors that should be considered in the process of developing a roadmap for IFRS adoption in Vietnam.

4. RESEARCH RESULTS

4.1. Theoretical Foundations of the Adoption of International Financial Reporting Standards

International Financial Reporting Standards (IFRS) were developed to establish a unified framework for the preparation and presentation of financial statements on a global scale. The core objective of this system of standards is to enhance the transparency, consistency, and comparability of financial information among enterprises operating in different economic environments. In the context of globalization and the increasing flow of cross-border investment, the existence of different accounting standards across countries may increase information costs and create difficulties for investors in evaluating corporate performance. Therefore, the development and dissemination of a globally recognized accounting standard system such as IFRS is considered an important step toward improving transparency and efficiency in international financial markets.

One of the most distinctive features of IFRS is its principles-based approach, in which standards are developed based on general principles that guide the recognition, measurement, and presentation of economic transactions. Unlike rule-based accounting systems, IFRS does not provide detailed regulations for every accounting situation but instead focuses on the objective of providing useful financial information to users of financial statements (Rowbottom, Locke, & Troshani, 2021). This approach allows preparers of financial statements to exercise professional judgment in reflecting the economic substance of transactions rather than merely complying mechanically with technical regulations. As a result, financial statements are expected to present a more faithful representation of a company's financial position and operating performance.

In addition to its methodological approach, IFRS is also designed to improve the quality of accounting information by requiring a higher level of disclosure and transparency. Previous studies indicate that the adoption of IFRS can enhance the reliability of financial reporting, reduce information asymmetry between firms and investors, and improve transparency in corporate financial activities (Nurunnabi, 2021). This is particularly significant for developing economies, where traditional accounting systems are often strongly influenced by government management objectives or tax regulations and may not fully address the information needs of investors. In this context, the adoption of IFRS is expected to improve the quality of financial reporting systems and enhance the credibility of accounting information.

Beyond its impact on the quality of financial information, IFRS is also considered to have positive effects on the development of capital markets. When companies in different countries use the same set of accounting standards, their financial information becomes more comparable for international investors. This helps reduce information analysis costs and facilitates investment decision-making. Empirical studies also suggest that the adoption of IFRS can enhance access to international capital markets and improve the efficiency of financial systems, particularly in developing economies (Ma, et al., 2022). By increasing transparency and comparability in financial reporting, IFRS is regarded as an important tool for promoting the integration of national financial markets into the global financial system.

However, despite its potential benefits, the adoption of IFRS also poses several requirements and challenges for enterprises as well as regulatory authorities. Since IFRS is based on general principles rather than detailed rules, preparers of financial statements must possess strong professional knowledge and the ability to apply professional judgment in addressing complex accounting issues. Moreover, IFRS standards generally require more extensive disclosure compared to many national accounting systems and require companies to develop appropriate accounting information systems and financial management processes to meet reporting requirements. These demands may increase

compliance costs and create significant challenges for enterprises, particularly in developing economies where financial resources and qualified accounting professionals may still be limited.

4.2. Challenges in Implementing IFRS in Developing Economies

Although International Financial Reporting Standards (IFRS) are considered an important tool for enhancing the transparency and comparability of financial reporting, many studies indicate that the implementation of IFRS in developing economies often faces numerous difficulties. These challenges mainly arise from differences in institutional environments, the level of development of accounting and auditing systems, as well as the capacity of enterprises to adapt to international standards. Previous studies generally identify four main groups of challenges, including the legal framework, accounting human resources, information technology infrastructure, and transition costs.

Legal framework and institutional environment

One of the major barriers to IFRS implementation in developing economies is the difference between international accounting standards and domestic accounting legal systems. In many developing countries, accounting systems are often designed primarily to serve government management and tax administration purposes, whereas IFRS are developed to provide useful information for investors and other stakeholders in capital markets. These differences in objectives and structures of accounting systems may create difficulties in the transition to international standards.

Empirical studies in several developing countries provide evidence of this issue. For instance, research on IFRS adoption in Bangladesh shows that inconsistencies between international standards and domestic legal regulations have created significant obstacles to IFRS implementation (Nurunnabi, 2021). Similarly, in Indonesia, the convergence with IFRS has been carried out gradually due to substantial differences between national accounting standards and international standards (Maradona & Chand, 2018). These cases indicate that the adoption of IFRS is not merely a change in accounting regulations but also requires comprehensive adjustments to the legal framework and financial regulatory mechanisms.

Accounting and auditing human resources

Accounting and auditing human resources are critical factors determining the effectiveness of IFRS implementation. Unlike many traditional rule-based accounting systems, IFRS are developed based on a principles-based approach, which requires preparers of financial statements to apply professional judgment in recognizing and presenting economic transactions.

However, in many developing economies, accounting education systems are still largely based on domestic accounting standards, resulting in a shortage of professionals with expertise in IFRS. Recent studies indicate that the lack of accountants with adequate knowledge and experience in IFRS is one of the key barriers to the adoption of international standards in emerging economies (Nurunnabi, 2021). In addition, research on the readiness for IFRS adoption in Vietnam suggests that training and professional capacity of accounting staff play an important role in the process of implementing international standards (Ho, Hoang, & Pham, 2025).

This indicates that IFRS adoption depends not only on legal regulations but also significantly on the professional capacity of accountants and auditors.

Technological infrastructure and accounting information systems

In addition to human resources, information technology systems and accounting infrastructure also play a crucial role in the implementation of IFRS. Many IFRS standards require companies to collect and process financial data at a more detailed level compared with traditional accounting systems, particularly in areas such as fair value measurement, revenue recognition, and consolidated financial reporting.

Recent studies show that the adoption of IFRS often requires enterprises to upgrade their accounting information systems and financial management software to meet new reporting requirements. These requirements arise because IFRS demand a higher level of disclosure and more complex financial data processing compared with many traditional accounting standards (Ghouma, Becha, Kalai, Helali, & Ertz, 2023).

Transition costs and firms' adaptability

Transition costs associated with IFRS adoption also represent a significant challenge for enterprises in developing economies. The transition process typically involves various activities, including staff training, hiring professional consultants, upgrading information technology systems, and adjusting internal accounting procedures. These costs may become substantial barriers, particularly for small and medium-sized enterprises with limited financial resources.

Research by Reymundo-Soto and colleagues indicates that the cost of transitioning to IFRS can be particularly high for companies that have not previously been exposed to international accounting standards (Reymundo-Soto & Navarrete-Zambrano, 2024). Furthermore, firms' ability to adapt to IFRS also depends on their level of international integration and their need to access foreign capital markets. Companies with international investment activities or those listed on stock exchanges tend to have stronger incentives to adopt IFRS compared to firms operating primarily in domestic markets.

4.3. Implications from International Experience for Vietnam

International experiences regarding the adoption of International Financial Reporting Standards (IFRS) in developing economies indicate that the transition to IFRS is not merely a matter of changing accounting standards but also involves systematic adjustments in institutional frameworks, human resources, and information infrastructure. Challenges observed in many developing countries include differences between domestic legal systems and international standards, limitations in accounting professionals with IFRS expertise, as well as transition costs and the need to upgrade accounting information systems. These issues provide important references for Vietnam in the process of implementing IFRS.

First, with regard to the legal framework and institutional environment, many studies show that the adoption of IFRS in developing countries often faces difficulties because traditional accounting systems are closely linked to government management regulations and tax objectives. A similar situation exists in Vietnam, where the Vietnamese Accounting Standards (VAS) have historically been developed primarily to serve financial management and regulatory compliance purposes. Therefore, the transition to IFRS requires coordinated adjustments within the legal framework and accounting–auditing regulatory mechanisms to ensure consistency in the preparation and presentation of financial statements. The IFRS adoption roadmap issued by the Ministry of Finance in 2020 demonstrates Vietnam's efforts to gradually converge with international standards; however, the implementation process still requires further improvements in the legal framework and enforcement mechanisms.

Second, experiences from developing economies show that accounting and auditing human resources play a decisive role in the effectiveness of IFRS adoption. As discussed earlier, IFRS are developed based on a principles-based approach, which requires preparers of financial statements to apply professional judgment when recognizing and presenting economic transactions. However, in Vietnam, many enterprises are still accustomed to applying rule-based accounting standards with detailed regulations, which may create certain difficulties when transitioning to a principles-based system. Some studies indicate that the level of IFRS expertise among accounting and auditing professionals in Vietnam remains limited, particularly in small and medium-sized enterprises. Therefore, strengthening education and professional training for accounting professionals is a crucial condition to ensure the effective implementation of IFRS.

Third, international research also suggests that the adoption of IFRS often requires enterprises to upgrade their accounting information systems and technological infrastructure to meet the requirements for measurement, recognition, and disclosure of financial information. In the context of Vietnam, although many large enterprises have invested significantly in information technology systems and accounting software, a considerable number of firms still rely on relatively simple accounting systems. This situation may create difficulties in collecting and processing financial data in accordance with IFRS requirements. Therefore, in addition to improving the legal framework and developing human resources, upgrading information technology systems should also be an important priority in the implementation of IFRS in Vietnam.

Finally, transition costs are another factor that should be considered in the adoption of IFRS in Vietnam. Experiences from developing countries indicate that transition costs may include expenses related to staff training, professional consulting services, and the upgrading of accounting systems. For many Vietnamese enterprises, particularly small and medium-sized enterprises, these costs may represent a significant barrier to the adoption of international standards. Therefore, the implementation of IFRS in Vietnam should follow an appropriate roadmap, prioritizing listed companies and enterprises seeking to raise capital in international markets, and then gradually expanding the scope of adoption to other enterprises.

International experience indicates that the adoption of IFRS in developing economies is influenced by various factors related to institutional frameworks, human resources, and the capabilities of enterprises. For Vietnam, the implementation of IFRS should be carried out cautiously and in accordance with an appropriate roadmap, combined with comprehensive measures such as improving the legal framework, developing accounting human resources, and upgrading accounting information systems. These measures will help facilitate the adoption of IFRS and enhance the quality of financial information in the context of international economic integration.

5. CONCLUSION AND FUTURE DEVELOPMENT

In the context of international economic integration and the rapid development of global capital markets, the adoption of IFRS has become an increasingly common trend worldwide. Based on a synthesis and analysis of previous studies, this paper clarifies several theoretical issues related to the implementation of IFRS in developing economies and identifies the main challenges associated with this process. These challenges include differences between domestic accounting standards and international standards, limitations in accounting and auditing professionals with IFRS expertise, the need to upgrade accounting information systems, and the transition costs faced by enterprises. The findings suggest that the adoption of IFRS is not merely a technical change in accounting practices but also involves institutional factors, the development of financial markets, and the capabilities of relevant organizations.

Drawing on international experiences, the study highlights that the implementation of IFRS should follow an appropriate roadmap and be accompanied by improvements in the legal framework, the enhancement of professional capacity among accounting and auditing practitioners, and greater support from regulatory authorities. These efforts are essential to ensure the effective adoption of IFRS and to improve the quality and transparency of financial reporting. The findings of this study may provide useful reference insights for Vietnam as it gradually implements IFRS and seeks to strengthen the transparency and sustainability of its financial reporting system.

For future research, empirical studies could further examine the readiness of Vietnamese enterprises to adopt IFRS, as well as the impact of IFRS implementation on financial reporting quality and capital market development. Such research would provide more comprehensive evidence to support the ongoing process of IFRS adoption in Vietnam.

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THE TOULMIN MODEL OF ARGUMENTATION IN TEACHING VIETNAMESE TO FOREIGN LEARNERS

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ABSTRACT

This article reviews the theoretical foundations of the Toulmin model of argumentation and proposes a pedagogical framework for applying this model to the teaching of Vietnamese as a foreign language (VFL). The study aims to support the development of learners' argumentative discourse competence in alignment with the learning outcomes specified in the Vietnamese Language Proficiency Framework for Foreigners (six levels compatible with the CEFR). From the perspective of argumentation theory, the Toulmin model, comprising the components *claim, data/grounds, warrant, backing, qualifier,* and *rebuttal*, provides a practical structure for analyzing and organizing arguments in natural discourse. However, foreign learners of Vietnamese often rely on simplified argumentative structures with limited use of counterargument and rebuttal, despite the importance of these dialogic elements in predicting writing quality.

This article proposes a structure-to-language-resources approach, in which Toulmin's components are mapped onto Vietnamese linguistic resources such as cohesion devices, modal expressions, stance markers, and politeness strategies. The proposed framework offers a structured pathway for designing instructional tasks that support the development of argumentative competence in Vietnamese language classrooms.

1. INTRODUCTION

In the context of increasing international exchange and the growing demand for learning Vietnamese, the teaching of Vietnamese to foreign learners requires greater standardization in curricula, teaching materials, and assessment practices. In Vietnam, the promulgation of the Vietnamese Language Proficiency Framework for Foreigners has provided a foundation for curriculum development and assessment across six levels aligned with the Common European Framework of Reference for Languages (CEFR). Importantly, proficiency descriptors at intermediate and advanced levels extend beyond grammatical accuracy to include the ability to express opinions, explain reasons, process complex texts, and participate in discussions or debates, communicative acts that inherently require structured argumentation and appropriate modal choices.

Within this context, the Toulmin model of argumentation emerges as a useful framework that enables foreign learners to develop argumentative reasoning more effectively in a second language.

Internationally, Toulmin's model is widely recognized as a significant contribution to the teaching of critical thinking, rhetoric, and argumentation studies. In Vietnam, the model has also

been introduced as a means of bridging the gap between real-life reasoning and the traditional syllogistic model, emphasizing contextual rationality and appropriateness rather than the pursuit of absolute logical truth.

2. RELATED WORKS

Since antiquity, argumentation has been regarded as a core component of rhetorical practice. In classical rhetorical works, particularly in Aristotle's *Rhetoric*, argumentation was presented as a foundation for constructing and defending viewpoints. However, for a long period afterward, research on argumentation theory saw limited development and only regained attention in the twentieth century.

In the twentieth century, with the increasing need to enhance the effectiveness of debate in academic and social contexts, new approaches to argumentation theory emerged. Among the most notable are Rogerian argumentation, proposed by psychologist Carl Rogers, and The New Rhetoric developed by Chaïm Perelman and Lucie Olbrechts-Tyteca. These works sought to clarify how individuals construct and develop arguments in different communicative contexts.

Among modern frameworks, two models have been widely applied: the Rogerian model and the Toulmin model. Rogerian argumentation is grounded in psychology and emphasizes empathy and mutual understanding between disputing parties as a pathway toward compromise. In contrast, the Toulmin model focuses on the practical rationality and contextual applicability of arguments. According to this approach, an argument is constructed by presenting a central claim and supporting it with various components that strengthen its credibility, thereby ensuring coherence in the reasoning process rather than focusing solely on the logical validity of the conclusion. Stephen Toulmin (1922–2009) was a British philosopher.

Since its introduction in "The Uses of Argument" (1958), the Toulmin model has attracted considerable scholarly attention due to its flexibility across disciplines. It has been applied not only in the social sciences and humanities but also in teaching and research within the natural sciences, demonstrating its broad practical value for analyzing and constructing arguments.

In this work, Toulmin proposed a framework consisting of six interrelated components used to analyze and construct arguments. In practical discourse, an argument typically begins with a claim, supported by data or grounds, and linked by a warrant. Additional components may include backing, which supports the warrant; qualifiers, which indicate the degree of certainty; and rebuttals, which anticipate possible counterarguments or exceptions. The minimal form of the model includes three components: Data, Warrant, and Claim (D-W-C), highlighting the role of the warrant as the logical bridge that allows data to lead to a conclusion within a particular argumentative context.

From the perspective of informal logic, Toulmin argued that argument evaluation should not rely solely on formal deductive validity but should instead focus on justification and contextual appropriateness within specific fields of knowledge and critical practice. In contemporary interpretations, qualifiers and rebuttals do not weaken an argument; rather, they enhance its academic rigor by acknowledging uncertainty, specifying conditions of applicability, and engaging with opposing viewpoints.

Pedagogically, the Toulmin model has been widely used as a tool for teaching writing and organizing arguments. In *Using Toulmin's Model of Argumentation* (1987), Joan Karbach emphasizes that claim, grounds, and warrant constitute the core elements of all arguments, while backing, qualifier, and rebuttal serve as extensions that make arguments more complete and sophisticated. Teaching learners to use transitional words and rhetorical strategies can help develop these elements in writing.

Research in second-language contexts consistently shows that learners can usually present claims and supporting data, but often struggle to develop counterarguments and rebuttals. Qin and Karabacak (2010), in their analysis of argumentative essays written by 133 EFL students, found that an average essay contained at least one claim supported by approximately four units of data. However, the use of counterarguments and rebuttals appeared far less frequently, even though these elements significantly predicted overall writing quality. This finding has direct implications for teaching Vietnamese to foreign learners. If classroom instruction focuses only on presenting opinions and reasons, learners may struggle to achieve academic argumentative competence, particularly at intermediate and advanced proficiency levels.

From a discourse perspective, Ken Hyland's stance-engagement model describes the linguistic resources writers use to express commitment, evaluation, and alignment with readers. In this framework, stance refers to linguistic devices that allow writers either to assert strong commitment to a proposition or to hedge their claims. Viewed in this way, the qualifier in Toulmin's model is not merely a logical marker but also involves the use of modal and hedging expressions to achieve persuasive effectiveness within a discourse community. This aspect is especially relevant in teaching Vietnamese to foreign learners at intermediate and advanced levels.

3. PROPOSED METHODOLOGY

This study adopts theoretical analysis combined with pedagogical modeling. The aim is not to empirically test a specific hypothesis but rather to construct a pedagogical framework grounded in argumentation theory and applied linguistics. The research process consists of three main stages: Reviewing theoretical literature on the Toulmin model and studies on argumentative writing in second-language contexts; comparing these insights with the proficiency descriptors in the Vietnamese Language Proficiency Framework for Foreigners in order to identify correspondences between expected learning outcomes and argumentative components; developing a pedagogical framework that maps Toulmin components onto Vietnamese linguistic resources while proposing instructional sequences and classroom activities.

The analysis is conducted from a discourse-analytic perspective. Toulmin's argumentative components are treated as functional units within discourse, while Vietnamese linguistic resources, such as connectors, explanatory constructions, modal expressions, and concessive or contrastive structures are identified as linguistic means that realize these argumentative functions. This approach allows for the establishment of a systematic relationship between argument structure and linguistic form, thereby supporting the design of pedagogical activities.

The illustrative data used in this article include sample argumentative paragraphs in Vietnamese as well as speaking and writing tasks designed according to the Toulmin model. These examples are intended to demonstrate how the theoretical framework can be translated into concrete classroom practices.

4. RESEARCH RESULTS

The proposal presented in this article is based on the pedagogical assumption that the Toulmin model should be used as a guiding template rather than a rigid formula in Vietnamese language classrooms for foreign learners. Argumentation is inherently context-dependent, and not all components need to be explicitly expressed in every discourse instance. However, in second-language teaching, making these components explicit helps learners recognize and practice elements that are often missing, particularly qualifiers and rebuttals.

4.1. Mapping Toulmin Components onto Vietnamese Linguistic Resources

The key difference between "teaching the Toulmin model" and "teaching Vietnamese through the Toulmin model" lies in linking each component of the model to specific linguistic resources in Vietnamese.

Claim is realized through stance-marking expressions such as: *Tôi cho rằng…/ Theo tôi…/ Tôi đồng ý rằng…/ Quan điểm của tôi là...* (*I believe that… / In my opinion… / I agree that… / My view is that…).*

Data/Grounds can be organized into different levels: personal experience; situational examples or observations; cited evidence or references.

Warrant functions as the reasoning that explains why the data support the claim. In Vietnamese, warrants are often expressed through explanatory constructions such as: *Điều này cho thấy…, bởi lẽ…, vì nhìn chung…, trong bối cảnh…, xét về…*, *vì… nên/ do… nên….* (*This shows that… / because… / in general… / in this context… / therefore…).*

Backing involves supporting the warrant by referring to authoritative sources or established knowledge, such as expert opinions, regulations, or multiple independent sources.

Qualifier reflects the degree of certainty or scope of applicability. In Vietnamese, it can be expressed through modal and quantifying expressions such as: *Có thể, có lẽ, đa số, trong nhiều trường hợp, nhìn chung, khả năng cao,…* (*perhaps, possibly, in most cases, generally, it is likely that…).*

Rebuttal introduces potential exceptions or counterarguments. In Vietnamese, rebuttals are often expressed through concessive or contrastive structures such as: *Tuy nhiên, mặc dù vậy, mặc dù… nhưng…, dẫu… song, mặt khác…, ngoại trừ trường hợp… (however, nevertheless, although… yet…, on the other hand…, except in cases where…).* Teaching rebuttal also helps learners develop academic interactional competence, allowing them to acknowledge opposing viewpoints while reaffirming their own arguments.

4.2. Progression Across Proficiency Levels

Since the Vietnamese Language Proficiency Framework includes six levels aligned with CEFR, the use of the Toulmin model should develop progressively: At Levels 1 and 2, the practical objective is to help learners construct a basic Claim-Data pair using simple or compound sentences with fundamental cohesive markers. At Level 3, learners are described as being able to "briefly present reasons or explanations." At his stage, instruction can introduce the warrant as a sentence explaining why the evidence supports the claim, typically placed after the data. At Level 4, the framework specifies that learners should be able to express opinions and identify the advantages and disadvantages of different options. This creates a natural opportunity to introduce rebuttals and qualifiers into speaking and writing tasks. At Levels 5 and 6, learners are expected to comprehend and produce longer and more complex texts, often for academic or professional purposes. This stage is therefore appropriate for standardizing practices such as source citation (backing), academic hedging (qualifiers), and multi-layered rebuttals addressing different assumptions.

4.3. Illustrating Activity Design and Analyzing Vietnamese Argumentative Samples

To make the Toulmin model a practical tool for applied linguistics, classroom activities should follow a sequence of:

Identification → Guided reconstruction → Independent production → Feedback based on guidelines. This structure aligns with instructional approaches emphasizing instruction, task structuring, and modeling found in studies that apply Toulmin-based interventions in classroom settings.

Reading and Analytical Activity:

Learners are given a short commentary text (approximately 200-300 words) and asked to identify sentences functioning as claim, data, or warrant. From level 4 onwards, two additional tasks can be incorporated: Identifying qualifiers (degree markers indicating certainty or limitation); identifying markers of concession or contrast (e.g., *however, although…yet*). Highlighting these linguistic signals directly addresses a common gap among learners: the absence of counterarguments and rebuttals.

Writing Activity Based on a Toulmin Outline

Suggested writing task (levels 3-4): Do you agree that learners of Vietnamese should participate in a weekly Vietnamese speaking club? Why or why not?

Step-by-step outline:

Write the Claim in one sentence.

Provide Data using two examples or observations (numerical data not required).

Write a Warrant as a general statement explaining why the examples support the conclusion.

Add a Qualifier, beginning with a hedging phrase (e.g., *in many cases*, *if...*).

Write a Rebuttal acknowledging a possible exception and responding to it.

This "minimal-to-expanded" structure reflects how many Toulmin-based writing resources identify claim-grounds warrant as the argumentative core, while backing, qualifier, and rebuttal function as extensions that increase the sophistication of reasoning.

Structured Speaking and Debate Activities

A speaking task suitable for levels 4-5 may involve dividing the class into two groups to debate a familiar social issue (e.g., *"Should motorcycles be restricted in city centers?"*). Each speaking turn must include at least one claim and one piece of data, while each response must contain: one acknowledgement (concession), and one rebuttal. This minimal requirement is grounded in research findings indicating that counterarguments and rebuttals rarely appear spontaneously unless they are explicitly prompted through task design.

4.4. An Example of a Vietnamese Argument Using the Toulmin Model

The following example is intended solely to illustrate argumentative structure, not to assert the truth of the content.

Claim: In my opinion, learners of Vietnamese should practice speaking in groups at least once a week.

Data: In group-speaking activities, learners tend to have more opportunities to speak and receive immediate feedback from peers.

Warrant: If the frequency of language use increases and feedback is provided promptly, learners are more able to adjust their expressions, which tends to improve speaking proficiency.

Backing: This reasoning is consistent with learning principles based on practice and feedback. Teachers may ask learners to keep a journal of common errors to demonstrate improvement over time.

Qualifier: In many cases, especially when the group has a facilitator and the discussion topics are appropriate to learners' proficiency levels.

Rebuttal: However, if there is a large proficiency gap within the group or if speaking turns are not regulated, weaker learners may participate less. In such cases, group composition and task design should be adjusted.

Including qualifiers and rebuttals in the example highlights a key principle of the Toulmin model: a strong argument does not rely on absolute claims but anticipates conditions of applicability and engages with potential counterarguments.

4.5. Assessment Based on Toulmin Rubrics and Alignment with Learning Outcomes

One practical advantage of the Toulmin model is that it can be translated into transparent assessment criteria, such as: whether the claim is clear or ambiguous, whether the data are relevant and sufficiently specific, whether the warrant effectively links the data to the claim or

represents a logical leap, the academic appropriateness of qualifiers, and the presence and quality of rebuttals. Studies discussing the application of Toulmin in teaching and learning also recommend the use of rubrics to facilitate feedback and improve argumentative quality, demonstrating the model's ease of transformation into classroom assessment tools.

When aligned with the Vietnamese Language Proficiency Framework, a Toulmin-based rubric can be anchored to the requirements of Levels 3-4 (explaining reasons, expressing opinions, comparing advantages and disadvantages) and expanded for Levels 5-6 (complex argumentation, longer texts, and academic or professional purposes). From this perspective, the Toulmin model does not replace the proficiency framework; rather, it functions as a structured argumentative template that helps teachers operationalize what it means to present well-supported opinions in Vietnamese.

4.6. Pedagogical Considerations in Using the Toulmin Model

First, warrants and backing may remain implicit in authentic discourse. Therefore, when teaching Vietnamese to foreign learners, instructors should balance making argumentative relationships explicit for learning purposes with maintaining natural communicative practice. A methodological implication is that, at lower proficiency levels, requiring learners to produce highly abstract warrants may lead to cognitive overload. Accordingly, warrants should initially be introduced as simple explanatory sentences that clarify why the evidence supports the claim, expressed in everyday language before gradually moving toward more abstract academic generalizations.

Second, while the Toulmin model primarily describes the structural organization of arguments, the overall quality of discourse also depends on the perspective and competence of both the producer and the audience. The stance–engagement framework reminds us that writers must balance their degree of commitment with the expectations of the discourse community. For this reason, qualifiers and hedging should be taught as part of discursive competence, rather than merely as isolated linguistic markers.

Third, when transferring the model from English-language instruction to Vietnamese language teaching, educators should avoid mechanically translating the labels of Toulmin components. Instead, it is more appropriate to develop genre-based corpora and teaching materials (e.g., commentaries, letters of suggestion, expository texts, argumentative essays, and academic discussions). The genre itself determines the extent to which rebuttal or backing is required and the types of qualifiers that are appropriate. This recommendation aligns with the view that teaching Vietnamese as a foreign language requires systematic and up-to-date instructional materials that incorporate advances in modern language pedagogy.

5. CONCLUSION

The Toulmin model offers a highly practical framework for analyzing and organizing arguments. By dividing argumentation into functional components, emphasizing the warrant as the logical bridge, and treating qualifiers and rebuttals as mechanisms that make arguments reasonable under conditions of potential challenge, the model provides a clear structure for argumentative discourse. In the context of teaching Vietnamese to foreign learners, the Toulmin model is particularly valuable in two respects. First, it helps operationalize intermediate and advanced proficiency requirements (B1, B2, C1, C2) within the Vietnamese Language Proficiency Framework, such as presenting opinions, giving reasons, and engaging in multi-perspective discussion. Second, it enables teachers to design structured task sequences and feedback mechanisms that directly address common weaknesses among foreign language learners, particularly the lack of counterarguments and rebuttals, as well as the absence of appropriate hedging strategies.

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VALUE CHAIN ANALYSIS AND FACTORS AFFECTING THE ECONOMIC EFFICIENCY OF SHRIMP FARMING IN CA MAU

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ABSTRACT

This study analyzes the value chain and factors affecting the economic efficiency of shrimp farming in Ca Mau, based on a survey of 120 stakeholders including farmers, traders, purchasing agents, and processing enterprises (from November 2025 to February 2026). The results show that added value is mainly concentrated in the farming and processing stages, while linkages between stakeholders remain limited. The multivariate regression model indicates that farmer experience and production area have a positive impact, while feed and seed costs negatively affect profitability. Average profit reached VND 34 million/ha/crop. The study proposes technical improvements, scale optimization, and strengthening of value chain linkages to enhance efficiency and ensure sustainable development of the local shrimp farming industry.

1. INTRODUCTION

Aquaculture has increasingly become a key economic sector in many coastal countries worldwide. According to [1], global aquaculture production reached over 122 million tons, of which farmed shrimp accounted for approximately 5 million tons, contributing significantly to exports and livelihoods.

In Vietnam, the shrimp industry is a major export commodity, with a farming area of about 740,000 hectares, production exceeding 1 million tons, and export value surpassing USD 4.3 billion [2]. In Ca Mau province, shrimp farming covers approximately 280,000 hectares, with an annual output of nearly 220,000 tons, playing a crucial role in local economic development [3].

However, the economic efficiency of farming households is still affected by input costs, disease outbreaks, and market fluctuations. A study by [4] indicates that feed costs have a substantial impact on profitability, while experience, technical capacity, and production scale positively influence farming efficiency [5].

In this context, value chain analysis is an important tool for assessing value distribution and linkages among stakeholders [6]. Therefore, this study aims to analyze the shrimp value chain and identify factors affecting the profitability of shrimp farming households in Ca Mau province, thereby proposing policy implications to enhance economic efficiency and promote the sustainable development of the local shrimp industry.

2. RESEARCH OBJECTIVES

The objective of this study is to analyze the shrimp value chain in Ca Mau Province and to evaluate the factors affecting the profitability of shrimp farming households. Specifically, the study focuses on:

(1) Analyzing the value chain structure and the roles of actors involved in shrimp production and marketing;

(2) Assessing costs, revenues, and value added of actors within the chain;

(3) Identifying factors influencing farmers' profitability using a regression model;

(4) Proposing policy implications to enhance economic efficiency and promote the sustainable development of the local shrimp industry.

3. RESEARCH METHODOLOGY

3.1. Study area

The study was conducted in major shrimp farming areas of Ca Mau Province, including Dam Doi, Cai Nuoc, Nam Can, Phu Tan, Vinh Phuoc, Hong Dan, Hoa Binh, and Dong Hai. These locations are characterized by diverse shrimp farming systems such as extensive, rice-shrimp, mangrove-shrimp, and intensive farming models. The selection of these areas ensures representativeness of the shrimp value chain from production to consumption.

3.2. Data collection

The study employs both secondary and primary data. Secondary data were compiled from industry reports, statistical yearbooks, and relevant studies. Primary data were collected through structured questionnaires administered to value chain actors. A total of 120 observations were surveyed from November 2025 to February 2026, including 80 farming households, 20 traders, 10 collectors, and 10 processing enterprises.

The survey focused on costs, revenues, profits, and linkages among actors.

3.3. Analytical methods

The economic efficiency of shrimp farming households was evaluated using cost-profit analysis, with the following formula:

Profit = Total Revenue − Total Cost

Where Total Revenue represents income from product sales, and Total Cost includes expenditures on breeding stock, feed, labor, and other inputs.

Value chain analysis was applied following the approach of [6] to identify key actors, product flows, information flows, and the distribution of value added along the chain.

3.4. Regression model

The study uses a multiple linear regression (OLS) model to determine the factors affecting shrimp farming profits:

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y: Profit (million VND/ha); X_1: Farming experience (years); X_2: Farming area (ha); X_3: Feed cost (million VND/ha); X_4: Breeding stock cost (million VND/ha); ε: Random error.

The model's reliability was tested using the Variance Inflation Factor (VIF), indicating no multicollinearity. The error term ε is assumed to have zero and constant variance.

3.5. Value chain analytical framework

The value chain framework is developed based on the approach of [6], including: (i) identification of actors; (ii) analysis of product flows; (iii) assessment of costs, revenues, and profits; and (iv) evaluation of value-added distribution among actors.

The analytical results provide a basis for clarifying the roles of each actor and proposing solutions to improve economic efficiency and strengthen linkages within the shrimp value chain.

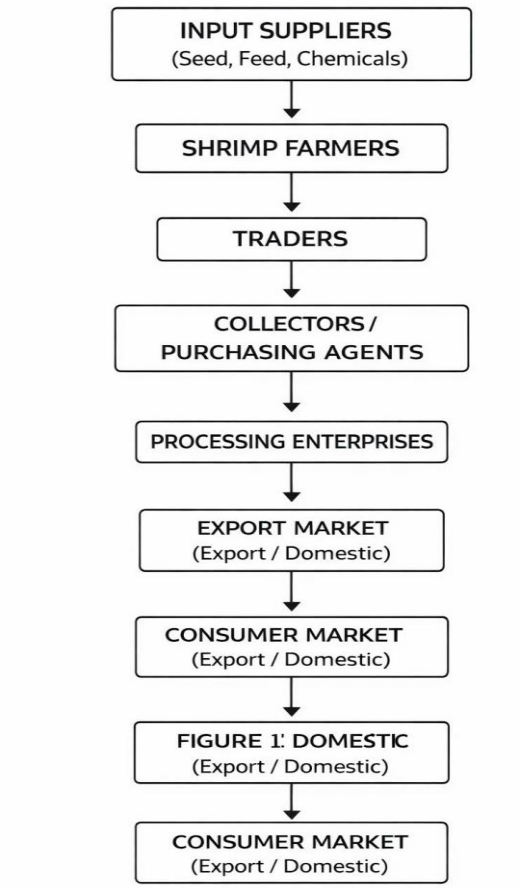

Figure 1: Shrimp Value Chain

4. RESEARCH RESULTS

4.1 Characteristics of shrimp farming households

The socio-economic characteristics of shrimp farming households are presented in Table 1 as follows:

Table 1. Socio-economic characteristics of shrimp farming households

Indicator	Mean value
Age of household head (years)	47
Farming experience (years)	12
Farming area (ha)	1.8
Labor per household	3.2

Source: Author's survey, 2026.

The survey results indicate that shrimp farming household heads have an average age of 47 years, reflecting a middle-aged labor group with relatively stable experience and production resources. This finding is consistent with [5], where the age of household heads in the Mekong Delta ranges from 45 to 50 years.

The average farming experience is 12 years, suggesting that shrimp farming has been maintained over the long term and plays an important role in household livelihoods. According to [7], production experience is a key factor in improving efficiency by enhancing management capacity and reducing risks.

The average farming area is 1.8 ha per household, which is higher than the approximately 1.5 ha per household reported in [4], indicating a trend toward expansion of production scale in the locality.

The average labor force is 3.2 workers per household, mainly consisting of family labor, which helps reduce costs and improve economic efficiency. However, in the context of increasing technological adoption, the technical skill requirements for labor are becoming more important.

Overall, the results show that shrimp farming households in Ca Mau are characterized by relatively high experience, medium-scale production, and strong reliance on family labor, providing a favorable foundation for improving efficiency and promoting sustainable development.

4.2 Cost structure analysis of shrimp production

The cost structure of shrimp farming households is presented in Table 2 as follows:

Table 2. Cost structure of shrimp farming

Cost Item	Cost (million VND/ha)	Ratio (%)
Feed	27	42
Breeding stock	14	21
Labor	9	14
Medicine	7	11.5
Others	7	11.5
Total	**64**	**100**

Source: Author's survey, 2026.

The results in Table 2 show that the average total cost of shrimp farming is approximately 64 million VND/ha per crop. Among these, feed cost accounts for the largest share at 27 million VND/ha (42%), confirming that it is the most influential factor affecting farmers' economic efficiency. This finding is consistent with [4], where feed costs account for about 40-50% of total shrimp farming costs in the Mekong Delta. According to [7], feed is typically the largest expense due to the high nutritional requirements during shrimp growth.

Breeding stock cost ranks second at 14 million VND/ha (21%), directly affecting survival rates and productivity, but also posing risks if breeding stock quality is not ensured. Labor cost accounts for 9 million VND/ha (14%), relatively low because households mainly rely on family labor.

In addition, medicine and chemical costs account for about 11.5%, used for environmental treatment and disease prevention. Other costs also represent a similar proportion (11.5%).

In summary, the cost structure indicates that shrimp farming in Ca Mau is highly dependent on input factors, particularly feed and breeding stock. Therefore, controlling these costs is crucial for improving economic efficiency and reducing production risks.

4.3 Economic efficiency analysis of shrimp farming

The economic performance of shrimp farming households in Ca Mau is presented in Table 3 as follows:

Table 3. Economic efficiency of shrimp farming households

Indicator	Value
Yield (kg/ha)	520
Price (thousand VND/kg)	190
Revenue (million VND/ha)	98
Cost (million VND/ha)	64
Profit (million VND/ha)	34

Source: Author's survey, 2026.

The results in Table 3 show that the average shrimp yield reaches approximately 520 kg/ha per crop. With an average selling price of 190 thousand VND/kg, the average revenue of farming households is about 98 million VND/ha.

After deducting production costs of around 64 million VND/ha, the average profit reaches 34 million VND/ha per crop. This level of profit indicates that shrimp farming remains a relatively profitable economic activity for households in Ca Mau.

This finding is consistent with [5], where the average profit of shrimp farming households in the Mekong Delta ranges from 30 to 40 million VND/ha per crop.

However, the economic efficiency of shrimp farming still largely depends on factors such as market prices, shrimp survival rates, and input costs.

4.4 Comparison of productivity among farming models

The comparison of productivity among shrimp farming models in the study area is presented in Table 4 as follows:

Table 4. Productivity of different farming models

Farming Model	Productivity (kg/ha/crop)
Extensive	410
Improved Extensive	520
Rice-Shrimp	470

Source: Author's survey, 2026.

The survey results indicate significant differences in productivity across farming models. The improved extensive model achieves the highest productivity at 520 kg/ha/crop, followed by the rice-shrimp model (470 kg/ha/crop), while traditional extensive farming has the lowest productivity (410 kg/ha/crop).

Compared to traditional extensive farming, the improved extensive model shows a productivity increase of approximately 26.8%, reflecting the effectiveness of applying technical measures such as improved seed, environmental management, and supplemental feeding. This is consistent with [7], which reports that technical advancements can increase productivity by 20-30%.

The rice-shrimp model achieves about 14.6% higher productivity than traditional extensive farming, consistent with [5] (ranging 400-500 kg/ha/crop). However, due to lower stocking density, its productivity remains lower than the improved extensive model.

Differences in productivity also reflect the level of investment and technical access of farmers, aligning with the value chain approach described in [6]. Overall, the improved extensive model has the highest productivity, while the rice-shrimp model offers advantages in stability and sustainability. The choice of model should be aligned with natural conditions, available resources, and farmers' development goals in Ca Mau.

4.5 Value chain analysis

The shrimp value chain in Ca Mau is shown in Table 5 as follows:

Table 5. Shrimp marketing channels

Marketing Channel	Ratio (%)
Farmer → Trader → Processing enterprise	65
Farmer → Collector/Agent	22
Farmer → Cooperative	13

Source: Author's survey, 2026.

Data shows that up to 65% of shrimp production from farming households is consumed through traders. This is the most common marketing channel due to its flexibility and rapid procurement. However, overreliance on traders may reduce farmers' bargaining power. According to [6], dependence on intermediaries in the value chain often results in lower profits for producers compared to actors in processing and distribution.

In addition, the consumption rate through cooperatives only accounts for 13%, indicating that the level of production linkage between farmers and collective economic organizations is still limited. Strengthening the role of cooperatives in the value chain is considered an important solution to improve competitiveness and income for farmers.

4.6 Profit analysis of value chain actors

The profit distribution among shrimp value chain actors in Ca Mau is shown in Table 6 as follows:

Table 6. Profit analysis among value chain actors

Actor	**Profit (thousand VND/kg)**
Farmer	80
Trader	25
Collector/Agent	25
Processing enterprise	70

Source: Author's survey, 2026.

The analysis results from Table 6 show that profits in the local shrimp value chain are unevenly distributed among the actors. Farmers achieved the highest profit level with

approximately 80,000 VND/kg, followed by processing enterprises with approximately 70,000 VND/kg, while traders and purchasing agents only achieved about 25,000 VND/kg.

This result reflects the important role of farmers in creating initial value, and also shows that processing contributes significantly to increasing product value through sorting, preservation, and market access. This is consistent with the observation of [1], when most of the added value of aquatic products is formed in post-harvest stages.

However, it should be noted that these profit levels are formed at different transaction levels and product streams in the chain, therefore they do not have a direct summative meaning per single product unit. The indicators in the table reflect the profit margin at each stage, not the total accumulated profit of the entire chain.

Although traders and agents have lower profit margins, they play an important intermediary role in connecting the market. However, dependence on these agents can reduce the price negotiation ability of farmers, consistent with the results of [4].

Therefore, strengthening the linkage between farmers and processing enterprises through cooperatives or forward contracts is considered an important solution to improve efficiency and benefit distribution in the value chain [6].

4.7 Production scale and profitability

The analysis of production efficiency by scale of shrimp farming households in Ca Mau is shown in Table 7 as follows:

Table 7. Profitability by farm size

Scale	Profit (million VND/ha)
< 1 ha	27
1-2 ha	34
> 2 ha	39

Source: Author's survey, 2026.

The results from Table 7 show that households with large-scale production generally achieve higher profits than households with small-scale production.

Households with an area larger than 2 ha achieved an average profit of 39 million VND/ha, about 44% higher than households with an area under 1 ha.

This shows that economies of scale exist in shrimp farming. Households with large-scale production usually have better infrastructure investment conditions and apply more effective technical measures.

This result is consistent with the research of [7], in which production scale is considered an important factor affecting the economic efficiency of aquaculture activities.

4.8 Regression model results

The regression analysis results are shown in Table 8. The regression results show that the model has a fairly good fit with the data in Ca Mau. The multiple correlation coefficient R = 0.787 reflects a relatively strong relationship between the independent variables and the profit of the farming households. The coefficient of determination $R^2 = 0.620$ shows that about 62% of the variation in profit is explained by the variables in the model.

Table 8. Model summary

Indicator	Value
R	0.787
R^2	0.620
Adjusted R^2	0.598
Std. Error	5.21

Source: Author's survey, 2026.

The adjusted $R^2 = 0.598$ value does not differ much from R^2, indicating that the model does not include redundant variables. The standard error of 5.21 shows that the forecasting error is at an acceptable level. However, about 38% of the variation is not explained, implying that other factors such as environment, market price and farming techniques still exist, consistent with the findings of [7].

This result is similar to the study of [5], when analyzing the economic efficiency of shrimp farming models in the Mekong Delta region. This study also shows that regression models on the economic efficiency of shrimp farming typically have coefficients of determination ranging from 0.55 to 0.65, indicating that technical and economic factors are likely to explain much of the variation in household profitability.

4.9 Regression model fit test

The goodness of fit of the regression model is shown in Table 9:

Table 9. ANOVA results for regression model

Source	Sum of squares	df	Mean square	F	Sig.
Regression	482.3	4	120.6	18.72	0.000
Residual	295.1	115	2.57		
Total	777.4	119			

Source: Author's survey, 2026.

Analysis of variance (ANOVA) results were used to test the overall fit of the regression model. The results in Table 9 show an F value of 18.72 with a significance level of Sig. = 0.000 (< 0.01), indicating that the regression model is statistically significant at the 99% confidence level. This suggests that the independent variables included in the model influence the profitability of shrimp farmers in Ca Mau.

The total variance of the dependent variable is shown as Total Sum of squares = 777.4, of which the variance explained by the model (Regression sum of squares) is 482.3, representing a significant proportion. This indicates that the model is capable of effectively explaining the variability in profitability.

The residual sum of squares is 295.1, reflecting the existence of factors outside the model, such as market price fluctuations, farming environment conditions, and the management level of the farming households.

The ANOVA test results in this study are similar to the study of [5], which, when analyzing factors affecting the economic efficiency of shrimp farming models in the Mekong Delta, also showed that the regression models had Sig. < 0.05 values, proving that the model is statistically significant and suitable for analyzing factors affecting the profitability of farming households.

4.10 Factors affecting farmers' profitability

The analysis of factors affecting the profitability of shrimp farmers in Ca Mau is shown in Table 10 as follows:

Table 10. Regression results of factors affecting shrimp farm profit

Variable	Coefficient (B)	Std. Error	t	Sig.
Constant	12.45	4.12	3.02	0.004***
Farming experience	0.32	0.11	2.91	0.006***
Farm area	0.28	0.09	3.10	0.003***
Feed cost	-0.41	0.12	-3.38	0.002***
Breeding stock cost	-0.21	0.10	-2.05	0.045**

*Note: *** p<0.01; ** p<0.05*

Source: Author's survey, 2026.

The regression results indicate a statistically significant model. The estimated regression equation is:

$$Profit = 12.45 + 0.32Experience + 0.28Area – 0.41Feed\ Cost – 0.21Breeding\ stock\ Cost$$

Farming experience and farm area have a positive effect on profit, whereas feed and breeding stock costs have a negative impact. Feed cost is the most influential factor ($B = -0.41$; $p < 0.01$), reflecting the dominant role of input costs in production efficiency [1].

Experience improves technical management, disease control, and optimal input use, enhancing economic efficiency. Larger farm area also positively affects profit due to economies of scale, allowing more efficient cost allocation and adoption of technical advancements, consistent with [4,5].

Conversely, higher feed and breeding stock costs negatively affect profitability. Breeding stock cost ($B = -0.21$; $p < 0.05$) reflects that increasing input costs without improving quality reduces efficiency, highlighting variability in breeding stock quality on the market [5,9].

Relating to the value chain (Table 6), farmers' profits depend not only on production efficiency but also on the distribution of value among actors. While farmers and processing enterprises capture large shares of profit, intermediaries influence market access and pricing [4].

In summary, improving economic efficiency requires: (i) controlling input costs, particularly feed and seed, and (ii) strengthening value chain linkages, especially between farmers and processing enterprises, to improve bargaining power and fair benefit distribution [6].

4.11 Discussion of results

Shrimp farmers' profits in Ca Mau are influenced by both intrinsic factors and value chain structure. Feed cost has the strongest negative impact on profit, reflecting the high-cost nature of aquaculture, consistent with prior studies [1].

Positive effects of experience and farm area highlight the importance of technical capacity and scale in improving efficiency. Experience improves pond management, disease control, and input optimization, while larger farms benefit from economies of scale, consistent with [4,5].

Despite relatively high profits, regression results show instability due to strong sensitivity to input cost fluctuations, reflecting the "value chain paradox," where primary producers face the highest risk [6].

Processing enterprises capture significant profits, indicating value addition occurs mainly post-production via processing, preservation, and market access, consistent with trends in agricultural and aquaculture value chains [5].

Although traders and collectors earn lower profits, they play a crucial intermediary role. Overreliance on them can reduce farmers' bargaining power, particularly with rising input costs [4], highlighting the need for direct linkages between farmers and processors to reduce intermediaries and enhance efficiency.

This study provides empirical evidence on the role of input costs and value chain structure in determining shrimp farming profitability in the Mekong Delta. Limitations include sample size, unobserved endogenous factors, and external variables such as market fluctuations and environmental risks. Future studies should expand scope and include additional variables to improve model reliability.

5. POLICY IMPLICATIONS

Based on the findings, the following policy recommendations are proposed:

- *Enhance farmers' technical capacity:* Department of Agriculture and Environment of Ca Mau Province, in collaboration with the Provincial Extension Center for Agriculture, should regularly organize training on pond environment management, feeding techniques, and disease prevention. Demonstration farms should be established to promote best practices.

- *Promote production linkages:* Authorities should facilitate the formation of shrimp cooperatives and associations. Support the establishment of concentrated farming areas with registration and traceability codes to enable integration with processing enterprises.

- *Control input costs:* Market regulators and agricultural authorities should strengthen inspection of feed and breeding stock quality. Farmers should be encouraged to adopt proper feeding practices to reduce waste and optimize production costs.

- *Develop value chain linkages:* Encourage processing enterprises to sign product procurement contracts with farmers via cooperatives. State support in credit and incentives can promote stable production-marketing linkages.

- *Increase product value and market access:* Enterprises should invest in advanced processing technologies and develop value-added products. Local authorities should support the Ca Mau shrimp brand and adopt sustainable farming standards to expand export markets.

6. CONCLUSION

This study provides a comprehensive analysis of the shrimp value chain in Cà Mau, highlighting the roles and contributions of key actors, from farmers to processing enterprises. The results indicate that value-added and profits are concentrated primarily in the farming and processing stages, while linkages among actors remain limited, suggesting potential for improving economic efficiency through stronger chain integration. Multivariate regression

analysis identified key internal factors affecting farm-level profitability, including farming experience and production scale, while feed and post-larvae costs negatively impacted profits.

The study contributes empirical evidence for optimizing production scale, enhancing technical capacity, and developing stronger linkages between farmers and processing enterprises to improve economic efficiency and promote sustainable shrimp farming in the region.

However, the research has certain limitations: the sample size was relatively small, the number of variables included in the model was limited, and external factors such as market price fluctuations, survival rates, environmental conditions, and alternative farming models were not considered. Future studies should expand the dataset, incorporate additional technical and economic factors, and assess the influence of external conditions to enhance the reliability, explanatory power, and generalizability of the findings.

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CHALLENGES OF MODAL VERB TRANSLATION IN THE VIETNAMESE LAW ON ENTERPRISES INTO ENGLISH

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ABSTRACT

This paper investigates the challenges of translating Vietnamese modal verbs in the Vietnamese Law on Enterprises into English. Drawing on a parallel corpus comprising the 2020 Vietnamese Law on Enterprises and its English translation, the study adopts descriptive and contrastive methodologies to analyze modal usage across languages. Six core challenges emerge: (1) the use of *shall*, (2) the use of *must*, (3) translating double modal constructions, (4) omissions of modal expressions in English translations, (5) additions of modal expressions in English translations, (6) practical translator decisions when Vietnamese clauses lack explicit modals. The contrastive analysis leads to a key recommendation: translate *phải* as *must* in English rather than *shall*. The study also highlights the frequent unsuitability of the *is required to* construction for translating *phải*. When Vietnamese texts omit modals, English modal markers require careful selection to preserve the source language's normative stance and legal precision. While the corpus provides substantial insights for legislative translation, findings may be most applicable to similar legal genres. The research contributes to theoretical understanding of modality transfer, informs translator education, and offers practical guidance for producing faithful, consistent, and enforceable cross-linguistic legal translations.

1. INTRODUCTION

In the era of growing internationalization, demand for Vietnamese legal documents and their English translations has surged, elevating quality expectations. Biel (2017) frames legal translation as a complex process that integrates broad contextual and systemic considerations beyond mere text transfer. This study focuses on translating modal verbs in the Vietnamese text of the 2020 Law on Enterprises, highlighting a key risk: imprecise translations can lead to misinterpretations with significant legal and financial consequences for stakeholders. Vietnamese legal writing frequently employs modals, yet their English counterparts pose distinct challenges due to nuanced functions and illocutionary force. Despite their importance, research on Vietnamese modal use within legal contexts remains limited.

Modals convey obligation, permission, prohibition, and possibility, and that English renderings must preserve the full semantic weight to maintain interpretive accuracy for legal users. The core objective is to identify translation issues when rendering Vietnamese modals into English, examining how modal markers appear across structures such as non-modal forms, passive voice, *is to*, and semi-modals. Guided by two research questions, the study asks: (1) which translation methods achieve semantic equivalence for Vietnamese modals in the 2020 Law on Enterprises, and (2) what challenges arise in selecting English modal markers and what strategies mitigate them. The authors propose approaches to improve accuracy, consistency, and readability in Vietnamese–English legal translations.

2. PREVIOUS STUDIES

In the field of Vietnamese–English legal translation, research on modality remains uneven, with a gap in in-depth analyses of its specific challenges. Knežević and Brdar (2011) treat modal verbs as multifunctional and semantically unstable, noting that a single form can carry multiple meanings while a single meaning can be expressed in various forms. Bui (2004) adds that Vietnamese modals are inconsistent to translate, creating a fragile basis for cross-linguistic equivalence. Cheng and Wang (2017) further show that genre shapes modality: legislatures tend to use deontic modals (obligation, authority), while legal judgments lean toward epistemic modals (possibility, knowledge). This genre-aware variation underscores the need for tailored translation strategies to preserve intended force and function.

Against this backdrop, the study focuses on translating Vietnamese modals to English to illuminate the challenges and strategic choices in legal translation. It aims to identify guidelines that enhance translation quality, consistency, and legal interpretability, particularly for polysemous markers like *bị* and *được*. By examining rendering choices in English, the research seeks to inform principled decisions among competing equivalents and to chart new directions for Vietnamese–English legal translation research. The outcomes have practical implications for translators, editors, and policy stakeholders seeking higher-quality, legally accurate translations.

3. THEORETICAL FRAMEWORK

3.1. Modality

Palmer (2001) defines modality as a semantic category through which speaker express attitude and commitment, focusing on two main modalities: epistemic and deontic. In legal texts, modals carry essential meanings that shape interpretation of values. Vietnamese modality mirrors this, with Nguyen (2002), Nguyen & Tran (2019), and Nguyen (2016) identifying epistemic and deontic categories. Downing and Locke (2002) describe English modality as encompassing necessity, possibility, obligation, willingness, and permission, split into deontic and epistemic. Collectively, these works highlight cross-linguistic similarities and differences in how modality signals stance and normative force in English and Vietnamese.

3.1.1. Concept

Modality, as Palmer (2001) frames it, centers on the speaker's attitude toward a proposition rather than the content itself. He splits modality into propositional (epistemic,

evidential) and event (deontic, dynamic) domains, highlighting how these attitudes shape interpersonal meaning and the link between language and reality. Suhadi (2017) extends this view by defining modality as the speaker's reflection, attitude, or judgment expressed through various utterance types. She underscores that modality—through tense, aspect, mood, lexical choices, and intonation—imbues utterances with vitality and multiple interpretations of propositional value, spanning categories like alethic, dynamic, epistemic, and deontic.

Focusing on epistemic and deontic modalities, the study analyzes legal texts from Vietnam and the UK. Epistemic modality concerns certainty and interpretation of reality, while deontic modality governs necessity, obligation, or permission within normative frameworks such as law. These two modalities are seen as interrelated, forming two sides of the same coin. In English, modality operates across lexical verbs, lexico-modal auxiliaries, modal adjuncts, and operators (e.g., must, may, shall). Downing and Locke (2002) describe modality as encompassing necessity, probability, obligation, volition, and permission, with recent expansions to uncertainty, desire, and temporal notions, reinforcing modality's role in relating language to reality.

3.1.2. Modality in Vietnamese

Modality is widely treated as a linguistic tool for expressing the speaker's stance and attitude toward an utterance. Nguyen (2002) defines modality as the evaluator's stance on content, context, and reality, synthesizing views from Von Wright, Lyons, Givón, Sweetser, and Palmer to stress its subjective nature. Tran and Nguyen (2019) frame modality as a semantic relation among speaker, content, and reality, highlighting tension between modality and linguistic material and describing modality as the qualitative aspect of description that signals possibility, reality, and necessity from subjective or objective angles.

Nguyen (2016) concentrates on deontic modality, outlining obligatory, permissive, and potential facets with real and non-real distinctions, signaling finer pragmatic/grammatical gradations. Across these works, modality typically covers epistemic, deontic, and sometimes dynamic modalities, always conveying attitude, stance, or commitment. While perspectives vary, all emphasize modality's role in judgment, decision, and evaluation within discourse. A comparative summary is often organized in a synthesized framework (see Table 1).

Table 1. Summary of Key Approaches to Modality in Selected Vietnamese Studies

Author	Main Emphasis	Approach
Nguyen (2002)	Systematizes modality from a logical-semiotic perspective, distinguishing between epistemic, deontic, and dynamic.	General logic and pragmatics theory
Tran and Nguyen (2019)	Analyzes the role of modality in legal texts, emphasizing commitment and objectivity/subjectivity.	Application in legal language
Nguyen (2016)	Focuses on deontic modality, classifying it as real vs. non-real.	Pragmatics in educational literature

Vietnamese modality refers to words or expressions signaling the speaker's attitude, evaluation, commitment, or stance, indicating reliability, possibility, obligation, or permission. The framework centers on three main categories: epistemic, deontic, and dynamic modality, with epistemic addressing truthfulness and deontic covering normative expectations.

Dynamic modality, as Nguyen (2002) argues, is distinct and should stand alongside the other two modalities, encompassing ability, disposition, and volition. Vietnamese realizations include muộn, biết, hay, có thể, and chịu. Building on these studies and Bui (2004), the synthesis presents a summary table (Table 2) of modal verbs to guide cross-category analysis.

Table 2. Summary of Epistemic and Deontic Modal Verbs in Vietnamese

Type of Modality	**Modal Meaning**	**Expressions**
Epistemic Modality	Epistemic necessity (Tất yếu)	*phải*
	Epistemic possibility (Khả năng)	*có thể*
Deontic Modality	Deontic necessity (Tất yếu)	*phải, cần, nên*
	Deontic possibility (Khả năng)	*được, có thể*

3.1.3. Modality in English

Downing & Locke (2002) view modality as a semantic category covering necessity, probability, obligation, volition, and permission, with broader additions like uncertainty, desire, regret, and temporal notions. They identify two core types: deontic and epistemic. Bukarica (2019) treats modal verbs as inherently epistemic, while deontic use expresses obligation or permission; dynamic modality is a distinct form (Depraetere, 2015). Pei & Li (2018) extend this with a consolidated list of English modals (Table 3).

Table 3. Classification of English Modal Verbs by Modality Types

Propositional modality			**Event modality**				
Epistemic Modality			**Deontic Modality**			**Dynamic modality**	
Possibility	Necessity	Probability	Permission	Obligation	Commissive	Ability	Volition
may, might	must	will, would	can, could, may, might, shall	shall, must, need, ought to, should	shall	can, could	will, would

(Source: Pei & Li, 2018)

Shall is problematic in general and legal English due to multiple readings, especially in translation from Vietnamese. Legally, it signals obligation, but its meaning varies by context, risking enforceability if misread. Kirakosyanová (2021) notes *shall* dual epistemic/deontic uses and its everyday-versus-legal divergence, with futurity common in general English but duties in legal use; Felici (2012) also notes ambiguity. In Vietnam's 2020 Enterprise Law, *shall* translates contextually as *phải* (strict obligation), *có nghĩa vụ* (ongoing duty), or *sẽ* (automatic future outcome), underscoring the need to align intent, context, and legal force across languages.

3.2. Equivalence in translation

Translation faces inherent equivalence limits across languages. Jakobson (1959) argues there is no complete equivalence and outlines three translation types—interlingual, intralingual,

and intersemiotic—with cultural-context adaptation as essential. Building on this, Nida (1964) distinguishes formal and dynamic equivalence, aiming to balance fidelity with natural readability, a process that reconciless source and target languages.

Structural and cultural differences pose major obstacles (Catford, 2000), a view echoed by Sergeyevna (2025) who stresses creativity, intercultural competence, and critical thinking in translation. In legal contexts, rendering legal force and interpreting modal verbs are particularly challenging, alongside syntax, domain specificity, cross-system variation, and maintaining accuracy and consistency throughout the text.

4. Methods and Corpus

The study uses a parallel corpus of the Vietnamese 2020 Law on Enterprises and its English translation to ensure accurate, consistent legal interpretation and to compare modal expressions across languages. Word counts show the Vietnamese text at 71,850 words across 110 pages and the English at 48,513 words over 136 pages, reflecting structural differences and suggesting textual restructuring is often needed to fit distinct legal conventions.

Descriptive and contrastive methods underpin the analysis. The descriptive approach empirically examines language use in real contexts, while the contrastive method compares languages to reveal similarities and differences, aiding translation decision-making. Additionally, corpus-based statistics quantify modality distribution, providing empirical evidence of translational challenges in legal texts.

5. Findings and discussion

5.1. Overview of modal verbs in the corpus

Modal verbs appear 688 times in the English translation of the Vietnamese Enterprise Law, based on data collection and screening. The modal verb *shall* emerges as the most frequently used, followed by *may, will, must, and can*, all of which are also commonly employed. In the Vietnamese source text, common modals such as *được, bị, phải, có thể, cần, sẽ*, and *không thể* appear 860 times in contexts deemed acceptable. Table 4 presents the strategies used in translating Vietnamese modal verbs into English. The results indicate that *shall* is frequently chosen in translation because it aligns closely with statements of obligation, normativity, and legal enforceability in legislative documents across both languages.

Table 4. Strategies Used in Translating Vietnamese Modal Verbs into English

Vietnamese modal verbs	English renderings (n, %)
ĐƯỢC	Shall 165 (46.2%); May 27 (7.6%); Will 10 (2.8%); Must 35 (9.8%); Can 1 (0.3%); Non-modal 82 (23.0%)
BỊ	Shall 13 (28.3%); May 1 (2.2%); Will 2 (4.3%); Can 1 (2.2%); Non-modal 29 (63.0%)
PHẢI	Shall 336 (86.8%); Will 1 (0.3%); Must 5 (1.3%); Semi-modal (Has to) 3 (0.8%); Non-modal 42 (10.9%)
CÓ THỂ	Shall 3 (3.7%); May 47 (57.3%); Will 1 (1.2%); Can 14 (17.1%); Non-modal 17 (20.7%)

CẦN	Semi-modal (Have to) 1 (100.0%)
SẼ	Shall 2 (40.0%); Will 3 (60.0%)
KHÔNG THỂ	Cannot 1 (33.3%); Non-modal 2 (66.7%)

(Source: The authors, 2026)

By observing and quantifying translation strategies for modal verbs in the corpus, the findings identify six major difficulties that are frequently encountered when translating modal verbs in legal texts. These difficulties can be discerned by integrating insights from prior research and include: (i) managing double modal constructions, (ii) translating *shall* and *must* in legal discourse, (iii) adding or omitting modal expressions in English translations, and (iv) assessing the necessity of English modal verbs in the translation of Vietnamese clauses lacking modal markers. Together, these findings illuminate typical problems in legal modality translation and provide a foundation for future research.

5.2. Translation Challenges of Double modals

Double modals are a documented phenomenon in both English and Vietnamese. In English, *might could* is among the most widely used double modals, particularly in the Southern United States and parts of the United Kingdom (Lebedeva & Orlova, 2019). However, studies indicate that such double modals occur primarily as dialectal features (Fennell & Butters, 2011) and are not recognized as part of Standard British or American English, nor are they typically included in educational curricula. Consequently, they do not appear in legal texts, which require absolute precision in language.

By contrast, double modals occur with notable frequency in Vietnamese legal texts, especially in the 2020 Law on Enterprises. Our survey shows that the modals *phải, có thể*, and *sẽ* frequently combine with *được* or *bị* to form compound modal structures, as illustrated in Table 5.

Table 5. Statistics on Double Modal Verbs in the 2020 Law on Enterprises

	Được	**Bị**
Phải	91	0
Có thể	13	4
Sẽ	2	0

(Source: The authors, 2026)

The Vietnamese double modals reveal that *được* can pair with all three modals, while *bị* only combines with *có thể*, adding translation complexity due to distinct legal implications. English lacks an exact compound structure, so translators must decide which modal to prioritize in rendering, a key challenge in legal translation.

The study notes a specific issue with *sẽ được*, where translators often render as shall. Semantically, *sẽ* leans epistemic (future possibility), while *được* conveys deontic notions (permission/obligation). Supporting this, Bui (2004) argues that the first modal governs the whole expression, as in *không chịu ngừng bắn*, with *chịu* primary and *ngừng* semi-modal.

VN: Khoản 3 Điều 198 "Số lượng thành viên, cổ đông và số lượng, tỷ lệ sở hữu cổ phần, phần vốn góp của thành viên, cổ đông và vốn điều lệ của các công ty mới **sẽ được** ghi tương ứng với cách thức phân chia, chuyển đổi phần vốn góp, cổ phần của công ty bị chia sang các công ty mới theo nghị quyết, quyết định chia công ty."
EN: Clause 3 Article 198 "The quantity of members or shareholders, their holdings of shares/stakes and charter capital of the new company **shall** be written according to the full division resolution/decision."

Excerpt 1

The analysis of Excerpt 1 treats *sẽ* as the dominant future epistemic modality, signaling a conditional future event (the new company's formation). An English rendering might use *will* to foreground this temporal nuance, but translators often default to *shall* to align with legal drafting conventions. The choice between foregrounding *sẽ* or *được* can shift interpretation and modal force, highlighting a tension between nuance and typical legal language.

Because perfect equivalence in double modals is unattainable, translators face options that each carry different modal meanings, legislative intent, and consequences. Relying on *shall* risks rigid, formulaic translations; choosing alternatives demands linguistic, theoretical, and contextual legal reasoning to preserve meaning and legal effect.

5.3. Translation Challenges of "Shall" and "Must" in Legal Texts

Triebel (2009) argues that *shall* in legal texts can misread as futurity rather than obligation, suggesting *will* as an alternative. This ambiguity is illustrated by Article 53 of the 2020 Law on Enterprises, which uses a forward-looking clause on handling capital contributions in hypothetical future scenarios. The translation issue in Excerpt 2 concerns whether this forward-looking language should be rendered to preserve obligation or to reflect future contingency, thereby underscoring the broader challenge of selecting precise modal equivalents in legal translation.

VN: Khoản 5 Điều 53 "Trường hợp phần vốn góp của thành viên công ty là cá nhân chết mà không có người thừa kế, người thừa kế từ chối nhận thừa kế hoặc bị truất quyền thừa kế thì phần vốn góp đó *được* giải quyết theo quy định của pháp luật về dân sự."
EN: Clause 5 Article 53 "In case a member that is an individual dies without an heir or the heir refuses the inheritance or is disinherited, the stake *shall* be settled in accordance with civil laws."

Excerpt 2

This clause governs how a member's capital contribution is handled upon death, contingent on future conditions. The use of *shall* in English translation risks conflating obligation with futurity, making its legal force ambiguous. The debate extends beyond syntax to how the provision's legal nature is interpreted: *shall* can express mandatory obligation when conditions arise, while *will* describes a future event without emphasis on compulsion. That tension reflects broader questions about modal choice in legal drafting and translation, particularly for the 2020 Law on Enterprises.

Comparative analyses show ongoing discussion about *shall* versus *must*. The Australian Plain English Manual advises reserving *shall* for imperative sense and using *must* to express obligation, with *is to* as a gentler alternative. Yet Vietnamese modals are frequently rendered

with *shall* in practice, even where *must* might be more accurate. In the 2020 Law on Enterprises, *phải thông báo* (must notify) appears 40 times, often translated as *shall notify*, highlighting persistent drafting habits and the challenge of achieving faithful, contemporary equivalents.

Excerpt 3

VN: Khoản 1 Điều 32 "Doanh nghiệp sau khi được cấp Giấy chứng nhận đăng ký doanh nghiệp *phải* thông báo công khai trên Cổng thông tin quốc gia về đăng ký doanh nghiệp và phải nộp phí theo quy định của pháp luật. Nội dung công bố bao gồm các nội dung Giấy chứng nhận đăng ký doanh nghiệp và các thông tin sau đây:"
EN: Clause 1 Article 32 "After an enterprise is granted the Certificate of Enterprise Registration, it *shall* announce it on the National Enterprise Registration Portal and pay the fee as prescribed by law. The announcement shall include the content of the Certificate of Enterprise Registration and:"

The clause in Excerpt 3 imposes mandatory duties—disclosing information on the national portal and paying the registration fee. Using *must* would better convey a binding legal duty and its enforceability, clarifying the obligation for the actor.

Prevailing practice often favors *shall* due to traditional drafting, but contemporary English legal usage prefers *must* to avoid ambiguity. Translators should align modals with both the source meaning and current legal standards, considering legislative intent. For phrases like *phải thông báo*, *must* is more precise than *shall*.

5.4. Omission and Addition of Modal Expressions in English translation

5.4.1. Omission

The study of bilingual Vietnamese–English translations of the 2020 Enterprise Law shows that the Vietnamese modal phải is not consistently rendered by direct English modals (shall, must, will). Instead, translators often use alternatives such as *be responsible for*, *have liability for*, or declarative present-tense constructions. This variety creates a major challenge for legal translators: they must convey semantic equivalence while accurately capturing the modality, particularly deontic modality. Bui (2004) notes that *phải* typically signals legally enforceable obligation.

VN: Điểm a Khoản 1 Điều 205: "Doanh nghiệp được chuyển đổi phải có đủ các điều kiện theo quy định tại khoản 1 Điều 27 của Luật này"
EN: Point a Article 1 Article 205: "The sole proprietorship satisfies the conditions specified in Clause 1 Article 27 of this Law"

Excerpt 4

In Excerpt 4, the Vietnamese phải signals a binding obligation: the enterprise may be converted only if it fully meets statutory conditions. Yet the English rendering uses the present simple (satisfies), which Asprey (1992) notes typically marks factual statements or conditions defining legal status. This choice risks misinterpretation, suggesting the enterprise already satisfies the conditions rather than being required to do so. Consequently, the translation may weaken the original's prescriptive intent and deontic force. The passage highlights the core translator challenge: render *phải* in a way that preserves its normative obligation and legal effect.

5.4.2. Addition

Beyond direct modal translation, translators sometimes introduce English modal verbs where the source text lacks a corresponding one, reflecting creative flexibility. Sarcevic (1997)

traces legal translators' longstanding commitment to fidelity—prioritizing accuracy and preservation of legal meaning. Yet consensus on the optimal translation method remains elusive. Emily (2005) reinforces fidelity as a central concern, but argues that strict adherence does not guarantee equivalent legal effects between texts.

VN: Khoản 4 Điều 10 "Nhà nước có chính sách khuyến khích, hỗ trợ và thúc đẩy phát triển doanh nghiệp xã hội."
EN: Clause 4 Article 10 "The State shall adopt policies to encourage and assist in development of social enterprises."

Excerpt 5

Excerpt 5 concerns the governance of social enterprises' criteria, rights, and obligations. The title implies legal authorization, supporting Nguyen's view of Vietnamese as high-context, with meaning often conveyed implicitly. Pei and Li (2018) similarly observe implicit obligation in Chinese sentence structure, suggesting that omission of modal verbs does not hinder comprehension. Clause 4 of Article 10, though lacking a modal, remains intelligible regarding intent. The phrase *hoạt động theo quy định* translates as *shall operate in accordance with*. Despite structural divergence, this rendering clarifies prescriptive intent, illustrating a context-sensitive approach that uses a modal to convey normative force where appropriate.

Excerpt 6

VN: Khoản 1 Điều 6 "Tổ chức chính trị, tổ chức chính trị - xã hội và tổ chức đại diện người lao động tại cơ sở trong doanh nghiệp hoạt động theo quy định của Hiến pháp, pháp luật và điều lệ của tổ chức."
EN: Clause 1 Article 6 "The internal political organization, socio-political organization and employee representative organization of an enterprise shall operate in accordance with the Constitution, the law and the enterprise's charter."

Excerpt 6 shows a more flexible translation approach between Vietnamese and English, with Article 6 largely lacking modal meaning and functioning as a definitional or conceptual statement. Cooper (2011) cautions that while *shall* can signal legal formality, it is sometimes misused and can introduce translation errors. Asprey (1992) suggests alternatives: use *must* to express obligation or the simple present tense for statements of fact, legal outcomes, or agreements. We contend that modal verbs are not always warranted in these translations.

Overall, *shall* translations reveal that modals are not always essential for accuracy or clarity in legal texts. Relying on *shall* to convey formality can confuse readers, whereas the simple present tense for facts and outcomes can enhance coherence and align with contemporary legal language.

5.5. Recommendations for Translating Vietnamese Modal Verbs into English

5.5.1. Translational Strategies for "phải" in Legal Vietnamese–English Texts

According to Bui (2004), the modal verb *phải* is classified as a deontic modal expressing enforcement, denoting mandatory obligations. Consequently, translating *phải* into English requires selecting an equivalent that preserves legal translation equivalence.

VN: Khoản 3 Điều 30 "Trong thời hạn 03 ngày làm việc kể từ ngày nhận hồ sơ, Cơ quan đăng ký kinh doanh có trách nhiệm xem xét tính hợp lệ của hồ sơ và cấp Giấy chứng nhận đăng ký doanh nghiệp mới; trường hợp hồ sơ chưa hợp lệ, Cơ quan đăng ký kinh doanh **phải** thông báo bằng văn bản nội dung cần sửa đổi, bổ sung cho doanh nghiệp."
EN: Clause 3 Article 30 "Within 03 working days from the receipt of the application for revision, the business registration authority shall consider the validity of the application and decide whether to issue a new Certificate of Enterprise Registration. The business registration authority **shall** inform the applicant of necessary supplementation in writing if the application is invalid."

Excerpt 7

Excerpt 7 shows *phải* conveying a mandatory obligation that the business registration authority must fulfill—issuing a written notice. This deontic force signals a non-discretionary duty, emphasizing enforcement typical of normative legal texts. Although translators have used *shall*, scholars caution that it can be overused and imply future tense; *must* is often clearer and less controversial for expressing strong obligation (Kimble, 1992; Asprey, 1992).

Thus, render *phải* as must rather than shall in this provision to reflect its coercive character and align with modern English legal drafting. A proposed translation: "*The business registration authority must inform the applicant of necessary supplementation in writing if the application is invalid.*" Note that phrases like *is only required to* may understate coercive force; reserve such formulations for administrative contexts. Overall, in cases of clearly mandatory obligations, especially when directed at state agencies or enterprises, *must* should be preferred to ensure clarity and compliance with contemporary English legal standards. (Thorton, 1987)

5.5.2. Notices on the Addition of English Modal Verbs in Translation

In addition to prior recommendations, we advise adjusting translation when modals are inappropriately added where the source lacks them. Our survey shows structural mismatches that can mislead readers and overemphasize modality in certain positions, as shown in Excerpt 8. There, *mỗi doanh nghiệp có một mã số duy nhất* was rendered as *Each enterprise shall have a sole EID number*. Article 29 is a regulatory provision with minimal modal elements; it is highly declarative, lacking permissions or obligations.

Excerpt 8

VN: Khoản 1 Điều 29 "Mã số doanh nghiệp là dãy số được tạo bởi Hệ thống thông tin quốc gia về đăng ký doanh nghiệp, được cấp cho doanh nghiệp khi thành lập và được ghi trên Giấy chứng nhận đăng ký doanh nghiệp. Mỗi doanh nghiệp có một mã số duy nhất và không được sử dụng lại để cấp cho doanh nghiệp khác."
ENG: Clause 1 Article 29 "EID number is a serial number generated by the National Enterprise Registration Information System, issued to the enterprise when it is created and written on the Certificate of Enterprise Registration. Each enterprise shall have a sole EID number, which must not be issued to any other enterprise."

Modality can be conveyed without modal verbs, via adverbs, lexical modals, or tense (Frawley 2008). Asprey (1992) also suggests replacing *shall* with *must* for obligation, *will* for future, or using simple present in other cases. In Excerpt 8, the provision affirms a normative truth rather than imposing a new obligation. Using *shall* could imply a future command, risking misinterpretation. Following Asprey (1992), the simple present tense is preferable here, e.g., *Each enterprise has a sole EID number, which must not be issued to any other enterprise*.

We advocate this revision to reduce modal burden, improve clarity, and enhance accessibility for readers less familiar with traditional English legal style.

6. Conclusion

This study offers a rigorous examination of translation strategies and conducts a lexical selection analysis to identify six central challenges in rendering Vietnamese modality into English: (1) the use of *shall*, (2) the use of *must*, (3) translating double modal constructions, (4) omissions of modal expressions in English translations, (5) additions of modal expressions in English translations, and (6) the practical decisions translators face when a clause lacks Vietnamese modal verbs. The contrastive approach yields a key recommendation: translate *phải* in Vietnamese as *must* in English rather than *shall*, due to persistent issues associated with *shall* in legal contexts. The is-required-to construction is frequently unsuitable for translating *phải* in many legal situations, where precision and conventional modality are crucial. When the Vietnamese source omits explicit modals, English modal markers must be chosen with care to avoid altering the source language's normative stance.

Nevertheless, this study has limitations. First, the data set—comprising the 2020 Law on Enterprises in Vietnamese and its English translation—though substantial, constrains the generalizability of Vietnamese-to-English modal translations beyond legislative texts. Consequently, the findings are most applicable to similar legal genres rather than to broader areas of law. Second, the modality analysis presented here does not exhaust all types of Vietnamese modality. Vietnamese, as an isolating language, expresses modality through a wide array of devices beyond modal verbs; thus, restricting the analysis to a subset of modals yields only a partial picture of Vietnamese modality and its translation.

Notwithstanding these limitations, the results provide a coherent synthesis of contemporary issues in legal modality translation and yield practical implications for future research, legal translator education, and professional practice. The study lays groundwork for more comprehensive investigations of modality across legal languages and informs ongoing efforts to refine translation practices in multilingual legal settings. By clarifying when and how to deploy English modals in legal translations, this work aims to enhance interpretive fidelity, consistency, and enforceability in cross-linguistic legal communication.

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APPLYING DEEPSEEK AS A TOOL TO SUPPORT SPEAKING SKILLS DEVELOPMENT FOR ENGLISH LANGUAGE MAJORS AT HANOI METROPOLITAN UNIVERSITY

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ABSTRACT

This study investigates the effectiveness of DeepSeek, a large language model, as an intelligent tutoring system to enhance speaking skills among English Language majors at Hanoi Metropolitan University. Addressing persistent challenges in oral proficiency development — particularly limited personalised practice opportunities and immediate feedback in traditional classroom settings — the research employs a mixed-methods approach combining quasi-experimental design with qualitative data collection. Eight second-year students were divided into experimental and control groups for an eight-week intervention. The experimental group engaged in structured speaking practice with DeepSeek, using its interactive dialogue, pronunciation analysis, and impromptu topic simulation features. To measure progress in fluency, accuracy, pronunciation, and coherence, pre-tests and post-tests were given. These tests used standardized IELTS Speaking rubrics. Supplementary qualitative data, derived from semi-structured interviews and learner journals, offered perspectives on students' perceptions, motivation, and encountered difficulties. The findings indicate that the experimental group demonstrated statistically significant enhancements in overall speaking competence, with an average score increase of 13.1%, in contrast to the control group's 4.5% improvement. Qualitative data highlighted DeepSeek's role as a low-stress learning environment, which encouraged learner independence and provided readily available feedback. Consequently, the research suggests that incorporating DeepSeek as an additional resource can significantly improve formal instruction and accelerate the acquisition of speaking proficiency among English Language majors.

1. INTRODUCTION

English as a medium of academic and professional communication has gained prominence alongside increasing globalisation, raising demand for internationally recognised

language qualifications such as IELTS. For students majoring in English Language at Vietnamese universities, developing good speaking skills is a crucial requirement. However, classroom practices in Vietnam often reveal a persistent problem: despite a lot of time spent on practice, many students, including those studying English Language at Hanoi Metropolitan University (HMU), still struggle to speak English fluently and confidently.

Common difficulties include communication anxiety, imprecise pronunciation, slow oral reflexes, and a lack of regular practice opportunities with immediate feedback. Traditional teaching methods often prioritize grammar and vocabulary, which can overshadow the communicative fluency, naturalness, and quick thinking skills that are important in IELTS speaking tests (Tu & Du, 2024).

DeepSeek and similar large language models (LLMs) offer a potentially valuable solution to these challenges. These models support ongoing, interactive conversations, which furnish learners with immediate feedback on elements like pronunciation, intonation, and expression, thus fostering practice within a customized, low-pressure environment. Nevertheless, there exists a paucity of research that methodically assesses the efficacy of DeepSeek in enhancing speaking proficiency, especially within academic environments and specifically for IELTS preparation in Vietnam.

This study evaluates how well DeepSeek, a supplementary tool, helps improve the speaking skills of English Language undergraduates at Hanoi Metropolitan University. The research is based on three main questions:

(1) How can DeepSeek be improved to better support the development of students' English speaking skills?

(2) What are the main speaking difficulties students face and how do they use other AI tools to help them?

(3) What are the advantages and limitations of DeepSeek compared to other AI tools commonly used for foreign language speaking practice?

The findings aim to provide empirical evidence, propose a suitable integration model, and contribute to the renewal of language teaching and learning practice in Vietnam.

2. RELATED WORKS

2.1. International Research Overview

The incorporation of artificial intelligence (AI) into language instruction and acquisition has emerged as a prominent area of scholarly inquiry, especially concerning the enhancement of communicative proficiency in English (Gutiérrez, 2023). Studies suggest that AI can facilitate personalized, interactive learning environments and assist in overcoming both psychological and technical obstacles encountered during speaking exercises (Madhavi et al., 2023). AI-driven speech recognition technology (AI-SRT) is a highly researched application within this area.

Dennis (2024) illustrates that AI-SRT systems employ machine learning algorithms to evaluate and furnish immediate feedback on pronunciation, intonation, and fluency, thereby yielding significant advancements in the speaking performance of EFL learners. Madhavi et al.

(2023) report that students using AI and ICT tools outperform those following conventional instruction on speaking assessments. Research also suggests AI can help learners manage affective barriers such as anxiety and low confidence.

The scope of their investigation was expanded to encompass social interaction Zou et al. (2023). The study's findings indicated that using social media interactions in AI-assisted language learning platforms could potentially improve speaking skills. These results suggest that providing objective feedback from AI, along with opportunities for social practice, can work together effectively.

2.2. Domestic Research Overview

Recent Vietnamese research shows a clear trend toward examining the potential of AI and chatbots for improving English language skills. Nguyen et al. (2025), studying students at the National Economics University, reports positive attitudes toward AI-based writing tools including ChatGPT, Grammarly, and Writefull, which showed a substantial influence on students' expression and content organisation. At Hanoi Open University, AI tools were evaluated positively for improving reading comprehension and encouraging active learning habits (Van, 2025).

While there is general agreement about AI's role in English language development, most studies focus on internationally recognised LLMs. ChatGPT has been associated with improvements in speaking (Wang, 2025), Gemini with grammar consolidation (Din et al., 2025), ELSA Speak with pronunciation accuracy (Permatasari & Lubis, 2024), and Talkpal.AI with fluency and intelligibility (Hidayatullah, 2024).

2.3. Research Gap

Although many studies have evaluated how learners perceive and use widely used AI tools, a notable gap remains. Specifically, no research has examined DeepSeek as a tool for improving speaking skills, either internationally or within the country. In Vietnam, this discrepancy is particularly evident. Existing scholarship predominantly examines learner perspectives on artificial intelligence in a broad sense, and there is a paucity of academic investigation into DeepSeek's application within English language instruction. This research endeavors to fill this void, offering both a theoretical framework and empirical support for a learning model that incorporates DeepSeek.

3. PROPOSED METHODOLOGY

3.1. Research Design

This investigation employs a mixed-methods approach, specifically a sequential explanatory design, which integrates quantitative and qualitative methodologies to thoroughly assess DeepSeek's efficacy in fostering English speaking proficiency. This particular design was chosen due to its ability to furnish both statistical data and a more profound understanding of the learner's perspective (Creswell & Clark, 2017).

3.2. Participants

The study was conducted at Hanoi Metropolitan University from June to December 2025. Participants were English Language majors from the first to the fourth year. The quantitative phase surveyed 113 students, of whom 97 (85.8%) were enrolled at HMU. The experimental comparison involved 8 second-year students at B1 level or above, divided equally into an experimental group (using DeepSeek) and a control group (using conventional methods).

3.3. Data Collection Instruments

Three main instruments were used to collect data in the research. An online survey was created, using the Theory of Planned Behavior (Ajzen, 1991) and the Technology Acceptance Model (Davis, 1989) as its theoretical basis. The survey used established scales to assess attitudes, subjective norms, perceived behavioral control, and the perceived usefulness and ease of use of DeepSeek. In addition, the survey collected data on students' current speaking abilities, the challenges they faced, and their self-confidence. Following this, speaking evaluations, administered both before and after the intervention, were designed using the IELTS Speaking assessment criteria. These criteria encompass four primary dimensions: Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation. To ensure the assessments' reliability, they were administered by instructors who held IELTS examiner certification. Following this, we conducted semi-structured interviews with ten students. The goal was to gather detailed qualitative data about their experiences, perceptions, and suggestions for improving DeepSeek. Interview questions focused on impressions of the learning method, areas of greatest progress, difficulties encountered, and recommendations for refinement.

3.4. Experimental Procedure

The intervention lasted 8 weeks with a clearly structured protocol.

Week 1 - Preparation and pre-test. The students began the study by signing participation agreements. Next, they took the pre-test speaking assessment. Finally, they were given instructional materials tailored to their specific groups.

Weeks 2 through 7 constituted the intervention phase. The experimental group, consisting of four students, participated in DeepSeek for four weekly sessions, each lasting between 30 and 45 minutes. During these sessions, they completed exercises that included pronunciation drills, discussions centered on specific topics, grammatical error correction, and simulations of IELTS question responses. Conversely, the control group, which also included four students, employed traditional pedagogical approaches. These included TED Talks, self-recorded speaking exercises, peer practice facilitated through Zoom, and vocabulary acquisition via flashcards, all at a similar frequency.

Week 8 - Wrap-up and evaluation. After the speaking assessment, students participated in individual interviews. They also completed a satisfaction survey and provided feedback on potential improvements.

3.5. Data Analysis

Quantitative data were analyzed using SPSS 26.0, incorporating descriptive statistics such as frequencies, percentages, means, and standard deviations, in addition to paired-sample t-tests to evaluate the disparities in pre- and post-test scores between the two participant groups.

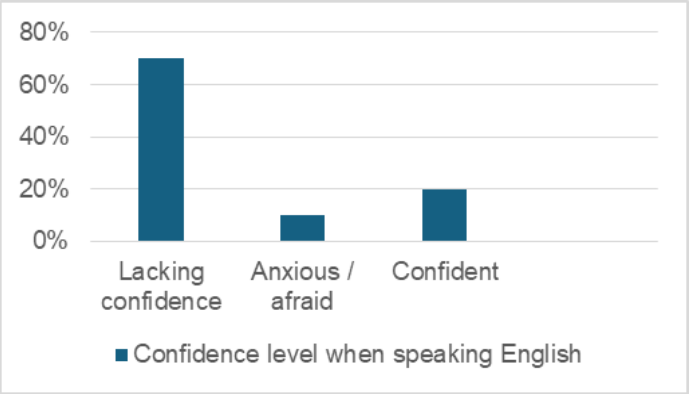
Simultaneously, the qualitative data obtained from the interviews underwent thematic coding, a methodology intended to identify recurring patterns and salient themes relevant to the learners' experiences. The qualitative findings were then compared with the quantitative data to provide a more complete understanding.

4. RESEARCH RESULTS

4.1. Current Status of Students' Speaking Skills

The survey data, derived from 113 students, reveals significant trends concerning English speaking proficiency at HMU. A mere 34.8% of the student cohort (39 out of 112) possessed international language certifications, including IELTS, TOEIC, VSTEP, or TOEFL; conversely, 65.2% (73 out of 112) did not. This finding suggests that a relatively small percentage of students are achieving the anticipated language exit benchmarks.

Table 1.1. Self-reported confidence levels in English communication among HMU students



Regarding confidence in oral English, 70% of students reported feeling unconfident. In addition, 10% expressed anxiety or fear about speaking in front of others, while only 20% considered themselves confident communicators. The primary challenges encountered encompassed restricted vocabulary, the most frequently reported impediment, alongside grammatical inaccuracies, indistinct pronunciation, and difficulties in idea generation stemming from a lack of English-language cognitive frameworks. Furthermore, students cited a lack of fluency, attributable to both apprehension regarding errors and insufficient practical application in authentic contexts. To enhance their speaking proficiency, students employed a variety of strategies: practicing in front of a mirror, collaborating with tutors or peers, participating in pronunciation courses, broadening their topic-specific vocabulary, viewing instructional content on platforms like YouTube, TikTok, and Coursera, and utilizing AI applications such as ChatGPT, Gemini, or ELSA. However, only a small number of students reported using these tools effectively.

4.2. AI Use Patterns in English Learning

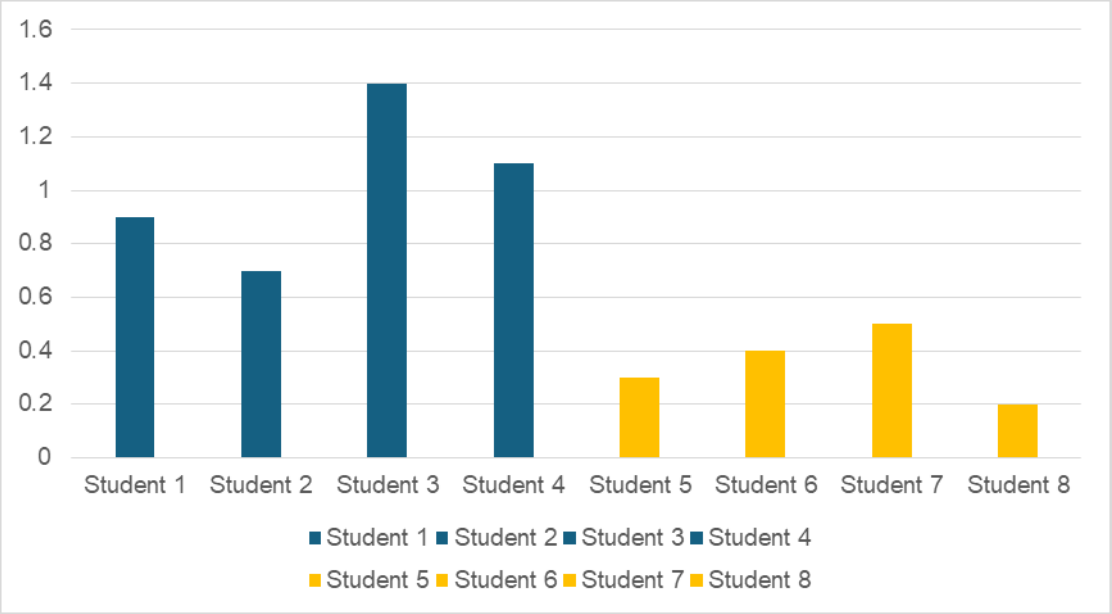
Survey data reveal a significant prevalence of AI tools among students; specifically, 80% reported consistent utilization of ChatGPT and Gemini for the purpose of generating ideas pertinent to speaking assignments or for the practice of oral language skills. 18% were familiar with and used applications such as ELSA Speak, QuillBot, and other English learning chatbots.

Only 2% of students selected DeepSeek as their preferred tool for speaking practice, indicating that DeepSeek remains largely unknown among this student population.

4.3. Experimental Results

4.3.1. Comparison of Progress Between Groups

Table 1.2. Score gains from pre-test to post-test for Group A — student 1 to student 4 (DeepSeek) and Group B - student 5 - student 8 (conventional) — scored on a 10-point scale

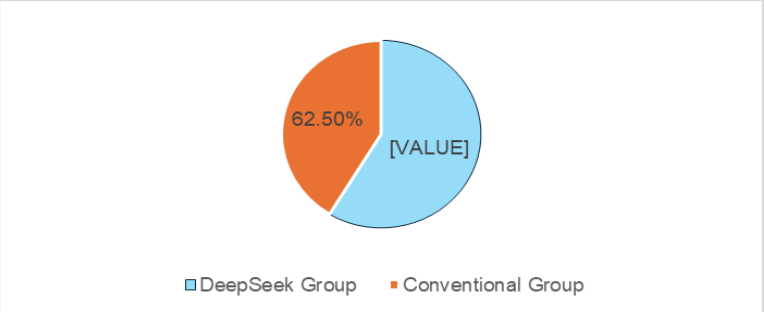


Pre- and post-test results show a clear difference between the experimental and control groups. The DeepSeek group (Group A) achieved a mean score gain of 1.025 points (equivalent to 13.1%), considerably higher than the conventional group (Group B) at 0.35 points (equivalent to 4.5%).

In Group A: Student 1 gained 0.9 points (10.5%), Student 2 gained 0.7 points (8.3%), Student 3 gained 1.4 points (18.9%), and Student 4 gained 1.1 points (14.6%). In Group B: Student 5 gained 0.3 points (3.8%), Student 6 gained 0.4 points (5.3%), Student 7 gained 0.5 points (6.5%), and Student 8 gained 0.2 points (2.4%).

4.3.2. Satisfaction Levels

Table 1.3. Student satisfaction with the two learning methods



The DeepSeek group reported substantially higher satisfaction, with a mean satisfaction rate of 88.75% (ranging from 85–92%), compared to the conventional group at 62.5% (ranging

from 55–70%). All students in Group A expressed a desire to continue using DeepSeek (although some requested adjustments), while Group B was more divided, with 2 out of 4 students not wishing to continue with their current method.

4.4. Qualitative Interview Results

4.4.1. DeepSeek Group

Interview analysis shows that Group A students expressed strongly positive views, describing DeepSeek as an "intelligent virtual tutor," "advisory roadmap provider," or "organised resource repository." Students emphasised its personalised and systematic nature: "It is like having a teacher who draws the path for you — you just walk it, rather than finding your way in the dark." Key strengths identified included: clear, personalised learning pathways; provision of high-band academic vocabulary and structures; detailed diagnostic error analysis; systematic guidance for self-analysing recordings; and unrestricted 24/7 availability.

The main difficulty reported was the absence of real-time audio feedback and human interaction: "I do not know whether my intonation is correct. The AI only gives theoretical guidance — it cannot actually hear me." Students also noted that the method demands high self-discipline and effective prompt-design skills.

Students offered several ideas for enhancements. They proposed incorporating audio uploads to facilitate initial AI analysis. They also suggested adding social features to encourage peer learning and the sharing of successful prompts. They also suggested building an automated dashboard to track progress. Finally, they requested a library of sample prompts to assist new users.

4.4.2. Conventional Methods Group

Group B students expressed neutral to mildly positive views, describing their method as "self-reliant," "familiar," but "vague." They valued its flexibility: "I can watch entertainment videos and study at the same time, without being constrained." However, they reported a lack of direction: "After studying, I do not know whether I have improved or remained at the same level."

The most prominent difficulty for Group B was the absence of expert feedback and structural guidance: "My study partner and I are both non-experts. We may both be making the same mistake without realising it." Maintaining motivation and knowing where to begin also emerged as challenges: "The hardest part is keeping motivated and not knowing where to start. There is a large amount of material online, and it is difficult to know which is suitable."

Suggestions from Group B included: combining practice with pronunciation scoring apps such as ELSA Speak, finding a community or mentor with a shared learning pathway, and adopting a more systematic self-evaluation approach using simple rubrics.

4.5. Discussion

4.5.1. DeepSeek's Effectiveness in Improving Speaking Proficiency

The results indicate that DeepSeek is more effective than conventional methods in improving English speaking skills in this specific group. The difference in progress between the two groups, 13.1% compared to 4.5%, is statistically and educationally significant. This finding

is consistent with Madhavi et al.'s (2023) investigation into AI tools and their impact on speaking enhancement, while also providing empirical support for DeepSeek's effectiveness within a Vietnamese setting. Three mechanisms may explain DeepSeek's effectiveness. First, it provides structured and personalised practice, in line with principles of adaptive learning (Gevorgyan, 2024). Students received a clear pathway, level-appropriate exercises, and immediate feedback that allowed them to adjust and improve continuously. Second, DeepSeek creates a safe practice environment that tends to reduce speaking anxiety, a common affective barrier in foreign language learning (Godwin-Jones, 2022; Derakhshan, 2023). Students felt comfortable experimenting, making errors, and self-correcting without the risk of social judgment. Third, its capacity for detailed error analysis and diagnostic explanation helps students identify specific weaknesses and strategies for improvement, supporting metacognitive awareness, an important factor in language development (Benson, 2013).

4.5.2. DeepSeek's Contribution to Fostering Learner Autonomy

Qualitative data suggest that DeepSeek significantly contributes to the cultivation of learner autonomy. According to Self-Determination Theory (Deci & Ryan, 1985), using DeepSeek seems to satisfy three basic psychological needs: autonomy, competence, and relatedness. Student autonomy is cultivated through the provision of subject selection, self-paced learning, and individualized scheduling. Competence is enhanced by the availability of readily accessible indicators of progress, including immediate feedback and the ability to track advancement over time. While AI interaction cannot entirely replace human communication, it does facilitate a sense of collaborative practice, thus alleviating the isolation often associated with independent study. This has practical relevance for higher education, where the capacity for self-directed, lifelong learning is increasingly important. DeepSeek could prove useful beyond immediate assistance; it might also help cultivate long-lasting autonomous learning habits and strategies.

4.5.3. Constraints of DeepSeek and the Imperative for an Integrated Methodology

A significant constraint inherent in this investigation is DeepSeek's incapacity to directly process audio data. Consequently, it is unable to evaluate a learner's authentic pronunciation or intonation patterns derived from spoken language. This particular limitation corroborates Kramsch's (2014) assertion regarding the inherent challenges faced by AI tools in achieving precise evaluations of specific communicative elements.

Interview data from both groups reinforce this finding. Students in neither group considered their method fully adequate on its own. They proposed combining AI use — for building foundations, structuring a learning pathway, and accessing resources — with real interactive speaking practice and dedicated pronunciation applications. The observed agreement across different groups proposes that this limitation has real-world importance, not just a theoretical one. This finding also aligns with current views on blended learning in language teaching, as shown by Wang et al. (2025).

4.5.4. Implications for Teaching Practice

The study offers several practical suggestions for English speaking instruction in Vietnam. DeepSeek may be integrated as a supplementary tool within language programmes, particularly for out-of-class practice and preparation for standardised tests such as IELTS. Instructors need guidance on how to help students use AI tools effectively, including prompt design skills and self-assessment strategies. Institutions may benefit from building a digital learning ecosystem that combines AI tools with conventional approaches, creating a more varied and responsive learning environment.

5. CONCLUSION AND FUTURE DEVELOPMENT

5.1. Conclusions

The results suggest that employing DeepSeek as a structured self-study instrument yields superior outcomes in English speaking proficiency for English Language majors relative to conventional approaches. The experimental group showed a 13.1% improvement in their average score, which was about three times greater than the control group's 4.5% increase. In addition, the experimental group reported significantly higher satisfaction levels, with 88.75% expressing satisfaction compared to 62.5% in the control group. The primary conclusions are as follows. Initially, DeepSeek demonstrates efficacy in delivering a personalized, lucid, and organized learning trajectory, thereby fostering increased student confidence in self-directed study. Secondly, the tool cultivates a secure practice environment, which typically mitigates speaking anxiety and encourages learner autonomy by fulfilling the fundamental psychological needs of autonomy, competence, and relatedness. Thirdly, its ability to provide detailed error analysis and immediate feedback facilitates students' identification of weaknesses and their subsequent remediation. A significant limitation of DeepSeek is its lack of direct audio analysis, which requires it to work with specialized pronunciation tools and involve real people. These findings suggest that integrating DeepSeek strategically as a supplementary tool in language curricula is a pedagogically sound approach. It supports student autonomy in out-of-class learning and complements formal instruction, which may accelerate speaking skill development for English Language majors.

5.2. Future Study

Besides the limitations, the study's findings suggest several areas for future research. Adding speech recognition to DeepSeek would enhance its capabilities. This would allow for the direct assessment of learners' pronunciation, intonation, and speech rate by analyzing audio recordings. Furthermore, a valuable feature would be an automated progress-tracking dashboard. The proposed dashboard would visually represent progress in IELTS Speaking criteria over time. Pedagogically, the creation of comprehensive instructional resources for educators is essential, encompassing the integration of DeepSeek into pedagogical practices, the design of activities, strategies for student guidance, and methods of assessment. Furthermore, a categorized repository of sample prompts, organized by proficiency level, subject matter, and specific learning objectives, would facilitate more effective student engagement with the tool from the beginning.

In terms of research, future studies could expand the sample size and lengthen the intervention period — for example, to six months or one full academic year — to examine longer-term effects. Comparative investigations assessing DeepSeek's performance relative to other AI applications, including ChatGPT and Gemini, within speaking scenarios would be beneficial. Furthermore, research exploring DeepSeek's effects on additional language competencies — writing, reading, and listening — and the influence of individual factors, such as motivation, learning preferences, and initial proficiency, on the tool's efficacy also merits consideration.

Regarding policy implications, it is advisable that HMU and comparable institutions contemplate integrating DeepSeek into their endorsed learning resources, facilitate training programs for both educators and learners on optimal utilization, and formulate infrastructure support policies to guarantee equitable accessibility. This study contributes to filling the research gap on DeepSeek's application in English speaking development in Vietnam, and points to a systematic and effective approach to AI integration in foreign language teaching. Given the continued development of AI technology, its potential applications in language education are substantial and merit ongoing, rigorous investigation.

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DESIGNING ENGLISH SPEAKING DAY FOR THIRD-GRADE STUDENTS TO PROMOTE ENGLISH AS A SECOND LANGUAGE IN PRIMARY SCHOOLS

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ABSTRACT

Developing English communicative competence from an early age has become an increasingly important objective for Vietnamese students. This study aims to design and evaluate the initial feasibility and effectiveness of an English Speaking Day (ESD) model for third-grade students, with the goal of creating a more regular and natural English practice environment in Vietnamese primary schools. The research uses a mixed-methods approach, including a survey of 33 students and parents at a language centre in Hanoi to analyse the current state of English learning, followed by a small-scale pilot with 10 students over four weeks on the "Family" theme. Results indicate that ESD produced notable improvements in students' speaking confidence (+3.4 points), fluency (+2.6 points), and accuracy (+1.4 points), while also increasing voluntary participation and learning motivation. The study provides a theoretically grounded ESD process with detailed lesson plans applicable to Vietnamese primary schools, along with specific recommendations for implementation across different school contexts. Although limited by sample size and short duration, this pilot study demonstrates the potential of ESD as an approach to creating a richer English practice environment and supporting communicative competence development in line with Vietnam's national curriculum reform objectives.

1. INTRODUCTION

English has become an essential communication tool and a significant medium for the exchange of knowledge, culture, and economic cooperation between countries (Crystal, 2018). In Vietnam, the 2018 National Curriculum designates English as a compulsory subject from Grade 3, reflecting a strategic commitment to developing a workforce with strong language skills. Despite this, data indicate that while 89% of Vietnamese primary school students study English,

only 12% have regular opportunities to practise oral communication outside formal lessons (Ngo & Tran, 2023). This gap between language study and language use reflects significant limitations in current teaching practice.

Research by Lê et al. (2023), encompassing fifty primary schools, indicated that 76% of teachers believed students lacked confidence in spoken English, a situation they linked to insufficient practical opportunities; concurrently, 82% of parents desired increased exposure to authentic communication. Conventional teaching strategies have frequently prioritized grammar and vocabulary acquisition, often at the expense of practical communication skills, thereby producing students who understand linguistic rules but are hesitant to speak, or who can communicate but lack fluency (Cameron, 2001). Given that the early years of primary school are widely considered a critical time for language learning, as proposed by the Critical Period Hypothesis (Lenneberg, 1967), a lack of sufficient practice environments during this period could potentially have lasting negative effects on how people communicate.

The English Speaking Day (ESD) model has gained international recognition as a method for fostering more consistent and authentic English language usage within educational settings. Research conducted in diverse environments has yielded encouraging results. Februansyah's (2022) research indicated that a monthly English Day program had a beneficial impact on student motivation and self-esteem. Ramarow and Hassan (2021), in their examination of 265 Malaysian pre-university students, noted decreased speaking anxiety and moderate motivation, suggesting that these findings could inform curriculum design aimed at improving English language skills. Moreover, Saad et al. (2025) explored the effectiveness of English language boot camps, which were organized according to Corporate Social Responsibility tenets, in helping Year Six ESL students in Malaysia develop learner autonomy, confidence, and language proficiency.

In Vietnam, however, academic research on ESD at primary level is limited. Most activities called "English Speaking Day" or "English Day" in Vietnamese schools are festival-oriented, infrequent, and lack a scientific basis for design or evaluation. This gap motivates the present study, which develops an ESD model grounded in second language acquisition theory, suited to the psychological and developmental characteristics of Vietnamese primary school learners, and practically implementable.

The study focuses on Grade 3 students because this is the first year of formal English instruction in Vietnamese primary schools. Children between the ages of eight and nine exhibit a pronounced capacity for imitation, alongside active memory development, and have yet to establish significant psychological impediments to the utilization of foreign languages (Lightbown & Spada, 2020). Vygotsky's (1978) sociocultural theory of language acquisition suggests that children learn language best through meaningful social interactions. This is a condition that ESD can help create through real communicative activities. This research endeavor aims to develop and evaluate the initial feasibility and effectiveness of an English for Specific Purposes (ESP) model specifically designed for third-grade students, with the overarching aim of fostering a more consistent and authentic English language practice setting in Vietnamese primary schools. The study will examine the existing state of English language

teaching and learning for third-grade students, devise an ESP procedure along with relevant lesson plans, and implement a limited pilot program of the model to assess student involvement, preliminary changes in communicative competence, and learning dispositions. This study offers contributions to both theoretical understanding and practical application.

To fulfill the purpose of the study, the survey was seeking to answer the following research questions:

RQ1: What is the current state of English oral communication learning among Grade 3 students at a language center in Hanoi, including the challenges and motivations they face?

RQ2: What ESD process and lesson plans can be designed to align with second language acquisition theories and the developmental characteristics of Grade 3 students in the Vietnamese context?

RQ3: To what extent does the piloted ESD model improve Grade 3 students' speaking skills — specifically fluency, accuracy, and confidence — and their learning attitudes over a four-week implementation?

Theoretically, it clarifies the scientific basis for designing second language activities appropriate to Grade 3, drawing on contemporary language acquisition theories and the developmental characteristics of Vietnamese children. Practically, it provides a concrete ESD model that schools can apply to improve English teaching quality, create natural communication environments, and contribute to communicative language teaching reform.

2. RELATED WORKS

2.1. Theoretical Foundations of Second Language Acquisition in Children

Theoretical frameworks for Second Language Acquisition (SLA) provide a crucial scientific basis to shape the instruction of English language at primary schools level. Chomsky (1965) proposed that humans have an inherent ability for language, which he called the Language Acquisition Device (LAD). This device helps children naturally learn and create language. This view emphasizes that language acquisition goes beyond just memorizing words and grammar. Instead, it requires using internal processes, which are activated by interacting with the target language in real-world situations. Furthermore, Swain (1995) expanded on input-focused theories with the Output Hypothesis. This hypothesis suggests that producing language, including both speaking and writing, is a key factor in learning a second language. Active engagement with the target language enables learners to reinforce their current understanding and pinpoint areas of weakness, thereby fostering a desire for continued learning. The ESD approach is fundamentally based on the idea of using real communication situations in English, rather than just passively receiving language input. Krashen's (1985) Input Hypothesis adds another important point: when learners are exposed to understandable and meaningful input in a supportive environment, at a level slightly above what they currently know (i+1), it helps them acquire language naturally. Therefore, ESD should include activities that are at the right level of difficulty — neither too easy, which would make students lose interest, nor too hard, which would discourage them. Also, a relaxed, low-pressure atmosphere should be maintained to reduce the "affective filter," which can hinder learning.

2.2. Communicative Language Teaching (CLT)

It is a widely used method in foreign language education, focusing on using language in real-world situations (Kumaradivelu, 1994). Unlike traditional teaching methods that focus on grammar and sentence structure, CLT prioritizes developing communicative competence. Nunan (1991) suggests that this teaching approach helps students learn language structures. This skill also allows for the flexible and effective use of these structures in different communication situations. Hymes (1972) expanded the notion of linguistic competence to encompass communicative competence, which integrates grammatical proficiency with the capacity to utilize language appropriately within social settings. This perspective is especially pertinent to ESD design, given that activities must provide opportunities for students to practice not only grammatically accurate speech but also culturally and contextually suitable communication.

Within CLT, the learner assumes a central position, while the teacher functions as a facilitator and guide, establishing conditions that encourage students to participate in communicative activities through authentic, real-world scenarios (Nunan, 1991). This method aligns with the psychological characteristics of elementary school children, who generally learn most effectively through active participation, play, and social interaction.

2.3. An Examination of English Speaking Day and Related Approaches

There were a number of research papers from various countries in the world on English Speaking Day (ESD). They showed positive results in developing English communication skills. Sinaga (2018) and Februansyah (2022) have both shown that English Day programs in Indonesia have positive effects on students' motivation and self-confidence.

Research conducted at Ash-Shiddiqi Islamic Boarding School, encompassing a sample of 100 students, revealed a consensus that the program facilitated students' exposure to spoken English, provided increased opportunities for language skill application, and broadened their English language comprehension. Furthermore, Ramadani and Dharmawan (2025) explored the sociolinguistic effects of an English Day program on speaking skills at SMA Global Madani in Indonesia. Employing a qualitative case study methodology, the researchers purposefully selected a cohort of 15 students and gathered data via classroom observations and semi-structured interviews. The program demonstrably enhanced students' confidence and fluency, attributable to its provision of an immersive, low-stress communicative setting. Furthermore, peer interaction, teacher support, and exposure to digital media were identified as crucial sociolinguistic factors.

At the same time, persistent difficulties in vocabulary acquisition, pronunciation accuracy, grammatical competence, and speaking apprehension suggested that immersion alone does not ensure comprehensive proficiency development. The researchers advocate for the integration of structured pedagogical assistance with the program, encompassing corrective feedback mechanisms and explicit vocabulary instruction, to maximize the efficacy of the intervention.

Ramarow and Hassan's (2021) study examined English speaking anxiety and motivation in a cohort of 265 Malaysian pre-university students. The findings indicated that speaking

anxiety was low, while motivation was at a moderate level; moreover, external factors appeared to have a slightly stronger influence than internal ones. A weak, yet statistically significant, positive correlation was observed between anxiety and motivation. Gender did not significantly affect either variable. However, a notable difference in language anxiety was observed among racial groups, even though motivation levels were similar across these groups. The authors propose that these results can guide curriculum development designed to mitigate anxiety and facilitate the advancement of English proficiency. Saad et al. (2025) examined the impact of English language boot camps, which were based on Corporate Social Responsibility (CSR) principles, on Malaysian Year Six ESL students, specifically assessing enhancements in learner autonomy, self-confidence, and language proficiency. Employing a quantitative methodology, the researchers distributed a structured questionnaire to a purposively chosen cohort of 75 participants, drawn from a larger population of 163 students.

The analysis, which included descriptive and inferential statistical techniques such as t-tests and regression, revealed that the boot camps produced significant improvements in both learner autonomy and language proficiency. Furthermore, the study found that gamified elements and collaborative activities were crucial for increasing motivation and engagement. In contrast, confidence in oral communication showed lower levels, suggesting an area that needs more attention. The study's conclusions are based on Constructivist Theory and Self-Determination Theory, and its recommendations align with the Malaysia Education Blueprint 2013–2025.

2.4. Context in Vietnam and the Research Gap

In Vietnam, while some private schools have organised activities called "Ngày hội tiếng Anh" or "English Speaking Day," academic research on such models at primary level remains limited. Most available accounts describe activities without providing experimental evaluation of outcomes. The study by Lê et al. (2023) across 50 primary schools identified challenges in communicative English teaching but did not propose scientifically grounded solutions.

Several gaps remain. First, there is no standardised ESD model with established frequency, content, and methods suited to the psychological and developmental characteristics of Vietnamese primary school students. Second, age-appropriate assessment tools for evaluating ESD activities have not been developed. Third, no experimental study has evaluated ESD's impact on speaking skill development, learning attitudes, or student confidence in the Vietnamese context. Fourth, the teacher's role and the competencies required to facilitate ESD effectively have not been systematically studied.

This study addresses part of these gaps by developing a theoretically grounded ESD model suited to the Vietnamese context, and by providing initial evidence of the model's feasibility and effectiveness through a small-scale pilot.

3. PROPOSED METHODOLOGY

3.1. Research Design

The present investigation employs a mixed-methods methodology, integrating both quantitative and qualitative data, to facilitate a thorough assessment of the ESD model. The

study's structure encompasses three principal stages: a needs assessment, model formulation, and a limited-scale pilot implementation.

Initially, the research undertakes a survey of the existing conditions of English language acquisition among Grade 3 pupils, utilizing a questionnaire to ascertain both the obstacles and the prospects inherent in the cultivation of communicative competencies. Based on the survey results and relevant theories, this study then creates an ESD procedure and lesson plans. These plans include age-appropriate activities designed to fit the cognitive and developmental needs of third-grade students. Finally, the model undergoes piloting and evaluation, employing both quantitative and qualitative metrics.

3.2. Participants and Scope

The study was conducted at a private language centre in Hanoi during Semester 1 of the 2025–2026 academic year, from September to December 2025. The survey phase included 33 Grade 3 students and their parents. The initial phase of the study included ten students over a four-week period. This small group is appropriate for a pilot study, which aims to evaluate the model's feasibility, gather initial qualitative data on student involvement and reactions, and allow for close monitoring with the ability to make changes during the implementation.

3.3. Data Collection Tools

Three primary instruments were used to gather multi-dimensional data about the effectiveness of ESD. A 22-item questionnaire, employing a 5-point Likert scale, was administered to gauge the frequency of English usage, communication challenges encountered, and students' perspectives and aspirations concerning English language acquisition. This instrument was developed in accordance with prior investigations into language anxiety and learning motivation (Ramarow & Hassan, 2021; Februansyah, 2022), with modifications implemented to accommodate the Vietnamese educational setting and the primary school demographic. Furthermore, an observation checklist was utilized to document four dimensions of student conduct during English for Specific Purposes (ESD): participation level (quantified by the frequency of verbal contributions and interactions), confidence (assessed through vocal projection and nonverbal cues), communication quality (measured by fluency and grammatical accuracy), and learning attitude (evaluated through engagement and collaborative efforts). Each dimension was assessed using a three-tiered descriptive scale: Below Standard, Meets Standard, and Good, thus facilitating educators' capacity to monitor and document student performance throughout the activities without causing disruption. A speaking skills rubric was developed, incorporating three criteria assessed on a 1–10 scale: Fluency, which gauged the capacity to speak continuously with minimal interruptions; Accuracy, which assessed pronunciation, vocabulary, and grammar at a Grade 3 level; and Confidence, which entailed observing voice projection, eye contact, and overall conduct during speaking exercises. The rubric was developed by adapting international speaking assessment rubrics (Saad et al., 2025), with adjustments.

3.4. Data Analysis

Quantitative data from the survey and speaking assessments were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Given

the small sample size in the pilot phase (n = 10), inferential statistical tests were not applied. Analysis focused on describing trends in the indicators before and after ESD participation.

Content analysis was employed to examine qualitative data derived from the observation checklist, thereby revealing patterns in participation, student responses, and significant occurrences throughout the practice sessions. This methodology serves to illuminate dimensions that resist quantification, including shifts in attitude, the nature of spontaneous interaction, and the overall classroom environment.

3.5. Experimental Procedure

The pilot was conducted over four weeks, with one 60-minute ESD session per week on the topic of "Family." This topic was selected because it connects directly to students' personal experience, allowing them to draw on background knowledge when participating in communication.

Each ESD session followed a three-part structure. The warm-up phase (10 minutes) included greeting activities, group singing (Finger Family Song), and a quick vocabulary check to establish a positive atmosphere and prepare students mentally. The main part of the lesson, lasting forty to fifty minutes, included three main activities: Family Vocabulary Matching, Introduce My Family — Show and Tell, and Family Role Play. These activities were designed to help students practice vocabulary, sentence structures, and their ability to communicate. The wrap-up and feedback phase (10–15 minutes) included teacher comments, student sharing, and acknowledgement of participation. Before the pilot began, all 10 students completed a pre-test speaking assessment using the rubric. Over the four-week period, educators documented advancements through the weekly observation checklist. Following the conclusion of the fourth week, students undertook a post-test speaking assessment designed to evaluate shifts in Fluency, Accuracy, and Confidence.

3.6. Reliability and Research Ethics

To strengthen reliability, the study used data triangulation by combining multiple information sources: survey data, observation records, and speaking assessments. This method combined different types of information, including survey results, observational notes, and assessments of oral skills. Assessment instruments underwent preliminary testing with a limited cohort, followed by modifications to ensure their appropriateness for the participants' age and language proficiency. The educator, who was experienced in teaching English to children, carried out both the observation and assessment procedures. The supervising lecturer then verified these procedures to ensure consistency. Concerning ethical considerations, the research adhered to established guidelines for studies involving child participants. Before the study began, the language center approved the project, and parents were fully informed about the study's goals, methods, and what would happen. Parents could remove their child from the program at any time. All student data was kept private, used solely for research purposes. Each ESD activity was meticulously designed to prioritize safety, be appropriate for the participants' ages, and prevent any possible psychological distress.

4. RESEARCH RESULTS

4.1. Current State of English Communication Learning in Grade 3

Survey results from 33 students and parents provide a fairly comprehensive picture of the current state of English communication learning at one language centre in Hanoi. The majority of students (84.8%) attended supplementary English classes outside school, reflecting parental concern for improving children's English proficiency. However, daily English use among students did not reflect the volume of supplementary learning time invested.

Regarding frequency of English use, results show that most students used English only occasionally in both daily life and in class. The number of people who communicated regularly was small, while a large group rarely or never used English outside of formal classes. This suggests that students didn't have many chances to practice, and they hadn't developed a consistent habit of using the language.

The students' listening comprehension skills were generally basic, with many only able to understand simple sentences spoken by the teacher. When asked how well they understood English spoken in class, only 21.2% of the students said they understood everything. In contrast, 75.8% said they understood some of it, and 3% reported significant difficulty. These results highlight the students' limited listening abilities and suggest a need for more varied listening activities.

Confidence in peer communication was also low. Most students were reluctant to interact or used English only in familiar contexts. Psychological factors were the main obstacles to spoken communication. Specifically, 54.5% of the students reported difficulties with pronunciation. In addition, 36.4% of the participants expressed concern about making mistakes and being ridiculed, and 39.4% reported feeling self-conscious when speaking. Furthermore, 30.3% of the students indicated challenges in understanding their interlocutors, thereby highlighting limitations in listening comprehension.

Regarding the most challenging aspect of English communication, 54.5% of the students pinpointed communicative reflexes, implying that a majority had not cultivated the capacity to process language with flexibility in dynamic contexts. Listening comprehension was the second most frequently cited difficulty, at 45.5%. In contrast, only 24.2% of the students considered speaking itself to be the most challenging skill. This suggests that they found the creation of simple sentences less difficult than the ability to quickly understand or respond. Notably, only 39.4% of the students reported having a practice partner for spoken English. This indicates that most students didn't have a natural setting for communication outside of class. As a result, this situation hindered the development of speaking reflexes, the practice of correct pronunciation, and the establishment of regular language interaction habits. Despite these challenges, the survey also revealed positive signals regarding student attitudes and motivation. The majority of students reported positive experiences with speaking exercises, displayed enthusiasm for in-class practice, and expressed a preference for increased opportunities to utilize the language. Students showed they understood how important communication is for learning English, considering it a basic skill. Furthermore, the high level of interest in participating in an extended program like

"English Speaking Day" indicated that students were not merely interested but were actively pursuing interactive learning environments.

4.2. ESD Design Process and Outputs

Drawing on theoretical foundations and survey findings, the study developed an ESD organisational process consisting of two main phases with five specific steps.

The preparation phase comprises two steps. The first step is defining the objectives of the activity, in which the teacher analyses students' entry-level competence and identifies the type of speaking skills to be practised, the specific focus, sentence structures that can be applied, and appropriate communicative situations. Objectives must align with the Grade 3 English curriculum, the cognitive abilities of the students, and the requirements for developing communicative competence. The next step is to create speaking assessment criteria that cover three main areas: Fluency, Accuracy, and Confidence, with each area scored on a scale from 1 to 10.

The implementation of the activity is then divided into two separate stages. The initial stage encompasses warm-up exercises and the activation of pre-existing knowledge. This involves a warm-up game intended to cultivate positive emotional engagement, a lead-in activity that employs a concise video, picture book, or image-based queries to introduce the core theme, and language input delivered through vocabulary, sentence structures, or uncomplicated dialogues. The subsequent stage centers on communicative practice, utilizing a variety of formats including Pair Talk/Group Talk, Role Play, and Mini Presentation. At this stage, the instructor's main role is to observe and offer help, rather than directly correcting mistakes. This approach aims to prevent interruptions in the natural flow of speech. The concluding phase necessitates the provision of feedback and the reinforcement of acquired knowledge. This is achieved through direct feedback, which specifically targets prevalent errors, and indirect feedback delivered via mini-games. Subsequently, students engage in the consolidation of their understanding and acknowledge their involvement. The result of this stage is a thorough ESD lesson plan, focused on the "Family" theme, specifically designed for third-grade students. This plan outlines a 60-minute lesson, which includes several activities: an introductory segment comprising Greeting and Getting Ready (3 minutes), Song and Action — Finger Family (5 minutes), and Quick Check — Point and Say (2 minutes); a central activity section featuring Family Vocabulary Matching (8–10 minutes), Introduce My Family — Show and Tell (12–15 minutes), and Family Role Play (10–12 minutes); and a concluding segment for student feedback and teacher observations. Each activity is carefully structured with clearly defined objectives, comprehensive organizational guidelines, and sample teacher language, thus ensuring its practical utility in genuine classroom settings.

4.3. Pilot Results

The four-week pilot program, which included ten students, showed clear improvements in both English communication skills and attitudes toward learning. An analysis of the data, based on tests given before and after the program, revealed significant progress in all three areas of speaking that were evaluated. In terms of vocabulary retention and recognition, most students

showed a strong ability to remember words from the "Family" thematic unit. Those who learned the material quickly were able to correctly identify words after seeing them once. In contrast, other students needed to see the words several times before they could recall them accurately.

The integration of visual cues and paired practice sessions was shown to be effective. Concerning the employment of communicative sentence structures, the majority of students demonstrated accurate utilization of fundamental patterns when introducing family members. Roughly 40% of the cohort successfully expanded their introductions by incorporating supplementary details, including age, hobbies, or succinct descriptions, thereby illustrating not only linguistic reproduction but also adaptable application within genuine communicative scenarios.

Figure 1: Week 1 vs Week 4 Speaking Scores

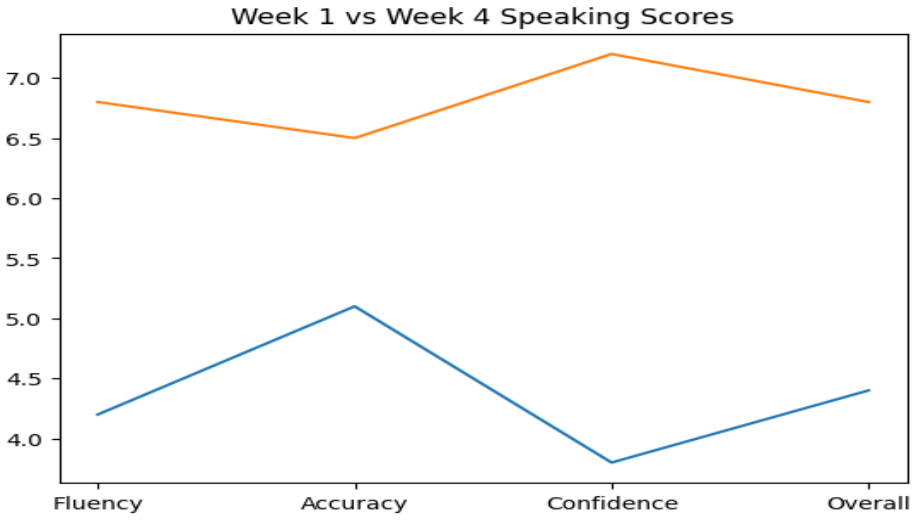
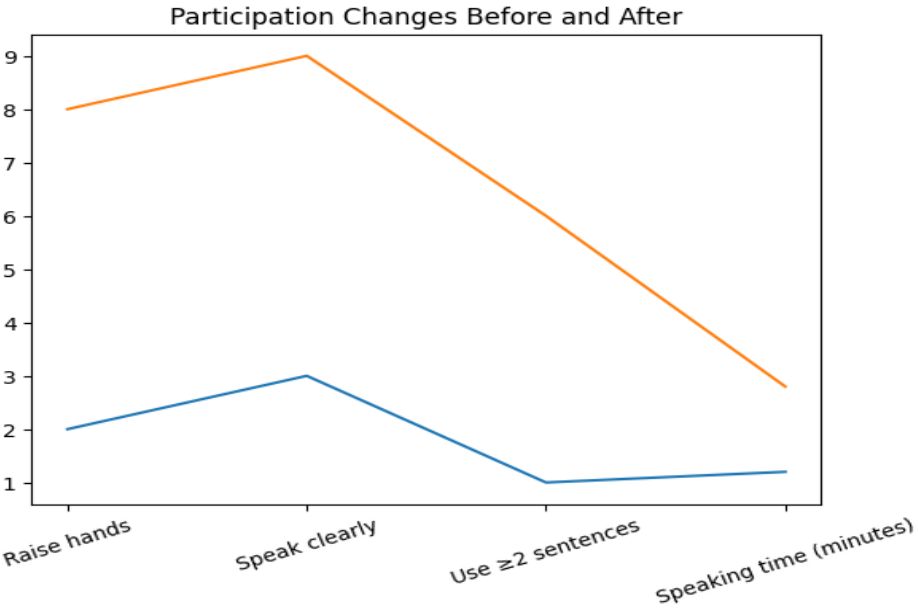


Figure 2: Participation Changes Before and After



Mean scores across the 10 students show steady improvement over four weeks. For Fluency, the mean increased from 4.2 ± 1.3 (Week 1) to 6.8 ± 1.1 (Week 4), a gain of 2.6 points. For Accuracy, scores increased from 5.1 ± 0.9 to 6.5 ± 0.8, a gain of 1.4 points. Confidence

showed the highest improvement at 3.4 points, rising from 3.8 ± 1.5 to 7.2 ± 1.0. The overall mean improved by 2.4 points, from 4.4 ± 1.2 to 6.8 ± 0.9. Qualitative observation data document substantial changes in participation behaviour. The number of students volunteering to speak increased from 2 out of 10 (20%) in Week 1 to 8 out of 10 (80%) in Week 4. The number speaking audibly and clearly increased from 3 to 9 out of 10. The number using two or more sentences in their introductions increased from 1 to 6 out of 10. Mean speaking time per student also increased substantially, from 1.2 minutes to 2.8 minutes. Regarding confidence, observation records show clear changes. Students actively volunteered, stood up more readily to speak, and spoke more clearly than in regular lessons. Students who had previously been reticent also showed progress when practising in pairs before presenting to the class. The use of real family photographs helped students feel at ease, producing a relaxed psychological state when speaking about a familiar topic. Learning attitudes and engagement also improved substantially. Student feedback in the end-of-session sharing phase showed that students enjoyed ESD activities, liked talking about their families, enjoyed listening to their classmates' presentations, and found the sessions relaxed but engaging. Classroom energy remained positive, with students actively participating throughout each session.

4.4. Discussion

4.4.1. Effectiveness of the ESD Model on Communicative Skills

Preliminary results indicate that the ESD model exerted a beneficial effect on the English communicative proficiency of Grade 3 students, particularly with respect to psychological and behavioral changes. The most notable result was the improvement in Confidence, which saw a 3.4-point increase; this finding is consistent with the observations of Sinaga (2018) and Februansyah (2022), who emphasized the importance of stable practice settings in reducing language-related anxiety. This is particularly important, given that confidence is fundamental to the acquisition of other communicative skills and represents the primary obstacle for primary school students when using English. Furthermore, the improvement in Fluency, with a 2.6-point increase, indicates that students began to exhibit a greater capacity for sustained speech and a reduction in hesitation. This finding supports Swain's (1995) Output Hypothesis. This hypothesis suggests that producing language helps learners strengthen their understanding and improve their ability to use language in real-world situations. Within the ESD paradigm, exercises such as family introductions and role-playing scenarios offered avenues for both prolonged and concentrated speaking practice.

Accuracy improved by a more modest 1.4 points, which is lower than the gains in Confidence and Fluency. This may reflect the fact that developing precision in pronunciation, vocabulary, and grammar requires a longer timeframe and more detailed teacher feedback. The improvement nonetheless indicates that ESD had a positive effect on language quality, supporting not only more frequent speech but also more accurate speech. The substantial increase in voluntary participation (from 20% to 80%) and in mean speaking time (from 1.2 to 2.8 minutes) reflects changes in motivation and learning attitude. In accordance with Ramarow and Hassan's (2021) findings regarding the influence of authentic practice settings on fostering

student autonomy, the incorporation of the "Family" theme, which directly relates to personal experiences, facilitated student comfort and engagement in sharing. This approach aligns with Vygotsky's (1978) assertion that language acquisition is optimized through significant social interactions.

4.4.2. How This ESD Model Differs from Similar Models

Compared with the "English Day" activities currently used in some Vietnamese private schools, this ESD model has several distinctive characteristics. First, regarding frequency, the model proposes regular weekly or monthly implementation rather than one or two events per year, which supports continuity in practice and the formation of stable English use habits. Moreover, the model's focus on small groups, consisting of 10 to 15 students, rather than the entire school, ensures that each student has a real chance to participate and receive focused attention. Third, regarding objectives, the model is practice-oriented rather than performance-oriented, reducing psychological pressure on students. Fourth, regarding evaluation, the model includes clear assessment criteria and progress tracking, measuring effectiveness systematically rather than simply organising activities.

A further distinguishing feature is that this model is grounded in second language acquisition theory and communicative language teaching methodology, combined with an analysis of Vietnamese students' English learning conditions. The activities are crafted to align with the developmental stage of third graders. This approach guarantees a suitable level of difficulty, fostering engagement through games, interactive elements, and subjects they already know.

4.4.3. Limitations and Future Directions

The study has several limitations that bear on the interpretation of results. First, regarding representativeness, the sample was drawn from a private language centre where students have the means to attend supplementary classes. The sample does not encompass public school students, those from rural locales, or individuals representing diverse socioeconomic strata. Variations in resources, teacher proficiency, and learning environments could significantly alter the outcomes within these settings. Moreover, regarding statistical validity, the small sample size (n = 10) prevents the utilization of inferential statistical techniques or the extrapolation of findings. The results are exploratory in nature, suggesting initial improvement trends; they do not establish the statistical superiority of ESD relative to other methodologies.

In addition, the absence of a concurrent control group presents a challenge in attributing the observed progress to ESD, rather than to factors such as students' intrinsic development, the impact of other learning experiences, or the Hawthorne effect, which is the improvement resulting from students' awareness of being observed.

Fourth, the brief timeframe of four weeks is inadequate for evaluating the enduring effects of ESD on overall English proficiency or the retention of acquired skills. Fifth, the restriction to a single thematic focus (My Family) does not assess the model's efficacy across diverse subjects or throughout a complete academic year. Consequently, these constraints necessitate that the findings be interpreted as preliminary indications of viability and promise, rather than definitive

proof of efficacy. Future studies should include a larger group of participants, ideally 80 to 120 students, from at least four different schools. This should include two public schools and two private schools.

The study's timeframe should be extended to 8–12 months, and it should incorporate well-defined experimental and control groups. Assessment should utilize more rigorous methodologies, including standardized pre-, post-, and delayed post-tests, thorough interviews with educators and parents, and systematic observation protocols that exhibit established inter-rater reliability. Monitoring students' English language proficiency over one and two years subsequent to the commencement of ESD would enable the evaluation of the durability of observed improvements. Furthermore, a comparative analysis of ESD against alternative instructional approaches, such as Task-Based Language Teaching or CLIL, while controlling for extraneous variables, would yield valuable insights.

5. CONCLUSION AND FUTURE DEVELOPMENT

This study developed an English Speaking Day process and lesson plan suitable for Grade 3 students, and provided initial evidence of the model's feasibility in the context of a Vietnamese language centre. Drawing on theoretical foundations in second language acquisition, communicative language teaching, and the developmental characteristics of primary school learners, the study produced a systematic ESD model with a clear organisational procedure, concrete assessment tools, and detailed lesson plans ready for immediate application. The pilot results show that ESD had a positive effect on students' confidence, fluency, and learning attitudes over a short period. Speaking scores improved across all three criteria, with Confidence showing the highest gain at 3.4 points. The substantial increases in voluntary participation, speaking time, and communication quality reflect the potential of the model to create a natural English practice environment and reduce psychological barriers to foreign language use.

However, given the limitations of sample size (n = 10), duration (four weeks), and the absence of a control group, these results are exploratory and cannot be generalised. The study cannot establish ESD's long-term effectiveness or compare it with other methods. Future research should expand the scale, extend the timeframe, and use more rigorous experimental designs with clear control groups to provide more persuasive evidence.

The main contribution of this study lies in developing a theoretically grounded, contextually appropriate ESD process for Vietnam, providing detailed sample lesson plans for immediate use, collecting real data on the state of English communication learning among Grade 3 students, and proposing a development roadmap with specific implementation recommendations for different school types.

The model has potential as a useful approach to strengthening English practice environments in primary schools, helping students move closer to using English as a regular communication tool rather than simply a school subject. Achieving this sustainably requires

long-term investment in teacher training, materials development, and institutional commitment. Schools with conditions similar to private schools and language centres can pilot the model following the developed procedure, starting at monthly frequency and increasing over time. For public schools with larger classes and more limited resources, the ESD format should be adapted within regular lesson time, dividing classes into small groups and minimising materials requirements. A sustainable development pathway should proceed through three stages: piloting and adjustment in the first six months, scaling up in the following six months, and maintaining and developing the model from the second academic year onwards.

This study opens further research directions on English Speaking Day in Vietnamese primary education and provides a practical basis for the reform of communicative English language teaching, contributing to improvements in foreign language education quality and the development of a workforce with the competences needed for international engagement.

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THE CURRENT STATE OF ORGANIZING EXPERIENTIAL ACTIVITIES FOR KINDERGARTEN CHILDREN AT PRESCHOOLS IN HUE CITY

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ABSTRACT

Experiential learning is considered a fundamental educational philosophy that promotes the holistic development of children. This study employed a questionnaire-based survey of 100 preschool teachers in Hue City, utilising SPSS software for descriptive statistical analysis and independent-samples t-tests to examine differences between urban and mountainous areas. The findings elucidate the current state of teachers' perceptions and practical implementation. Specifically, the results indicate that while teachers possess a profound and consistent awareness of the importance of their roles in experiential activities aligned with child-centred approaches, the practical execution faces numerous obstacles due to external factors and limited infrastructure. Furthermore, significant regional disparities exist in pedagogical approaches; while urban teachers encounter substantial pressure regarding facilities, those in mountainous regions face primary challenges in building community consensus and organising social connectivity activities. The empirical data derived from this research establishes a vital scientific foundation regarding the local implementation of experiential activities, contributing to the framework for innovating contemporary early childhood education.

1. INTRODUCTION

Experiential learning is regarded as a foundational educational philosophy, originating from John Dewey's (1938) "learning by doing" perspective, which asserts that education is most effective when the learning process occurs within the context of daily life. Dewey defines genuine experience as a complex process involving the impact of objects on the individual, the adjustment of actions, and the proactive capacity to initiate subsequent changes. This viewpoint is grounded in the principle of the continuity of experience, which holds that every experience is influenced by the past and simultaneously shapes future experiences. Furthermore, Dewey (2001) emphasises that lived experience is a process mediated through social interaction, based on the principle of "give and take" among individuals, particularly between teachers and children.

From an educational theory perspective, experiential activities are built upon the view of the child as a competent agent, capable of intentional action and intellectual development through active interaction with the environment (Bruner, 2000; Jean Piaget, 1950). This theory is operationalised through David Kolb's (1984) four-stage cycle, comprising concrete experience, reflective observation, abstract conceptualisation, and active experimentation, which establishes a crucial scientific framework for applying and transforming practical experience into knowledge. Supplementing this model, Andresen et al. (2020) assert that the essence of experiential learning is not merely physical action but also a systematic process of analysis and evaluation that transforms experiences into a guiding compass for future actions. A child's learning process is constructed upon four components: action, reflection, collaboration, and culture. Consequently, effective pedagogical methods are essential to enhance children's roles and participatory capacities through experiential learning (Mason, 2005). These approaches affirm that EL is a core methodology that enables children to co-construct knowledge and develop skills from real-world situations.

In Vietnam, this spirit is clearly reflected in the current Early Childhood Education (ECE) curriculum, characterised by the motto "learning through play, playing to learn," which mandates that educational institutions create environments that encourage children to explore and discover their surroundings. Domestic studies have demonstrated the efficacy of experiential activities in developing specific competencies, such as logical thinking (Hoang et al., 2025), coherent language development (Dang et al., 2021), and creative arts abilities (Le, 2023). However, practical implementation reveals a significant gap between theory and practice, particularly regarding teachers' lack of skills in facilitating and designing experiential environments at the local level. Investigating the current state of organising these activities is an urgent requirement to identify practical barriers and propose pedagogical solutions tailored to local resource constraints.

Based on the identified research gap, this study focuses on elucidating the current status of organising experiential activities in Hue City, aiming to address the following research questions:

(1) How do preschool teachers perceive the significance of organising experiential activities for kindergarten children?

(2) What are the organisational forms utilised, and what are the advantages and challenges encountered by teachers in implementing experiential activities within preschools in Hue City today?

2. PROPOSED METHODOLOGY

2.1. Research Participants

To investigate the current state of organizing experiential activities for kindergarten children in Hue City, a survey was conducted with 100 preschool teachers, including 50 from the city center and 50 from mountainous areas. The specific distribution is as follows:

- Hue City Center: 38 teachers from Hoa Mai Preschool and 12 teachers from Preschool I.
- A Luoi Mountainous District: 27 teachers from Hoa Phong Lan Preschool, 12 teachers from Nham Preschool, and 11 teachers from Hong Thai Preschool.

2.2. Research Methodology

- Theoretical Research Method: A comprehensive literature review was performed, involving the collection of information from research reports, followed by the synthesis, analysis, and generalization

of theoretical frameworks regarding the organization of experiential activities in early childhood education.

- Empirical Research Method: Data were collected using a questionnaire-based survey conducted in April 2025. The questionnaire consisted of closed-ended questions based on a 5-point Likert scale. An interval width of 0.8 was established (calculated as [Maximum – Minimum] /n). The mean score ranges for each level are defined as follows: (1) Strongly disagree / Not important: 1.00 – 1.80; (2) Disagree / Slightly important: 1.81 – 2.60; (3) Neutral / Moderately important: 2.61 – 3.40; (4) Agree / Important: 3.41 – 4.20; (5) Strongly agree / Very important: 4.21 – 5.00

In addition, SPSS 26.0 software was utilized to calculate the following parameters: reliability testing (Cronbach's Alpha), percentages (%), mean scores (M), and standard deviations (SD). Furthermore, a one-way ANOVA was performed to evaluate significant differences in perceptions among preschool teachers across the surveyed regions.

3. RESEARCH RESULTS

3.1. Fundamental theoretical issues in organizing experiential activities in early childhood education

Experiential activities (EA) are understood as processes in which individuals participate in or directly interact with their environment, enabling them to reflect and accumulate knowledge, skills, and attitudes that shape their personal experiences (Nguyen & Hoang, 2017). In the context of ECE, EA is defined as a systematic teacher-led process of influencing children. In this framework, the teacher acts as the designer, organiser, and facilitator of activities, ensuring that children engage in direct interaction and reflection to construct their unique experiential repertoire (Hoang, 2018).

Preschoolers, defined as children ages 3 to 6 participating in ECE programs (OECD, 2020), are at a critical stage of cognitive, social, and emotional development (Piaget, 1952; Copple & Bredekamp, 2009). The content of experientially based educational activities for this age group is typically developed around themes related to the natural and social environments or local seasonal events (Hoang, 2018). Selecting the timing and types of activities requires careful consideration of multiple factors, including institutional infrastructure, teacher professional competence, children's interests, and the specific characteristics of the surrounding ecological and social environment.

In the preschool setting, children participate in a variety of activities. Each offers distinct advantages for experiential learning. The primary organisational forms for experiential-based education for children aged 3–6 include play activities, learning activities, field trips, labour activities, social interactions, and festivals. EA is often organised according to Kolb's (1984) closed four-stage cycle: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Within this cycle, children learn through trial and error. They derive rules, co-construct knowledge, and apply learned concepts to similar real-world situations. The strong connection between action and reflection ensures children do not simply "do," but also understand the meaning of their actions.

However, the efficacy of EA is directly impacted by various objective and subjective factors. Consequently, investigating and assessing the current status of the EA organisation in Hue city is essential to accurately identify practical gaps and propose appropriate professional development solutions for teachers. This study plays a vital role in providing empirical data on the current state of EA implementation, particularly in a context where execution remains inconsistent. By analysing teachers' perceptions and practical difficulties, this research establishes a scientific foundation for proposing feasible solutions that ultimately enhance the quality of EA and advance the goals of ECE innovation.

3.2. Survey results

3.2.1. Teachers' perceptions of the importance of organizing experiential-based educational activities for preschoolers

We conducted a survey among 100 preschool teachers regarding the perceived importance of organizing EA for kindergarten children. The collected data are presented in the table below:

Table 1. Preschool teachers' perceptions of the importance of organizing experiential-based educational activities for kindergarten children

No	Content	Number					M	SD
		1	2	3	4	5		
1	EA facilitates holistic development and shapes the fundamental elements of a child's personality	0	5	29	35	31	**3.92**	0.89
2	Preparing children for grade 1 by fostering psychophysiological functions, core competencies, and essential life skills	0	10	18	16	56	4.18	1.05
3	Integrating educational objectives through EA by combining knowledge, skills, and attitudes to address specific practical tasks	0	10	18	23	49	4.11	1.03
4	Optimizing the accumulation of knowledge, skill development, and attitude formation toward objects, phenomena, and the community	0	10	18	34	38	4.00	0.98
5	Creating an environment for educators to employ active learning methods tailored to children's cognitive, emotional, and experiential characteristics	0	2	15	50	33	4.14	0.73
6	Encouraging children to seek assistance when needed and developing their capacity for self- and peer-assessment	0	5	14	32	48	4.23	0.88
7	Positioning the child at the center of all activities, promoting autonomy, proactivity, freedom, and self-confidence	0	6	13	18	63	**4.38**	0.93
8	Establishing robust connections between the school, family, and society	0	6	13	22	59	4.34	0.92
9	Involving families and the community in the educational process, monitoring, and supporting school activities	0	2	8	46	44	4.32	0.70

Note: $1 \leq M \leq 5$; *1: Not important; 2: Slightly important; 3: Neutral; 4: Important; 5: Very important*

The results presented in Table 1 indicate that the majority of preschool teachers possess a clear and positive perception of the importance of organizing experiential-based educational activities for kindergarten children (with mean scores ranging from 3.92 to 4.38). Notably, the statement "The child is the center of all activities, demonstrating proactivity, positivity, freedom, and self-confidence" received the highest evaluation (M = 4.38) with a very high consensus rate (63% selecting the highest level), reflecting a distinct awareness of the child-centered role in ECE.

Criteria pertaining to the connection between family, school, and society also garnered high levels of agreement, with Mean scores of 4.32 and 4.34, respectively. This demonstrates that preschool teachers are deeply cognizant of the role of an open and integrated educational environment. Furthermore, criteria regarding the contribution of EA to personality formation and life skills development received strong support, with Mean scores fluctuating between 3.92 and 4.18. Additionally, the relatively narrow range of Standard Deviations (SD = 0.70 to 1.05) suggests that teachers' opinions are consistently aligned with minimal polarization. These findings imply that teachers' perceptions of the importance of EA are not only profound but also highly unified, providing a critical foundation for the effective practical implementation of experiential learning in ECE.

To further investigate preschool teachers' perceptions of their own roles in organizing EA for kindergarten children, a survey was conducted with 100 teachers, the results of which are presented in Table 2 below:

Table 2. Preschool teachers' perceptions of their roles in organizing experiential-based educational activities for kindergarten children

No	Content	Number					M	SD
		1	2	3	4	5		
1	Teachers act as directors, designers, facilitators, and evaluators who provide corrective feedback to ensure EA aligns with children's age and developmental abilities	0	2	11	51	36	4.21	0.71
2	Teachers create safe and enriched learning environments that align with the specific goals and objectives of EA	0	4	7	27	62	4.47	0.79
3	Teachers serve as guides and facilitators, providing support when necessary while creating conditions for children to freely explore and learn from their own experiences	0	5	17	39	39	4.12	0.86
4	Teachers act as knowledge communicators, sharing and updating information to ensure children's timely and comprehensive participation in EA	0	7	18	31	44	**4.12**	0.94
5	Teachers encourage children to develop social skills, logical thinking, creativity, and problem-solving abilities	0	4	14	34	48	4.26	0.84
6	Teachers serve as a bridge to share information about children's progress and learning outcomes with parents, fostering collaborative support for the child's development	0	4	12	50	34	4.14	0.77
7	Teachers evaluate the effectiveness of activities and adjust pedagogical methods to meet the individual needs of each child	0	7	7	36	50	4.29	0.88

8	Collaborating with parents and community members to create an enriched, positive, and safe environment for EA	0	0	2	42	56	**4.54**	0.54

Note: *1 ≤ M ≤ 5; 1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree*

The survey results indicate that the majority of preschool teachers demonstrate a high level of consensus regarding their roles in organizing EA for kindergarten children, with Mean scores ranging from 4.12 to 4.54. The most highly rated role was "Collaborating with parents and community members to create an enriched, positive, and safe environment for EA" (M = 4.54, SD = 0.54), reflecting a very high degree of uniformity in teachers' perceptions. The remaining roles also maintained relatively high Mean scores, suggesting that preschool teachers are deeply aware of their proactive, creative, and flexible roles in EA, moving beyond the traditional role of a unidirectional knowledge transmitter.

3.2.2. Organizational forms, advantages, and challenges encountered by teachers in implementing experiential activities for kindergarten children in Hue city

a. Organizational forms utilized in the implementation of experiential activities

We conducted a survey on the various forms of EA organized by preschool teachers within ECE institutions. The findings are summarized as follows:

Table 3. Organizational forms utilized by teachers in the implementation of experiential activities

No	Form	Number					M	SD
		1	2	3	4	5		
1	Play-based activities	0	1	5	30	64	**4.57**	0.64
2	Learning activities	0	3	10	53	34	4.18	0.73
3	Labor activities	0	7	21	40	32	3.97	0.90
4	Field trips	0	6	25	31	38	4.01	0.93
5	Festival-based activities	0	7	26	30	37	**3.97**	0.95
6	Social exchange activities	0	7	22	36	35	3.99	0.92

Note: *1 ≤ M ≤ 5; 1: Never; 2: Rarely; 3: Occasionally; 4: Frequently; 5: Very frequently*

The survey results demonstrate that preschool teachers employ a diverse range of organizational forms for EA, with Mean scores ranging from 3.97 to 4.57. Among these, "Play-based activities" are the most frequently and widely utilized, accounting for 64% of responses with a Mean score of 4.57. This reflects a positive perception among educators regarding the role of play in skill formation and the stimulation of children's learning interests. This is followed by "Learning activities" (M = 4.18), indicating that teachers continue to emphasize the integration of structured learning into children's practical experiences. Other forms, such as "Labor activities," "Field trips," "Festival-based activities," and "Social exchange activities," are implemented at a relatively consistent level, with Mean scores fluctuating between 3.97 and 4.01.

The SD across these forms also reveal variations in the extent of implementation. SD values range from 0.64 to 0.95, with “Play-based activities” recording the lowest SD, signifying a high degree of consensus in pedagogical execution among teachers. Conversely, festival-based activities and field trips show higher SD values, suggesting disparities between educational institutions or individual teachers in organizing these specific forms.

ANOVA analysis reveals a statistically significant difference in the organizational forms of EA between the group of teachers in city-center preschools and those in mountainous areas ($p < 0.05$). To provide a clearer visualization of these disparities, the data is presented in Figure 1:

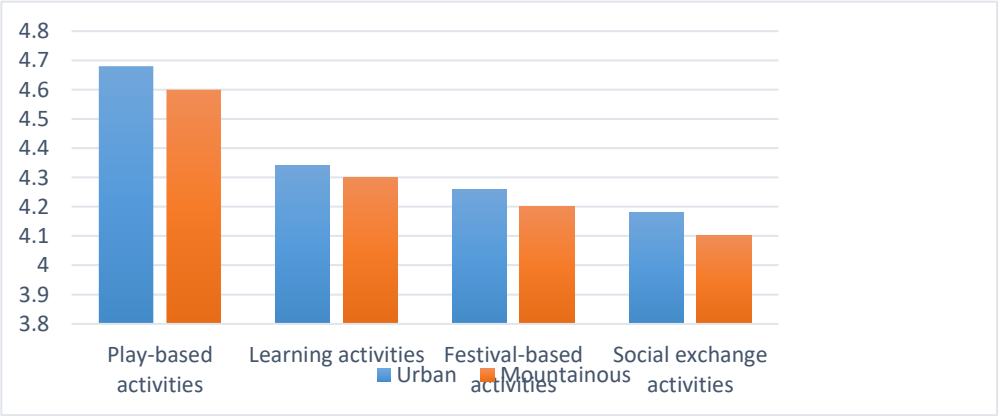

Figure 1. Disparities in organizational forms of experiential activities: A comparison between urban and mountainous preschool teachers

The figure provides visual evidence of statistically significant disparities in the frequency of organizing EA, with teachers in the city center maintaining a higher implementation frequency across all four categories compared to their counterparts in mountainous areas. "Play-based activities" and "Learning activities" constitute the dominant proportion, recording the highest Mean scores in both groups, which reflects a consistency in core educational orientations. Conversely, extensive connectivity activities such as "Festivals" and "Social exchanges" exhibit a downward trend, reaching their lowest points particularly with a marked decline in mountainous regions. This highlights the practical constraints and limited conditions prevalent in these specific localities.

b. Advantages and challenges encountered by teachers in organizing experiential activities for kindergarten children

We conducted a survey regarding the advantages and challenges encountered by preschool teachers during the implementation of EA within early childhood education institutions in Hue City. The findings are summarized as follows:

Table 4. Facilitating factors for preschool teachers in organizing experiential activities for kindergarten children

No	Content	Number					M	SD
		1	2	3	4	5		
1	National policies prioritize children's physical and intellectual development within the education system	0	2	14	34	50	4.32	0.79

2	Schools possess adequate infrastructure and facilities to support the organization of EA	0	4	8	35	53	4.37	0.80
3	The teaching staff possesses the professional qualifications, pedagogical skills, and ethics required to organize EA	0	4	8	29	59	**4.43**	0.80
4	There is effective collaboration and mutual support between the school, teachers, and families	0	4	8	39	49	4.33	0.79
5	Children demonstrate relatively uniform cognitive, health, and developmental levels	0	6	2	42	50	4.36	0.79
6	Teachers can flexibly adapt EA to align with the developmental appropriateness and capacities of kindergarten children	0	3	16	48	33	**4.11**	0.77
7	EA fosters teacher-child bonding through diverse, engaging, active, and stimulating interactions.	0	6	10	31	53	4.31	0.88
8	Kindergarten children exhibit high levels of curiosity, exploration, and a strong desire for learning	0	6	10	31	53	4.31	0.88
9	An abundance of instructional materials and curricula is available to guide the implementation of EA	0	6	12	42	40	4.16	0.86
9	An abundance of instructional materials and curricula is available to guide the implementation of EA	0	6	12	42	40	4.16	0.86

Note: *$1 \leq M \leq 5$; 1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree*

The survey results indicate that preschool teachers possess a clear awareness of the facilitating factors when organizing EA for kindergarten children, with Mean scores for these factors ranging from 4.11 to 4.43. Overall, these advantages are highly rated by teachers, reflecting significant support systems from society, schools, families, and the educators themselves during the implementation process. The most prominent advantage is that "The teaching staff possesses the professional qualifications, pedagogical skills, and ethics required to organize EA," which achieved a Mean score of 4.43 and a low Standard Deviation (SD = 0.80). This signifies a high degree of consensus regarding the competence and quality of teachers in executing these activities, which serves as a vital factor in ensuring the quality and effectiveness of EA. Other facilitating factors also received high evaluations, with Mean scores fluctuating between 4.11 and 4.37. These findings suggest that a conducive learning environment, coupled with robust collaboration among stakeholders, creates favorable conditions for teachers to organize experiential learning.

Alongside these advantages, various obstacles hindering the organization of EA were also surveyed, the results of which are presented in Table 5:

Table 5. Challenges faced by preschool teachers in organizing experiential activities for kindergarten children

No	Content	Number					M	SD
		1	2	3	4	5		
1	Limited financial resources and inadequate infrastructure	8	2	6	58	26	3.92	1.06
2	Impact of external factors such as adverse weather conditions, pandemics, etc	2	2	4	60	32	**4.18**	0.77
3	Teachers' limited knowledge and professional skills in organizing EA	14	10	6	52	18	**3.50**	1.29
4	Substantial time requirements for careful planning and logistical coordination	6	4	6	55	29	3.97	1.02
5	Inconsistency in children's cognitive development and readiness levels	10	6	6	50	28	3.80	1.20
6	Unstable health conditions of both teachers and children	12	6	16	38	28	3.64	1.28
7	Geographical barriers and unfavorable locations for student transportation	4	14	8	42	32	3.84	1.14
8	Lack of robust collaboration between the school, teachers, and students' families	8	16	10	42	24	3.58	1.24
9	High student-to-teacher ratios (large class sizes) hindering the implementation of EA	8	9	23	38	22	3.57	1.16

Note: *$1 \leq M \leq 5$; 1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree*

The survey results regarding the challenges encountered by preschool teachers in organizing EA indicate that the majority of factors are evaluated as having a relatively high impact, reflecting numerous practical implementation hurdles within early childhood education institutions. Among the surveyed factors, the “impact of external factors such as weather and pandemics” was identified as the most significant challenge, with a Mean score of 4.18 (SD = 0.77). This suggests that objective factors beyond organizational control play a substantial role in hindering the implementation of EA, particularly within the current context of climate change and public health concerns. Other barriers, including limited funding, inadequate infrastructure, and subjective factors related to teachers and children, also represent significant obstacles of concern.

ANOVA analysis reveals a statistically significant difference in the challenges encountered by preschool teachers in city-center and mountainous areas during the organization of EA, as illustrated in the following figure:

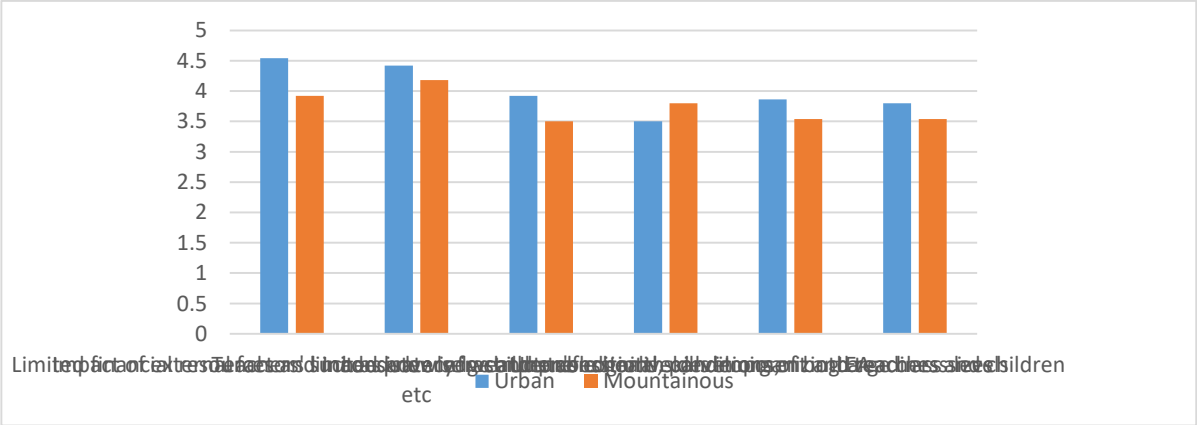

Figure 2. Disparities in challenges of organizing experiential activities between urban and mountainous preschools

The figure indicates that preschool teachers in both urban and mountainous areas face significant challenges when organizing EA for children. Specifically, urban teachers encounter greater pressure regarding physical resources, external factors, and professional competence requirements in organizing EA. Conversely, teachers in mountainous regions face primary obstacles in building community consensus and shifting public perception regarding these activities. Both regions require specialized support solutions to enhance the quality of EA organization for children.

4. CONCLUSION

Based on survey results and empirical data from 100 preschool teachers in Hue City, this study has elucidated the current state of EA organisation. The following key conclusions address the two primary research questions:

First, the research confirms that preschool teachers in Hue City hold a positive, unified perception of the significance of EA. Educators highly value the child-centred approach and children's autonomy, while clearly identifying their own roles as facilitators and environment-designers rather than mere unidirectional knowledge transmitters. This indicates that teachers' pedagogical mindsets are well-aligned with modern educational trends, providing a favourable foundation for implementing active learning methods.

Second, although teachers' professional competencies effectively sustain core play and learning activities, the implementation of EA is still negatively affected by external factors and resource shortages. The findings reveal distinct regional disparities: while urban teachers face significant pressure regarding infrastructure and facilities, those in mountainous areas struggle with community consensus and limited capacity to organise social connectivity activities.

In summary, the organisation of EA in Hue City's preschools is undergoing positive transformations driven by teachers' correct perceptions. However, to achieve comprehensive educational effectiveness, a more synchronised investment in infrastructure is required, alongside robust collaboration between schools, families, and society to overcome existing practical barriers.

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THE CURRENT STATUS OF PROVINCE PRESCHOOL TEACHERS' KNOWLEDGE AND SKILLS IN DEVELOPING MEASUREMENT SKILLS FOR CHILDREN AGED 5-6 THROUGH STEAM-BASED ACTIVITIES

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STEAM education.

ABSTRACT

Measurement skills constitute a fundamental component of early mathematical competence and play a crucial role in fostering logical thinking, estimation, comparison, and problem-solving abilities in children aged 5–6. STEAM-based educational activities are widely regarded as an effective approach to developing these skills through integrated and experiential learning. This study, entitled *"Preschool Teachers' Knowledge and Skills in Developing Measurement Skills for Children Aged 5–6 Through STEAM Activities,"* investigates the current status of teachers' knowledge and skills in supporting the development of measurement skills among children, based on a survey of 50 preschool teachers and administrators in Tuyen Quang Province, Vietnam. A mixed-methods approach was employed, incorporating classroom observations, questionnaire-based surveys, in-depth interviews, and mathematical statistical analysis to collect, analyze, and evaluate the data. The findings indicate that most teachers frequently apply methods and procedures for organizing STEAM activities; however, their level of knowledge and skills in fostering measurement skills for children aged 5–6 through these activities was assessed as moderate. These findings provide a scientific basis for proposing solutions to enhance the effectiveness of developing measurement skills through STEAM activities in preschool settings in the future.

1. INTRODUCTION

In the context of fundamental and comprehensive reforms in early childhood education toward a competency-based approach, Official Document No. 4868/BDGDT-GDMN (2024–2025), issued by the Ministry of Education and Training (MOET), Early Childhood Education Department, emphasizes a shift from knowledge transmission to the organization of child-centered educational activities, encouraging children to learn through play, experience, and collaboration. The document also calls for the increased adoption of advanced, modern, and

integrated educational models to enhance the quality of school readiness for five-year-old children, while ensuring continuity between early childhood and primary education. However, the practical implementation of these orientations continues to face significant challenges, particularly in selecting and applying pedagogical models that are appropriate to children's cognitive characteristics and learning capacities.

In early childhood mathematics education, the development of foundational knowledge should be closely connected to real-life experiences in order to foster thinking, problem-solving abilities, and the application of knowledge in everyday contexts. STEAM-based activities, which integrate science, technology, engineering, arts, and mathematics, are considered an appropriate pedagogical approach, providing opportunities for children aged 5–6 to engage in exploration, hands-on activities, and problem-solving. Within this framework, measurement skills play a pivotal role, not only in the formation of basic mathematical concepts but also in the development of logical thinking, comparison, estimation, and collaborative skills.

2. RELATED WORKS

The development of measurement skills for children aged 5–6 through STEAM-based activities is currently regarded as an essential requirement in early childhood education, contributing to the enhancement of children's cognitive development, logical thinking, and collaborative abilities. Through this approach, children are equipped with the necessary foundation for holistic development and for ensuring effective continuity between early childhood and primary education, in line with the orientation of the Ministry of Education and Training (MOET).

A number of international studies have affirmed the importance of integrating early mathematical skills in young children, particularly measurement skills (Black, L & ed, 2019), (Clements, D. H., & Sarama, J, 2009) , emphasizing that mathematics plays a foundational role in children's cognitive development, with numerical and measurement concepts best developed through real-life experiential contexts. (Ergül, A & Artan, 2017) indicated that measurement skills in preschool children are primarily formed through hands-on activities and direct manipulation; however, their study did not address the integration of interdisciplinary elements within a STEAM-oriented educational framework. From an experiential perspective, (Gómez-Escobar, A & ed, 2023) highlighted the role of hands-on exploration in fostering measurement skills in preschool and early primary children, (Petropoulou, A, & ed., 2024), demonstrated that children acquire many mathematical skills from an early age, particularly in number and operations, whereas domains such as geometry and measurement remain less explored and often present greater challenges. In addition, (Warren, 2011) attracted the engagement of Indigenous children in mathematics learning within early childhood education contexts. From a STEAM-oriented perspective, studies by (Mefharet Veziroglu-Çelik & ed., 2025), (Mengmeng, Y. X., & Zhang, W. X, 2019) have focused on teachers' competencies in organizing STEAM activities and emphasized the importance of creating integrated and experiential learning environments. However, these studies have not provided in-depth analysis of the effectiveness of STEAM activities in developing specific mathematical skills, particularly measurement skills for children

aged 5–6. Overall, although STEAM education and experiential learning have been widely addressed, international research remains limited in clarifying the role of STEAM activities in the development of measurement skills among preschool children.

In Vietnam, numerous studies have addressed the formation and development of measurement skills in preschool children (Đỗ Minh Liên, 2009) emphasized that measurement skills are effectively developed through hands-on activities, comparison, and experiential learning, thereby highlighting the need to innovate early childhood mathematics education toward activity-based, integrated, and individualized approaches, alongside enhancing teachers' capacity to organize learning activities. From a modeling-based perspective (Nguyễn Thị Hoàng Vi, 2024) argued that the application of mathematical modeling in early childhood education contributes to improving the formation of mathematical concepts, including measurement skills.(Nguyễn Thị Hương, 2024) clarified the role and current status of measurement skills and developed an assessment toolkit for children aged 5–6; however, the study did not provide in-depth solutions or procedural frameworks for developing these skills through integrated educational models such as STEAM. (Hoàng Thị Phương, 2020) indicated that applying mathematical knowledge and skills, particularly measurement skills, in real-life contexts contributes to the development of children's logical thinking. In addition, studies on STEAM education by (Nguyễn Thị Luyến, 2020), (Đặng Thị Út Phượng và Đinh Lan Anh, 2023), have clarified the nature, characteristics, and significance of STEAM education, while research on STEAM project-based learning in early childhood education (Đặng Út Phượng và Hoàng Quế Tình, 2020) and (Trần Viết Nhi, 2024) has consistently confirmed that the application of the STEAM model enhances children's observation, exploration, and scientific thinking abilities, while meeting the current requirements for innovation in early childhood education programs..

The present article reports the findings of a survey on preschool teachers' knowledge and skills in developing measurement skills for children aged 5–6 through STEAM-based activities in selected preschools in Tuyen Quang Province, aiming to provide a timely evaluation of current practices in the context of educational reform and to establish a scientific basis for subsequent research and intervention.

3. PROPOSED METHODOLOGY

The study employed the following groups of research methods. First, theoretical research methods were used, including the analysis and synthesis of relevant literature and previous studies, both domestic and international, to examine the theoretical foundations of developing measurement skills in children aged 5–6 through STEAM-based activities. Second, empirical research methods were applied, including questionnaire-based surveys, interviews, observations, and informal conversations to collect data. Third, data were processed and analyzed using SPSS version 20.0, in combination with Microsoft Excel and mathematical formulas for statistical analysis and data visualization. The evaluation scale based on mean scores (M) was defined as follows: Good ($3.25 \leq M \leq 4.00$), Fair ($2.50 \leq M < 3.25$), Average ($1.75 \leq M < 2.50$), and Poor ($1.00 \leq M < 1.75$).

The study was conducted with a sample of 50 preschool teachers from both urban and rural areas in Tuyen Quang Province, Vietnam.

A limitation of the study is that it focuses solely on assessing the current status of teachers' perceptions and skills within this specific context and does not propose specific measures to address the identified issues in developing measurement skills for children aged 5–6 through STEAM-based activities.

4. RESEARCH RESULTS

4.1. Key Concepts

- *Preschool teachers' knowledge of developing measurement skills for children aged 5–6* refers to a system of professional and pedagogical understanding related to children's cognitive characteristics, the content of measurement skills, instructional methods, and assessment approaches, which teachers apply to effectively organize activities that support children in forming and developing measurement skills.

- *Preschool teachers' skills in developing measurement skills for children aged 5–6* refer to the ability to apply professional and pedagogical knowledge to design, organize, and adapt educational activities that effectively facilitate the development of children's measurement skills.

- *Preschool teachers' knowledge and skills in developing measurement skills for children aged 5–6 through STEAM* - based activities refer to the integrated body of professional knowledge and pedagogical competence required to design, implement, and evaluate interdisciplinary STEAM activities. These activities provide opportunities for children to experience, explore, and apply measurement concepts (e.g., comparison, estimation, and the use of units and measuring tools), thereby fostering mathematical thinking and problem-solving abilities in real-life contexts.

4.2. Preschool Teachers' Knowledge and Skills in Developing Measurement Skills for Children Aged 5–6

- *Preschool teachers' knowledge of developing measurement skills for children aged 5–6* : Developing measurement skills for children aged 5–6 in preschool education not only depends on teaching methods but also relies on teachers' professional and pedagogical knowledge regarding their level of awareness and understanding of measurement skills, which need to be assessed at multiple levels :

+ Mastery of fundamental measurement concepts, including length, mass, volume, and time, as well as basic units and simple measuring tools.

+ Understanding the cognitive developmental characteristics of children aged 5–6, their capacity to acquire measurement concepts, and the relationship between measurement knowledge and real-life experiences.

+ Ability to organize learning activities that enable children to explore, experience, and practice measurement skills in authentic contexts.

+ Capacity to analyze children's measurement skills through observation and assessment in order to identify individual strengths and limitations.

+ Ability to evaluate the effectiveness of educational activities, determine levels of measurement skill development, and adjust instructional approaches accordingly.

+ Ability to design and implement STEAM-based activities that integrate measurement skills with science, engineering, arts, and mathematics to stimulate thinking and problem-solving.

- *Preschool teachers' skills in developing measurement skills for children aged 5–6* are a key determinant of the effectiveness of skill development. These skills can be identified across levels ranging from basic to advanced, including:

+ The ability to identify, classify, and explain measurement skills (e.g., comparison, estimation, use of measurement units, and simple measuring tools) in ways appropriate to children's cognitive characteristics.

+ Skills in conducting surveys, observations, and data collection regarding children's measurement skills during STEAM activities, and using this information to adjust educational plans.

+ The ability to analyze and evaluate children's levels of measurement skill development, identify strengths and limitations, and assess the effectiveness of educational activities.

+ Skills in guiding children to apply measurement skills by integrating mathematical knowledge with real-life experiences, thereby promoting logical thinking, collaboration, and problem-solving.

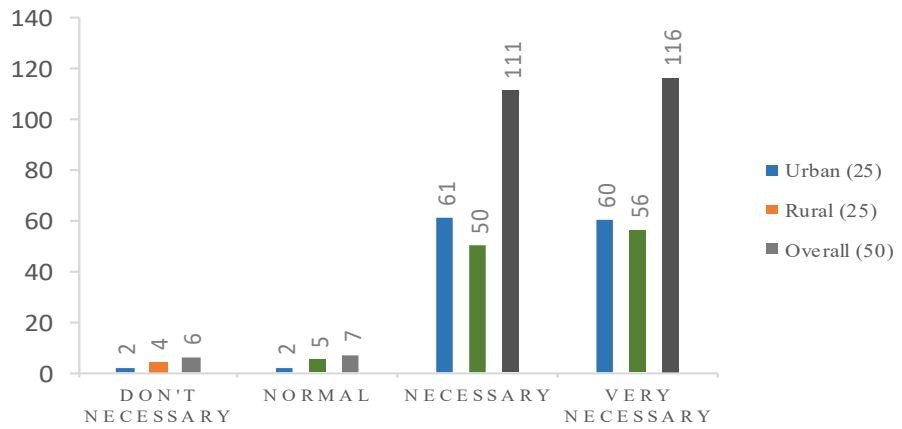
+ The ability to design STEAM-based activities that enhance children's experiences and support the development of measurement skills.

4.3. Current Status of Preschool Teachers' Knowledge and Skills in Developing Measurement Skills for Children Aged 5–6

4.3.1. Preschool Teachers' Perceptions of the Necessity of Developing Measurement Skills for Children Aged 5–6 Through STEAM-Based Activities

A survey of preschool teachers indicates that the development of measurement skills brings significant benefits, particularly for children aged 5–6.The results are illustrated in the following figure :

Figure 1. Preschool teachers' perceptions of the necessity of developing measurement skills for children aged 5–6 through STEAM-based activities



The findings show a very high level of agreement among preschool teachers in both urban and rural areas regarding the necessity of developing measurement skills for children aged 5–6 through STEAM activities, with approximately 94.55% of respondents rating this as "necessary" or "very necessary." This reflects a positive and relatively consistent perception across regions. In addition, the very small proportion of teachers (below 5.41%) who considered this "unnecessary" or "neutral" is also noteworthy, as it indicates minimal resistance to the implementation of STEAM activities for developing measurement skills. However, this minority group should still be taken into account, as they may face challenges related to instructional capacity, limited facilities, or an incomplete understanding of the nature of STEAM.

4.3.2. Current Status of Preschool Teachers' Knowledge and Skills in Developing Measurement Skills for Children Aged 5–6

Based on the survey of preschool teachers' knowledge and skills in develop measurement skills for children aged 5–6, the following results were obtained.

Table 1: Current status of preschool teachers' knowledge and skills in developing measurement skills for children aged 5–6

Content	Urban (n=25)		Rural (n=25)		Overall (n=50)	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
Preschool Teachers' Knowledge of Developing Measurement Skills in Children						
Mastery of fundamental measurement concepts, (including length, mass, volume, measurement units, and simple measuring tools)	3,24	0,66	3,16	0,80	3,20	0,73
Accurate understanding of the cognitive developmental characteristics of children aged 5–6, as well as the relationship between measurement knowledge and real-life experiences.	2,04	0,68	2,08	0,70	2,06	0,69
Ability to organize learning activities that enable children to explore, experience, and practice measurement skills in real-life situations.	3,36	0,76	2,20	0,78	2,78	0,77
Ability to analyze children's measurement skills through observation and assessment, thereby identifying individual strengths and limitations.	2,32	0,85	2,12	0,83	2,22	0,84
Ability to evaluate the effectiveness of measurement skill development and adjust instructional approaches to enhance learning outcomes.	2,12	0,73	1,98	0,45	2,05	0,59
Ability to design and implement measurement activities integrated within STEAM-based approaches.	2,16	0,80	2,00	0,50	2,08	0,65
Preschool Teachers' Skills in Developing Measurement Skills in Children						
Skills in identifying, classifying, and explaining measurement skills (e.g., comparison, estimation, and the use of measurement units and simple measuring tools) in ways that are appropriate to the cognitive characteristics of children aged 5–6.	2,60	0,87	2,56	0,82	2,58	0,84

Skills in conducting surveys, observations, and data collection regarding children's measurement skills during STEAM-based activities, and using this information to adjust educational plans.	3,16	0,80	2,52	0,87	2,84	0,83
Skills in analyzing and evaluating children's levels of measurement skill development, identifying strengths and limitations, and assessing the effectiveness of educational activities.	2,32	0,75	2,20	0,76	2,26	0,75
Skills in guiding children to apply measurement skills by integrating mathematical knowledge with real-life experiences, thereby promoting logical thinking, collaboration, and problem-solving.	2,24	0,78	2,08	0,76	2,16	0,77
Skills in designing STEAM-based activities to enhance children's learning experiences and support the development of measurement skills.	2,08	0,65	1,88	0,88	1,98	0,76

Overall, teachers' knowledge levels are not uniform and are mainly concentrated at the average to fairly high levels, reflecting the coexistence of both strengths and limitations. Regarding basic knowledge of measurement, teachers in both urban (M = 3.24) and rural areas (M = 3.16) achieved above-average scores, indicating a solid grasp of fundamental concepts; the relatively low standard deviation (SD ≈ 0.7–0.8) also reflects a certain level of consistency.

However, in pedagogical and applied aspects, several limitations were identified. Teachers' understanding of children's developmental characteristics shows a relatively low mean score (M = 2.06), suggesting difficulties in linking measurement knowledge with the cognitive characteristics of children aged 5–6. Similarly, the ability to organize hands-on measurement activities remains limited, with a notable gap between urban (M = 3.36) and rural areas (M = 2.20), reflecting disparities in implementation conditions and capacities. In addition, skills related to analysis, evaluation, and instructional adjustment are also at a low level (M ≈ 2.05–2.22), indicating that teachers are not yet effective in monitoring and supporting children's development. Notably, the ability to integrate measurement activities within a STEAM approach remains limited (M = 2.08), particularly in rural areas.

Regarding skills, the results indicate that teachers are generally at a moderate level (M = 1.88–3.16), reflecting a situation of "knowing but not yet performing effectively." While teachers demonstrate the ability to recognize and explain measurement knowledge (M ≈ 2.58), more advanced and practice-oriented skills remain weak. Specifically, skills in surveying, observing, and collecting information show disparities between urban and rural areas (M = 3.16 vs. 2.52), while the capacity to analyze and evaluate children's development remains limited (M ≈ 2.26). Notably, skills in guiding children to engage in experiential measurement activities (M = 2.16) and in designing integrated STEAM activities (M = 1.98) are particularly weak, indicating challenges in organizing integrated and creative learning activities. Overall, teachers' professional skills remain limited, especially in experiential activities, assessment, and interdisciplinary integration, with a significant gap between urban and rural areas.

4.3.3. Current Status of Integrating Measurement Skill Development into STEAM Activities

Based on questionnaire data and follow-up discussions with preschool teachers, the following results were obtained:

Table 2. Level of integrating measurement skill development into STEAM activities for children aged 5–6

	Content	Urban (n=25)		Rural (n=25)		Overall (n=50)	
		$\overline{x}$	SD	$\overline{x}$	SD	$\overline{x}$	SD
1	Measuring the length of objects using different units of measurement.	3,79	0,70	3,51	0,50	3,65	0,85
2	Measuring the length of objects using different units of measurement.	3,21	0,85	3,15	0,79	3,18	0,82
3	Measuring the volume of objects, comparing results, and expressing measurement outcomes	2,97	0,85	2,80	0,93	2,88	0,89

The results are reflected in the mean (M) and standard deviation (SD) values of the surveyed activities. For example, in measuring the length of objects using different units, teachers in urban areas reported a higher level of implementation than those in rural areas (M = 3.79, SD = 0.70 vs. M = 3.51, SD = 0.50). The overall mean score (M = 3.65, SD = 0.85) indicates that this content is implemented relatively frequently in both areas. For similar measurement tasks, the level of implementation between urban and rural teachers is relatively comparable (M = 3.21, SD = 0.85 vs. M = 3.15, SD = 0.79), with an overall mean of M = 3.18 (SD = 0.82), suggesting a generally consistent level of practice. In contrast, activities involving volume measurement, comparison, and verbalization of results are implemented less frequently. Teachers in urban areas reported M = 2.97 (SD = 0.85), while those in rural areas reported M = 2.80 (SD = 0.93), with an overall mean of M = 2.88 (SD = 0.89), indicating certain limitations in organizing these activities. Interviews revealed that "*teachers tend to avoid such activities because they often involve materials such as water, sand, or loose objects, which can be messy, time-consuming to prepare, and difficult to manage in classroom settings*."

4.3.4 Current Status of Preschool Teachers' Use of Methods, Strategies, and Procedures in Developing Measurement Skills Through STEAM Activities

To evaluate teachers' use of instructional methods, strategies, and procedures in developing measurement skills for children aged 5–6 through STEAM activities, the study employed questionnaires and direct discussions. The results are presented in Figure 2.

The overall mean score for the use of pedagogical strategies indicates that teachers in urban areas (M = 2.69) performed slightly better than those in rural areas (M = 2.35). Although the quantitative difference is not large, it reflects meaningful differences in instructional structure. In urban areas, the most frequently used strategies include experiential and exploratory learning, guided discussion, task assignment, and the use of open-ended questions (all with M = 3.15), suggesting that teachers actively guide children's cognitive processes. In contrast, in rural areas, only experiential and exploratory learning reached a relatively high level (M = 3.02), while strategies that stimulate higher-order thinking, such as discussion and open-ended

questioning, remained at a moderate level (M = 2.17), indicating that instructional innovation is still more focused on activity organization than on cognitive depth.

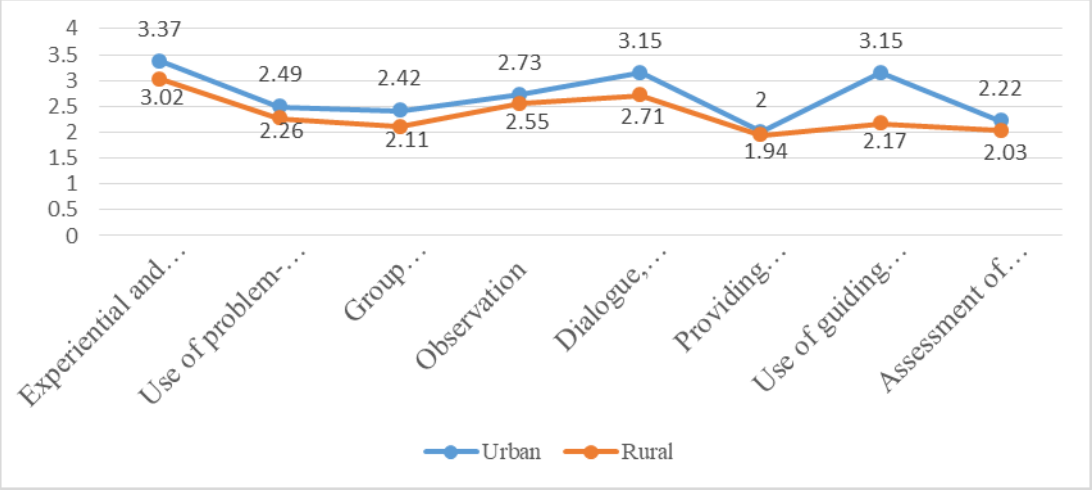


Figure 2. Level of preschool teachers' use of instructional methods and strategies in developing measurement skills through STEAM activities

A notable imbalance is observed in the use of strategies aimed at developing higher-order skills, such as idea presentation (urban: M = 2.00; rural: M = 1.94) and group collaboration (urban: M = 2.42; rural: M = 2.11), both of which remain at low levels. This suggests that children are not yet fully positioned as active agents in the learning process and lack sufficient opportunities to express ideas, engage in dialogue, and co-construct knowledge. Consequently, independent thinking cannot be deeply developed, as independence involves not only "doing independently" but also "thinking independently."

From the above analysis, it can be concluded that the key issue lies not in whether instructional strategies are applied, but in how and to what depth they are implemented. Therefore, professional development should focus on enhancing teachers' capacity to design open-ended learning sequences, promote dialogue and collaboration, and encourage idea expression, thereby shifting from "organizing activities" to effectively "facilitating cognitive processes" in children.

Table 3. Current status of preschool teachers' use of procedures in developing measurement skills for children aged 5–6 through STE

Content		Urban (n=25)		Rural (n=25)		Overall (n=50)		Level
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
1	Traditional teaching procedures	2,03	0,62	1,98	0,66	2,00	0,64	Necessary
2	The 5E instructional model (Engage, Explore, Explain, Apply, Evaluate)	3,45	0,40	3,05	0,75	3,25	0,57	Moderate
3	The Engineering Design Process (EDP) (Ask, Imagine, Plan, Create, Improve)	1,83	0,64	1,80	0,72	1,81	0,68	Moderate
4	The 6E instructional model	2,73	0,96	2,58	0,90	2,65	0,93	Moderate

	(Engage, Explore, Explain, Engineer, Extend, Evaluate)							
5	Problem-based teaching approach	1,95	0,33	1,75	0,46	1,87	0,39	Moderate

The analysis of the data indicates that the implementation levels of instructional procedures range from M = 1.81 to M = 3.25, reflecting considerable variation in teachers' adoption and application of current pedagogical processes. Specifically, traditional teaching procedures are used at a "necessary" level, with an overall mean of M = 2.00 (SD = 0.64), suggesting that these approaches continue to be maintained in practice. The level of use is nearly equivalent between urban (M = 2.03) and rural teachers (M = 1.98), indicating that this is a common and context-independent practice. Among the surveyed procedures, the 5E instructional model shows the highest level of use, with an overall mean of M = 3.25 (SD = 0.57), corresponding to a moderate level of implementation. However, a notable difference exists between the two groups: urban teachers report higher usage (M = 3.45; SD = 0.40) compared to rural teachers (M = 3.05; SD = 0.75). In contrast, more innovative approaches such as the Engineering Design Process (EDP) and problem-based learning exhibit the lowest levels of use, with overall means of M = 1.81 (SD = 0.68) and M = 1.87 (SD = 0.39), respectively. The 6E model shows a moderate level of use (M = 2.65; SD = 0.93), higher than EDP and problem-based learning but still below the level of frequent implementation. These findings suggest that while teachers have begun to engage with extended versions of the 5E model, their application remains exploratory and uneven.

4.3.5. Factors Influencing the Development of Measurement Skills for Children Aged 5–6 Through STEAM Activities

To examine preschool teachers' evaluations of the influence of subjective and objective factors on the development of measurement skills for children aged 5–6 through STEAM activities, a four-point Likert scale (ranging from "not necessary" to "very necessary") was employed, combining questionnaire data with follow-up discussions. The results reveal statistically significant differences across all criteria. As illustrated in Figure 3, teachers identified factors related to teacher competence and the educational environment as having the most substantial impact on the development of measurement skills through STEAM activities. In particular, teachers' understanding of measurement skills and STEAM activities was rated as having the strongest influence (M = 2.36 for rural teachers; M = 2.40 for urban teachers). Factors related to instructional methods and STEAM content were also rated at moderate levels (M = 2.10–2.18), indicating that appropriate methodological choices and content design aligned with children's developmental characteristics are essential for improving outcomes. In contrast, educational policies and curricular frameworks were rated as having the lowest influence, suggesting that policy directives are not yet strongly perceived in classroom practice. Overall, teachers in both urban and rural areas demonstrated relatively similar evaluations, with mean scores at moderate levels, underscoring the critical role of teacher capacity and the educational environment in enhancing the effectiveness of STEAM education in early childhood settings.

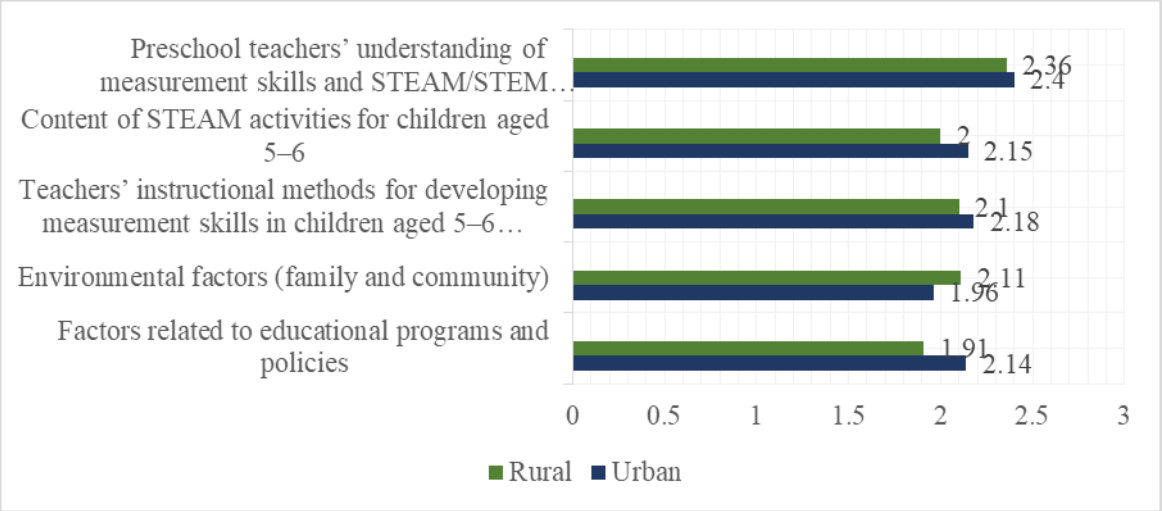


Figure 3. Factors influencing the development of measurement skills for children aged 5–6 through STEAM activities

5. CONCLUSION AND FUTURE DEVELOPMENT

Based on the research findings, it can be concluded that preschool teachers in selected urban and rural areas of Tuyen Quang Province have a clear awareness of the role and necessity of developing measurement skills for children aged 5–6 through STEAM-based activities. However, teachers' knowledge and skills remain uneven and are generally at a moderate level. While teachers demonstrate strengths in foundational knowledge, they encounter difficulties in practical application, particularly in organizing experiential activities, conducting analysis and evaluation, and designing integrated STEAM activities. The use of modern teaching methods and instructional procedures remains limited, often restricted to initial exposure rather than flexible and effective implementation, especially in rural areas. In addition, factors such as teacher competence, facilities, instructional materials, and the educational environment significantly influence implementation effectiveness.

These findings indicate that preschool teachers' knowledge and skills in developing measurement skills through STEAM activities remain limited. Although STEAM represents a promising and appropriate approach, its implementation has not yet been systematic. This study provides a scientific basis for proposing measures to enhance teachers' professional capacity, thereby contributing to improving the quality of early childhood education.

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CURRENT STATUS OF EXPLOITING LOCAL CULTURAL ELEMENTS IN STEAM PROJECTS TO DEVELOP VIETNAMESE COMMUNICATION SKILLS FOR 5-6 YEAR OLD ETHNIC MINORITY CHILDREN IN TUYEN QUANG PROVINCE

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Tuyen Quang.

ABSTRACT

Developing Vietnamese communication skills for ethnic minority children is a paramount task to prepare a solid foundation for them before entering first grade. This article analyzes the current status of exploiting local cultural elements in organizing STEAM projects at three kindergartens in ethnic minority areas of Tuyen Quang province. Through a survey of 35 teachers and 10 administrators using questionnaires combined with in-depth interviews, the results indicate that although teachers have a correct perception of the role of integrating local culture (Mean = 3.99), the actual implementation remains very modest (Mean = 3.03), mainly occurring at the "occasionally" level. Elements such as culinary culture and typical festivals are implemented more frequently than historical-cultural relics and folk performances or music. This discrepancy stems from a lack of specialized instructional materials, financial difficulties, and the absence of specific tools to assess communication skills. Based on these findings, the author proposes orientations for capacity building in integrating local culture into STEAM projects to create a practical linguistic environment, helping ethnic minority children confidently communicate in Vietnamese based on their cultural identity.

1. INTRODUCTION

Vietnamese communication skills (VCS) play a foundational role in determining the adaptability and academic outcomes of ethnic minority (EM) children when they enter Grade One. For EM children, proficiency in Vietnamese is not merely a tool for communication but also a medium for acquiring knowledge, developing thinking, and integrating into the general education environment.

In the context of early childhood education (ECE) reform, the STEAM education model has demonstrated its advantages by encouraging children to explore, experience, and solve real-world problems. Particularly, when STEAM is closely integrated with the local cultural context (LCC), it creates a learning environment that is familiar, meaningful, and highly practical for EM children. The integration of local cultural elements into STEAM projects not only facilitates children's access to scientific knowledge but also stimulates discussion, interaction, and a natural need to use Vietnamese, thereby enriching their Vietnamese vocabulary.

Tuyen Quang, a mountainous province, is characterized by diverse cultural identities of various ethnic groups such as Tay, Dao, Hmong, and Cao Lan, which constitute a valuable source of learning materials. However, the integration of these cultural values into STEAM projects to develop Vietnamese communication skills remains relatively new and faces several challenges. Therefore, this study focuses on objectively assessing the current situation of exploiting local cultural elements in organizing STEAM projects in preschools in Tuyen Quang province. The findings provide an important scientific basis for proposing pedagogical measures to enhance Vietnamese communication skills for EM children in the current context.

2. RELATED WORKS

The development of communication skills for EM and bilingual children is a central issue in multicultural education. International studies by (Espinosa, 2008) and (Liberman et al., 2017) have challenged misconceptions about bilingual language development, affirming that early exposure to multiple languages brings significant cognitive and social benefits. Conversations embedded in local cultural contexts help children develop coherent expression (Figueras-Daniel & Li, 2021), (Webb, 2022). In Vietnam, developing Vietnamese communication skills for EM children is considered a strategic task. However, children in mountainous areas often face major barriers in vocabulary and tend to be shy (Giang Thi Gam, 2019). (Nguyen Thi Phuong Thao, 2016) indicated that EM children lack a Vietnamese-speaking environment at home and in the community; Vietnamese is mainly used in classroom settings, leading to limited vocabulary for daily communication. (Kim Thi Hai Yen, 2022) analyzed factors affecting communication skills in mixed-age classrooms, emphasizing teachers' professional competence and the local cultural environment as key variables. A study conducted in Phu Tho (Kim Thi Hai Yen, 2024) revealed that although teachers recognize the importance of Vietnamese communication skills, practical effectiveness remains limited due to a lack of techniques for organizing meaningful interactive activities. STEAM education is considered a modern approach to developing holistic competencies and 21st-century skills (Ng et al., 2022) mphasized the critical role of teachers in designing experiential learning environments. In Vietnam, STEAM implementation has proven effective in enhancing children's discussion and problem-solving skills(Nguyen Thi Hong Loan and Dao Thi Hien, 2022). However, a survey conducted in preschools (Bui et al., 2023) showed that teachers still face significant challenges due to limited interdisciplinary knowledge and insufficient learning materials.

Integrating local culture into STEAM helps bridge cultural gaps and enhances educational relevance for EM children. (Insura & Pimvichai, 2024) and (Matindike & Ramdhany, 2025) argued that using heritage and indigenous knowledge as learning contexts enables children to connect theory with real-life applications. (Peng, 2020) suggested that STEAM projects should be based on

children's natural interests and local cultural contexts. (Nguyễn Thanh Tâm et al, 2022) emphasized that local cultural education should be implemented through heritage-based learning materials. (Bui et al., 2023) initially confirmed that STEAM projects grounded in local culture enhance children's storytelling abilities and multicultural awareness.

Despite these contributions, there remains a significant research gap in investigating the current status of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for EM children. Most existing studies only provide general evaluations of cultural education or STEAM education separately and have not clarified how teachers in EM areas utilize local culture to create authentic communication environments.

3. PROPOSED METHODOLOGY

The study surveyed 35 preschool teachers and 10 administrators from three preschools in EM areas of Tuyen Quang province: Tri Phu Preschool (MN.01), Son Phu Preschool (MN.02), and Khuon Ha Preschool (MN.03). Schools were selected using purposive sampling to ensure the presence of STEAM activities and a high proportion of EM children.

The study employed a combination of research methods, including questionnaire surveys, in-depth interviews, and mathematical statistical analysis. The questionnaire survey method was used to collect information from preschool teachers regarding the investigated content. Data were collected through an online survey using Google Forms.In addition, in-depth interviews were conducted with preschool teachers and educational administrators to clarify the underlying causes of the current situation and identify the need for professional support in integrating local cultural elements into STEAM projects. Data collection was carried out through questioning, listening, note-taking, audio recording, and subsequent data processing.The data were analyzed using SPSS software (version 20.0) in combination with mathematical formulas to process numerical data and generate tables and charts. A five-point Likert scale was applied to the survey items, with an interval of 0.8 between levels, categorized as follows: Strongly agree/Very frequently ($4.2 \leq M \leq 5.0$); Agree/Frequently ($3.4 \leq M < 4.2$); Neutral/Occasionally ($2.6 \leq M < 3.4$); Disagree/Rarely ($1.8 \leq M < 2.6$); Strongly disagree/Never ($1.0 \leq M < 1.8$).

4. RESEARCH RESULTS

4.1. Key Concepts

- ***Local culture***: is defined as the culture of a particular community, ethnic group, or region. It is characterized by cultural identity, distinctiveness, and unique values specific to each locality and ethnic group. Cultural identity represents the most fundamental and general aspects of a culture; all elements within this identity belong to that culture, although not all cultural elements are necessarily part of its core identity (Bui Thi Lam, 2022).

- According to Tran Viet Nhi (2024): a **STEAM project** refers to a sequence of complex learning tasks designed to produce a product that addresses real-world problems within the context of an educational theme of interest to children. It involves the integration of knowledge and skills from science, technology, engineering, mathematics, and the arts (Tran Viet Nhi, 2024).

4.2. The Role of Integrating Local Cultural Elements into STEAM Projects for Developing Vietnamese Communication Skills in Ethnic Minority Children

- *Enhancing children's confidence and fostering familiarity in communication:* The incorporation of local cultural elements into STEAM projects creates a familiar and meaningful learning environment. When learning contexts are no longer unfamiliar, children's anxiety about making mistakes when speaking Vietnamese gradually diminishes, giving way to increased confidence and comfort.

- *Providing authentic vocabulary related to local places and cultural heritage:* Local culture serves as a rich resource that enables ethnic minority children to expand their Vietnamese vocabulary in a natural and meaningful manner. Rather than learning isolated vocabulary through pictures, exposure to real objects and authentic contexts supports deeper retention and contextualized language use.

- *Encouraging questioning and explanation in Vietnamese*: STEAM projects grounded in local cultural contexts stimulate children's curiosity about their surroundings. Children are encouraged to ask questions such as "Why?" and "How?" in Vietnamese to explore underlying causes. The process of seeking answers and explaining them to peers enhances both linguistic competence and communication skills.

- *Promoting the use of scientific terminology through concrete experiences:* Through participation in STEAM activities associated with local culture, children are introduced to mathematical and scientific terminology in a direct and experiential manner.

- *Fostering cultural pride and motivation to communicate in Vietnamese:* When their cultural heritage is integrated into STEAM projects, children develop a sense of pride and a desire to affirm their cultural identity. Vietnamese thus becomes not merely a compulsory subject but a medium through which children can express and share their cultural values.

- *Developing coherent presentation skills:* The concluding phase of each STEAM project provides valuable opportunities for children to practice presenting in Vietnamese by introducing the products they have created. This process helps them organize ideas logically and communicate them effectively.

- *Enhancing group discussion and argumentation skills:* STEAM projects present authentic challenges that require collaborative problem-solving. This promotes discussion and argumentation, positioning Vietnamese as a language of interaction and enabling children to develop both communication and problem-solving competencies within a social context.

4.3. Local Cultural Elements Utilized in STEAM Education

- Historical and cultural sites: Tan Trao Special National Historical Site (Na Nua Shack, Tan Trao Communal House, Tan Trao Banyan Tree), Kim Binh Historical Site; Lung Cu Flag Tower, Dong Van Old Quarter, Vuong Palace, etc.

- Natural landscapes and scenic sites: Na Hang – Lam Binh Special National Landscape, Dong Van Karst Plateau, Ma Pi Leng Pass, Nho Que River, Hoang Su Phi terraced fields, etc.

- Traditional costumes: Indigo garments of the Tay and Nung; intricately embroidered costumes of Dao Tien and Cao Lan women; vibrant attire of the Flower Hmong and Lo Lo; distinctive costumes with silver ornaments of the Red Dao, etc.

- Folk performances and music: Then singing and the Tinh lute (Tay), Sinh ca singing (Cao Lan), Pao Dung singing (Dao), Hmong panpipe dance, etc.

- Traditional festivals: Thanh Tuyen Festival, Long Tong Festival, Mother Goddess Procession Festival, etc.

- Traditional crafts: Chiem Hoa black sticky rice cake production, brocade weaving, traditional paper-making of the Dao, Hmong blacksmithing, Lo Lo bronze casting, yin–yang tile making, etc.

- Culinary culture: Chiem Hoa black cake, Na Hang corn wine, ancient Shan Tuyet tea, five-colored sticky rice, ant egg cake, bamboo-tube rice, *thang co*, *men men* (ground maize), smoked pork, buckwheat cake, etc.

- Architecture: Stilt houses (Tay, Nung, Cao Lan); rammed-earth houses (Hmong, Lo Lo, Ha Nhi); stone fences (Hmong), etc.

4.4. Research Results

4.4.1. Teachers' Perceptions of the Necessity of Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

The study investigated teachers' perceptions of the necessity of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for ethnic minority children. The results are presented in Table 2.

Table 2. Teachers' Perceptions of the Necessity of Integrating Local Cultural Elements into STEAM Project

Result / Content	Mean	Standard Deviation	Level
1. Reducing shyness and creating a sense of familiarity for ethnic minority children in communication	4,14	0,42	Agree
2. Providing practical vocabulary related to local places and cultural heritage	4,25	0,44	Strongly agree
3. Encouraging children to ask questions and explain phenomena in Vietnamese	3,88	0,93	Agree
4. Enhancing the use of scientific terminology through real-life objects	3,91	0,3	Agree
5. Motivating children to feel proud and actively share their cultural identity in Vietnamese	3,74	0,85	Agree
6. Developing coherent presentation skills when sharing traditional cultural products in Vietnamese	4,02	0,61	Agree
7. Promoting group discussion skills in Vietnamese when solving problems	4,0	0,24	Agree
Mean	**3,99**	**0,54**	**Agree**

The results presented in Table 2 indicate that the overall mean score (M = 3.99), corresponding to the level of "Agree," suggests that most teachers are aware of the importance of integrating local cultural elements into STEAM projects. This finding aligns with current educational innovation trends and reflects the psychological and developmental characteristics of ethnic minority children, who often face language barriers and lack confidence in communication.

The item "Providing practical vocabulary related to local places and cultural heritage" achieved the highest mean score (M = 4.25), at the level of "Strongly agree." This confirms that, in multicultural educational contexts, authentic materials and familiar local cultural elements serve as effective bridges for children to transition from their mother tongue to Vietnamese. When children are exposed to familiar local cultural elements in STEAM projects, vocabulary acquisition becomes more natural, enabling deeper retention compared to learning words in decontextualized settings. In addition, the item "Reducing shyness and creating a sense of familiarity for ethnic minority children in communication" (M = 4.14) also received strong agreement. This reflects teachers' appropriate awareness and serves as an important foundation for enhancing children's Vietnamese communication skills. Similarly, the roles of "Developing coherent presentation skills when sharing traditional cultural products in Vietnamese" (M = 4.02) and "Promoting group discussion skills in Vietnamese when solving problems" (M = 4.00) were highly endorsed.However, the item "Encouraging children to ask questions and explain phenomena in Vietnamese" showed the highest standard deviation (SD = 0.93), indicating inconsistency in teachers' perspectives. This suggests that some teachers remain uncertain or lack confidence in children's ability to engage in critical thinking in Vietnamese. In STEAM education, questioning is a fundamental feature of inquiry-based learning. Such inconsistency may lead teachers to adopt directive approaches or provide explanations themselves, rather than creating opportunities for children to express their own scientific thinking.

Notably, the item "Motivating children to feel proud and actively share their cultural identity in Vietnamese" recorded the lowest mean score (M = 3.74). This raises a concern for the researcher. If Vietnamese language teaching focuses solely on terminology and vocabulary without fostering emotional engagement and cultural pride, children's communication may lack intrinsic motivation. Sustainable language development should be grounded in cultural confidence; children need to perceive Vietnamese as a meaningful tool for sharing the values and beauty of their own cultural identity with others.

In summary, most teachers recognize the necessity of integrating local cultural elements into STEAM projects to develop Vietnamese communication skills for ethnic minority children. However, there is a need for specialized professional development programs to support teachers—not only in using local culture as a tool for vocabulary instruction but also in fostering positive emotions and cultural identity among children. Integrating local cultural elements into STEAM is not only a strategy for developing communication skills but also an effective approach to narrowing educational gaps and supporting ethnic minority children's integration while preserving their cultural roots.

4.4.2. Frequency of Using Local Cultural Elements in STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

To examine how preschool teachers actually utilize local cultural elements and the frequency of their use in STEAM projects, a questionnaire based on a five-point Likert scale (ranging from 1 = Never to 5 = Very frequently) was developed. In addition, in-depth interviews were conducted to complement the survey data. The results are presented in Table 3.

Table 3. Frequency of Using Local Cultural Elements in STEAM Projects to Develop Vietnamese Communication Skills for Ethnic Minority Children

Result / Local Cultural Elements	Mean	Standard Deviation	Levels
1.Historical–cultural sites	2,8	0,56	Occasionally
2. Natural landscapes	2,2	0,86	Rarely
3. Traditional costumes	3,17	0,82	Occasionally
4. Folk performing arts and music	2,57	0,94	Rarely
5. Traditional festivals	3,57	0,69	Occasionally
6. Traditional occupations	3,28	0,85	Occasionally
7. Local cuisine	3,48	0,91	Occasionally
8. Housing architecture	3,22	0,91	Occasionally
Mean	**3,03**	**0,81**	Occasionally

The results presented in Table 3 indicate that the overall mean score (M = 3.03) for the extent to which local cultural elements are exploited corresponds to the level of "Occasionally." This finding reflects a practical reality: although teachers are aware of the role of local culture in developing Vietnamese communicative competence, its implementation remains limited, occurring only "rarely" or "occasionally". Elements that are highly visual and closely connected to daily life, such as traditional festivals (M = 3.57) and local cuisine (M = 3.48), are the most frequently utilized. Through projects such as the *Long Tong Festival*, *five-colored sticky rice*, or *"bánh dày" project*, children not only develop STEAM-related skills but also immerse themselves in a rich Vietnamese-language context. A teacher (M.T.L.) from site MN.01 shared: *"When organizing the 'bánh dày' project, children were very excited because it is a familiar food. They already possess substantial vocabulary in their mother tongue, so when introduced to the corresponding Vietnamese terms, they acquire them quickly. However, we only implement such projects occasionally due to the time required for preparation and procedures".*

In contrast, elements such as natural landscapes (M = 2.20) and folk performing arts and music (M = 2.57) are only implemented at a "Rarely" level. In reality, folk performing arts in Tuyên Quang are highly diverse—such as *Then singing*, *Tinh lute*, *Sinh ca*, *Pao dung*, and *Hmong flute dancing*—which not only nurture children's emotional development but also serve as effective tools for Vietnamese pronunciation due to their rhythm and melody. The limited integration of these elements makes STEAM projects more technical and less artistic (Art component). When asked about this issue, a teacher (Tr.T.P., MN.03) stated: *"We would like to integrate folk songs and traditional musical instruments into projects, but designing and embedding them is very challenging. Most teachers only know how to teach singing and dancing in a simple way; we have not been trained to develop these into inquiry-based STEAM projects on sound or musical instruments".*

The findings also reveal that historical–cultural sites are only used "occasionally" (M = 2.80), suggesting missed opportunities to develop children's presentation and argumentation skills. Local historical sites could provide meaningful contexts for role-play activities (e.g., acting as tour

guides), thereby enhancing children's confidence and coherent Vietnamese expression. This limitation narrows the scope of language development, resulting in children's communicative competence remaining at the level of short responses rather than advancing toward explanatory and critical thinking.

In summary, although teachers have initially utilized local cultural elements, they have not yet fully exploited their potential to develop Vietnamese communicative competence within STEAM projects. The discrepancy between teachers' awareness (M = 3.99) and actual implementation (M = 3.03) indicates a need for more specific and practical guidance to effectively integrate local cultural elements into STEAM-based activities for ethnic minority children.

4.4.3. Advantages and Challenges in Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communicative Competence for Ethnic Minority Children

To examine the advantages and challenges in integrating local cultural elements into STEAM projects for developing Vietnamese communicative competence among ethnic minority children, a survey was conducted with preschool teachers. The results are presented in Table 4.

Table 4. Advantages and Challenges in Integrating Local Cultural Elements into STEAM Projects to Develop Vietnamese Communicative Competence for Ethnic Minority Children

Result / Content	MEAN	Standard Deviation	Level
Advantages			
1.The richness and diversity of local cultural elements as abundant resources for STEAM projects	4,11	0,79	Agree
2.Support and facilitation from school administrators	3,77	0,77	Agree
3. Teachers' professional competence and creativity	3,8	0,96	Agree
4. Active participation and support from parents and the community.	3,97	0,70	Agree
5. Children's curiosity and interest in activities related to familiar local cultural elements	4,02	0,56	Agree
6. The ability to utilize locally available, low-cost materials for teaching and learning resources	3,74	0,88	Agree
Mean	**3,90**	**0,77**	**Agree**
Challenges			
1.Time constraints due to multiple workload demands	4,45	0,56	Strongly agree
2. Lack of specialized instructional materials	4,37	0,68	Strongly agree
3. Limitations in funding, facilities, and learning materials for implementing projects.	3,77	0,73	Agree
4.Lack of assessment tools to evaluate ethnic minority children's Vietnamese communicative competence through STEAM projects	3,97	0,78	Agree
Mean	**4,14**	**0,68**	**Agree**
Overall Mean	**4,02**	**0,73**	**Agree**

The results indicate six key advantages in integrating local cultural elements into STEAM projects. The most prominent is the *richness and diversity of local culture as an abundant resource for STEAM projects* (M = 4.11). This suggests that teachers recognize local culture in Tuyên Quang as a valuable resource for educational integration. Additionally, *children's curiosity and interest in activities related to familiar local cultural elements* (M = 4.02) is another significant advantage. When learning content is closely connected to their own cultural identity, ethnic minority children tend to overcome psychological barriers, become more proactive, and are more willing to communicate.Furthermore, support from school administrators (M = 3.77) and cooperation from families and the community (M = 3.97) are also important facilitating factors. While the average score for advantages is relatively high (M = 3.90), the challenges reported are even more substantial (M = 4.14). Notably, *time constraints due to teachers' heavy workload* received the highest mean score (M = 4.45). A teacher (M.T.D., MN.02) shared: *"A preschool teacher's day is fully occupied with caring for children, including meals and rest time. Designing a STEAM project integrated with local culture requires additional time for research and preparation, often late at night. Without institutional requirements, such projects are rarely implemented."*In addition, the *lack of specialized instructional materials* poses a significant challenge. A school administrator (H.T.D., MN.01) stated: *"Teachers are already overloaded with childcare and educational responsibilities. The absence of ready-to-use instructional materials forces them to spend considerable time on self-study, leading to reluctance in implementing complex projects, despite recognizing their effectiveness in developing children's Vietnamese communicative competence."*

Another major concern is the *lack of assessment tools to evaluate children's Vietnamese communicative competence through STEAM projects*. Many teachers reported that they are unable to determine the extent of children's progress after completing a project or to measure how communicative competence has developed through these activities.Although teachers receive encouragement from school leadership and support from parents and the community, they still face *limitations in funding, facilities, and learning materials* (M = 3.77). While school administrators provide moral support and encourage innovation, and parents contribute local materials and effort, the lack of financial resources for essential supplies—such as colored paper, glue sticks, crayons, or basic technological and measurement tools—remains a major barrier. In many cases, teachers must cover these costs themselves, which significantly discourages the implementation of STEAM projects.These findings suggest that, to effectively develop Vietnamese communicative competence among ethnic minority children, it is necessary to implement timely solutions, including increased financial support, the provision of detailed instructional materials, and the development of context-specific assessment tools. Without such support, teachers may continue to implement STEAM projects in an unsystematic and less effective manner.

5. CONCLUSION AND FUTURE DEVELOPMENT

This study confirms that integrating local cultural elements into STEAM projects is an innovative approach that creates an authentic language environment for sustainably developing Vietnamese communicative competence among ethnic minority children.The findings reveal a significant gap between teachers' awareness of the importance of local culture (M = 3.99) and their actual implementation (M = 3.03). Teachers tend to focus primarily on easily accessible elements

such as cuisine and festivals, while underutilizing deeper cultural resources such as historical–cultural sites and folk performing arts. This gap can be attributed to systemic challenges, including workload pressure, lack of specialized instructional materials, and the absence of appropriate assessment tools.These results indicate that the potential of local cultural resources in Tuyen Quang has not yet been fully exploited. To optimize effectiveness, it is essential to provide financial investment and organize specialized training programs for preschool teachers, thereby enhancing their capacity to integrate local cultural elements into STEAM projects for the effective development of Vietnamese communicative competence among ethnic minority children.

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APPLYING ARTIFICIAL INTELLIGENCE IN DESIGNING START-UP ACTIVITIES TO ENHANCE THE EFFECTIVENESS OF TEACHING READING COMPREHENSION IN 10TH-GRADE LITERATURE

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ABSTRACT

In the era of digital transformation, the application of Artificial Intelligence (AI) in start-up activities has emerged as a groundbreaking solution to enhance 10th-grade Literature instruction. This study employs a mixed-methods approach to evaluate the current status and effectiveness of AI integration in activating students' prior knowledge and fostering intrinsic motivation. The findings confirm that AI functions as a pivotal pedagogical "hook," significantly improving students' proactive engagement and text-decoding competencies. However, practical implementation remains hindered by barriers related to teachers' digital competence and concerns regarding the preservation of their instructional guidance role. Consequently, the paper proposes strategic solutions involving infrastructure development, professional training aligned with the DigCompEdu framework, and the creation of smart learning materials to promote sustainable digital transformation in literature education.

1. INTRODUCTION

In the context of implementing the 2018 General Education Curriculum, enhancing both the quality of instruction and students' learning engagement at the upper secondary level has become a central priority. In Grade 10 Literature, the "warm-up" phase functions as a pedagogical "hook" that activates prior knowledge and bridges learners' Zone of Proximal Development (ZPD). The rapid advancement of Artificial Intelligence (AI) offers new opportunities to personalize learning pathways and optimize classroom management. In language education, AI facilitates the design of diverse interactive scenarios, enabling a shift from a "one-size-fits-all" model toward deep personalization, while effectively scaffolding initial cognitive engagement.

However, the teaching of Grade 10 literature in practice continues to face challenges related to teachers' digital pedagogical competence and concerns over the potential erosion of the teacher's guiding role. Existing studies tend to focus primarily on the general potential of AI, with a noticeable lack of in-depth investigations into its actual effectiveness during the warm-up stage.

In response to this gap, the study entitled "Applying artificial intelligence in designing warm-up activities to enhance the effectiveness of reading comprehension instruction in grade 10

literature" was conducted. The research aims to assess the current situation and examine the correlation between learners' perceptions and the effectiveness of intelligent tools. Based on these findings, it proposes a system of pedagogically informed technical solutions, thereby contributing to sustainable digital transformation in education.

2. PROPOSED METHODOLOGY

The study adopts a mixed-methods approach, integrating both qualitative and quantitative techniques, to clarify the current situation and evaluate the effectiveness of applying Artificial Intelligence (AI) in designing warm-up activities to enhance reading comprehension instruction in Grade 10 literature. The research employs the following methods: (1) Document analysis, which synthesizes and examines relevant studies and literature on AI applications in education to establish the theoretical foundation of the study; (2) Observation and interviews, used to collect data on the current state of AI implementation through classroom observations and interviews with teachers and students regarding the extent of use, as well as the advantages and challenges encountered during implementation; (3) Statistical methods, applied to process and analyze data collected from questionnaires, tests, and experimental results, in which the effectiveness of AI integration is evaluated by comparing students' learning outcomes before and after the implementation of AI-supported instructional activities.

3. RESEARCH RESULTS

3.1. Theoretical background

3.1.1. Warm-up activities in literature instruction

Within the framework of contemporary instructional theory, warm-up activities are established as an integral structural component and a strategic starting point for all pedagogical processes. From an educational psychology perspective, this phase functions to focus learners' attention, facilitating the transition from a state of informal activity to one of sustained academic engagement. Drawing on constructivist theory, the warm-up catalyzes activating prior knowledge systems, enabling teachers to connect students' Zone of Proximal Development (ZPD) with new learning objectives. International scholars such as Wong and Wong (1991) conceptualize this stage as a pedagogical "hook," designed to capture learners' attention and address motivational challenges by establishing the practical relevance of knowledge.

In the Vietnamese context, studies by Nguyen Thi Hong Nam (2018) and Tran Thanh Binh (2020) have affirmed that standardizing the design of warm-up activities in alignment with competency-based approaches and active learning techniques is a decisive factor in ensuring the quality of lesson introduction. Notably, within the implementation of the 2018 General Education Curriculum, Đang Thị Hue (2022) emphasizes that warm-up activities must closely align with the specific characteristics of reading comprehension to ensure coherence and logical progression in the cognitive process. The shift from "purely entertaining" activities to those that mobilize learners' competencies enables students to autonomously construct initial knowledge, thereby establishing a solid foundation for subsequent stages of the lesson. Furthermore, the integration of information technology, as highlighted in the work of Phan Thi Thu Hien (2021), along with the flipped classroom model proposed by Le Phan Quoc and Nguyen Van Hoang (2019), has redefined the role of warm-up activities as a digital creative space that fosters intrinsic motivation while preserving the humanistic dimension of teaching. Synthesizing these perspectives, an effective warm-up

activity should not merely create a positive classroom atmosphere but must also clearly articulate strategic objectives and optimize the overall efficiency of the pedagogical process.

3.1.2. Artificial intelligence

Artificial Intelligence (AI) is established as a core subfield of computer science, focusing on modeling cognitive processes and intelligent information processing to develop systems capable of simulating human learning behaviors (McCarthy et al., 2006). The fundamental objective of AI is to automate intelligent actions through complex algorithmic systems, enabling machines to acquire capabilities such as perception, logical reasoning, problem-solving, and adaptive learning. This extends beyond mere imitation of human behavior to the optimization of communication and autonomous learning in dynamic environments.

Emerging in the 1970s, Artificial Intelligence in Education (AIEd) has evolved into a strategic interdisciplinary field, prioritizing the integration of intelligent algorithms into teaching and learning ecosystems. According to the strategic report by UNESCO (Sector, 2021), AIEd goes beyond purely technical tools, becoming a means of human empowerment that supports personalized learning pathways and optimizes the management of educational infrastructure.

From a similar perspective, international scholarship, including Wong and Wong (1991), conceptualizes AIEd as the development of entities capable of understanding academic processes and flexibly participating in instruction as intelligent tutors. In *Intelligence Unleashed*, Luckin et al. (2016) metaphorically describe AIEd as an "invisible companion" that renders learning pathways more transparent and enables measurable evaluation of learning effectiveness.

Synthesizing these perspectives, AIEd can be understood as a system of pedagogically informed technological solutions that serves as a central driver in transforming education from a model of "mass standardization" to one of "deep personalization," thereby ensuring adaptability and optimal efficiency in the digital knowledge era.

3.2. Statistical survey results

3.2.1. Teachers' and students' perceptions of the necessity of applying artificial intelligence in designing warm-up activities to enhance the effectiveness of grade 10 literature reading comprehension instruction

To investigate teachers' perceptions of the application of Artificial Intelligence (AI) in designing warm-up activities aimed at improving the effectiveness of Grade 10 Literature reading comprehension instruction, the research team surveyed in January 2026 involving 20 teachers who were directly teaching Grade 10 Literature at several upper secondary schools in Tuyen Quang province. The survey was carried out using three methods: classroom observations, in-depth interviews with teachers, and questionnaire-based surveys combining multiple-choice and open-ended questions. The findings are presented as follows:

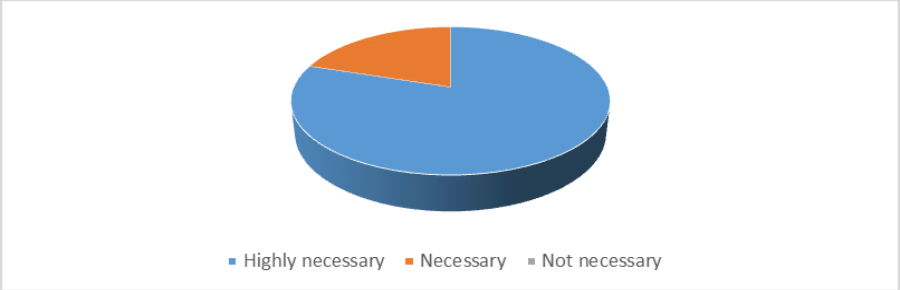

Figure 1: Teachers' perceptions of the application of artificial intelligence in designing warm-up activities to enhance the effectiveness of grade 10 literature reading comprehension instruction

The survey results presented in Figure 1 indicate that teachers' perceptions of the application of Artificial Intelligence (AI) in designing warm-up activities to enhance the effectiveness of Grade 10 Literature reading comprehension instruction are highly positive. Specifically, the majority of surveyed teachers (80.0%) consider the application of AI to be highly necessary, while the remaining 20% regard it as necessary. Notably, no respondents indicated that the use of AI is unnecessary. These findings reflect a strong consensus among teachers regarding the role and potential of AI in innovating Literature teaching methodologies, particularly in the warm-up phase—an essential stage for fostering student engagement and guiding reading comprehension activities. Furthermore, the complete absence of negative responses suggests that AI is increasingly perceived as an indispensable supportive tool in the context of ongoing digital transformation in education.

These findings are consistent with broader trends reported in recent studies on teachers' perceptions of Artificial Intelligence in education. Research by Holmes et al. (2019) indicates that the majority of teachers perceive AI as a tool with strong potential to support the innovation of teaching methodologies, particularly in fostering student engagement, personalizing learning, and guiding learners' initial cognitive activities. Similarly, Luckin et al. (2016) affirm that teachers tend to view AI as a necessary supportive tool rather than a threat to traditional pedagogical roles.

To examine students' perceptions of the application of Artificial Intelligence in warm-up activities aimed at enhancing the effectiveness of Grade 10 Literature reading comprehension instruction in several upper secondary schools in Tuyên Quang province, a survey was conducted in January 2026 with 200 Grade 10 students. Data were collected through classroom observations, interviews, and questionnaire surveys, yielding the following

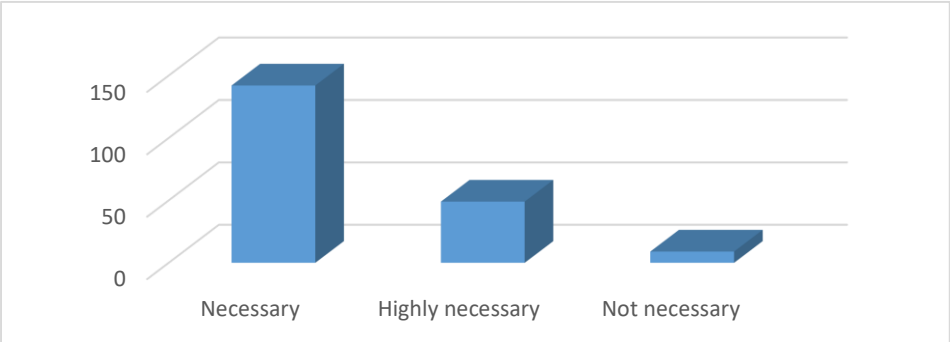

Figure 2: Students' perceptions of the application of artificial intelligence in warm-up activities to enhance the effectiveness of grade 10 literature reading comprehension instruction

The survey results presented in Figure 2 reflect students' perceptions of the application of Artificial Intelligence (AI) in warm-up activities aimed at enhancing the effectiveness of Grade 10 Literature reading comprehension instruction. The findings indicate that the majority of students consider the use of AI to be necessary, followed by those who regard it as highly necessary, while only a very small proportion perceive it as unnecessary. This trend suggests that students view AI as a useful supportive tool in the warm-up phase, contributing to increased learning engagement and guiding their approach to reading comprehension texts. Moreover, the minimal proportion of negative responses reflects a relatively positive reception among learners toward pedagogical innovations incorporating technology, highlighting the potential for the widespread implementation of AI-based warm-up activities in upper secondary Literature instruction. These findings also demonstrate systematic alignment with contemporary educational theoretical frameworks. Specifically, students' positive responses reaffirm Phan Thi Thu Hien's (2021) assertion regarding the role of technology in stimulating curiosity and fostering intrinsic motivation prior to engaging with texts. The perception of AI as "necessary" is also consistent with the findings of Holmes et al. (2019) on the strategic potential of AI in guiding initial cognitive processes, enabling learners to engage more actively in text interpretation. Notably, the minimal proportion of negative responses provides empirical support for Luckin et al.'s (2016) characterization of AI as an "invisible companion" that facilitates personalized and transparent learning pathways rather than imposing technical pressure. Taken together, these correspondences not only confirm the effectiveness of pedagogical innovation but also underscore the strong potential for scaling AI-based instructional models in Literature education.

3.3.2. Challenges in applying artificial intelligence in warm-up activities to enhance the effectiveness of teaching reading comprehension in grade 10 literature

Although artificial intelligence (AI) offers transformative potential, its application in specific contexts inevitably encounters certain barriers. Based on a survey investigating the challenges of applying AI in warm-up activities to enhance the effectiveness of teaching reading comprehension in Grade 10 Literature at several upper secondary schools in Tuyen Quang Province in January 2026, the following results were obtained:

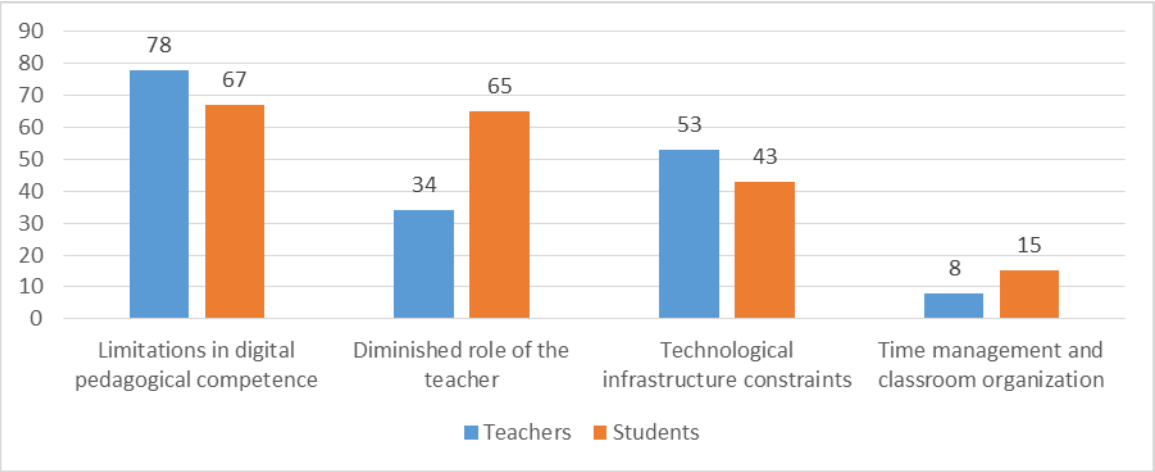

Figure 3: Challenges in applying artificial intelligence in warm-up activities to enhance the effectiveness of grade 10 literature reading comprehension instruction (%)

The survey results presented in Figure 3 indicate that the major challenges in applying artificial intelligence to warm-up activities aimed at enhancing the effectiveness of teaching reading comprehension in Grade 10 Literature are perceived from two groups: teachers and students. For teachers, limitations in digital pedagogical competence are identified as the most significant challenge (78%), followed by constraints in technological infrastructure (53%) and the potential decline in the teacher's guiding role (34%). Meanwhile, students more clearly recognize the risk of the diminished role of teachers (65%) and limitations in digital pedagogical competence (67%), suggesting learners' sensitivity to shifts in pedagogical roles when technology is integrated into the classroom. In both groups, difficulties related to time management and classroom organization account for the lowest proportions (teachers: 8%; students: 2.8%), indicating that organizational issues are not considered major barriers to the implementation of AI-supported warm-up activities. Overall, these findings suggest that although perceptions of AI's potential are generally positive, both teachers and students express considerable concerns regarding implementation capacity and pedagogical roles. This underscores the need to enhance digital pedagogical competence and to provide appropriate guidance on the effective integration of AI in literature teaching.

The results indicate that limitations in teachers' digital pedagogical competence constitute the most prominent challenge (78%). This finding is consistent with the conclusions of Redecker and Punie (2017) within the DigCompEdu digital competence framework, which identifies teachers' digital pedagogical competence as a key determinant of the effective integration of technology and AI in the classroom. Similarly, D'Mello (2021) highlights that insufficient capacity to design technology-enhanced learning activities represents one of the most significant barriers to the implementation of AI in general education.

Students' clear recognition of the potential risk of diminishing the teacher's guiding role (65%) is also aligned with the findings of Luckin et al. (2016) and Holmes et al. (2019), which emphasize that learners often express concern that AI may obscure the role of teachers if it is implemented without a sound pedagogical orientation. These scholars affirm that AI can only be effective when teachers maintain a central role in guiding, orchestrating, and interpreting knowledge.

3.2.3. Proposed solutions to address challenges in applying artificial intelligence to warm-up activities for enhancing the effectiveness of teaching reading comprehension in grade 10 literature

a. Measures to address limitations in digital pedagogical competence

In the process of educational digital transformation, teachers constitute the key factor determining the success or failure of all innovation strategies. However, current practice indicates that the primary barrier does not lie in technical infrastructure but rather in resistance to change and the gap between technological skills and modern pedagogical approaches. To address this limitation comprehensively, it is first necessary to initiate a transformation in mindset, enabling teachers to perceive technology as an effective "support tool" rather than an administrative burden; this, in turn, facilitates proactive engagement with advanced models such as the *flipped classroom* and *blended learning*.

Simultaneously, teacher training should shift toward hands-on, practice-oriented approaches through workshops focused on designing interactive lessons on digital platforms and leveraging artificial intelligence to optimize lesson planning. The maintenance and development of professional learning communities on social media also represent an essential solution for sharing teaching resources and addressing technical challenges in a timely manner.

Furthermore, each teacher should align their professional development trajectory with international digital competence frameworks such as DigCompEdu to self-assess, enhance, and refine their competencies, thereby ensuring adaptability in the digital era.

Despite their technological advantages, students often lack the skills to effectively utilize digital tools for academic purposes. To cultivate competent "digital citizens," four groups of solutions should be implemented: (1) developing information management skills, including the ability to identify misinformation and conduct academic research; (2) fostering self-directed learning and discipline through learning management systems such as Google Classroom and Microsoft Teams; (3) promoting digital safety and ethics, with emphasis on data security and online behavior; and (4) encouraging digital content creation through multimedia products as alternatives to traditional assignments. This integrated approach enables students to consolidate knowledge while establishing a solid foundation for the knowledge economy.

Notably, to enhance the effectiveness of teaching reading comprehension in Literature through AI-supported warm-up activities, it is essential to clearly affirm the teacher's central role in orchestrating technology use. AI should function merely as an "assistant" that provides data, prompts situations, or reconstructs cultural-historical contexts, while teachers retain control over pedagogical scenarios to guide students' emotions and thinking. Establishing standardized operational procedures for digital warm-up activities will help regulate lesson timing and prevent disruptions in classroom organization. Direct teacher–student interaction in interpreting AI-generated outputs remains a critical factor in preserving the humanistic and in-depth characteristics of Literature education in a digital environment.

b. Measures to address the diminished role of teachers

In the context of the rapid expansion of artificial intelligence, addressing the diminishing role of teachers requires a well-structured classroom management strategy that positions teachers as central coordinators and students as active beneficiaries. First, a systemic awareness must be established across all pedagogical activities: AI functions solely as a supporting tool, whereas teachers play the primary role in guiding thinking, leading instructional processes, and evaluating learning outcomes.

Particularly in the warm-up phase, AI-integrated pedagogical scenarios must be designed based on the teacher's planning; AI should only provide raw data, suggest situations, or generate learning hypotheses under the teacher's control. To ensure both humanistic values and practical effectiveness—especially in literature education—it is essential to maximize direct interaction between teachers and students. Teachers' immediate feedback, questioning, and emotional engagement not only reinforce their guiding role but also prevent overreliance on technology, thereby preserving the core educational values of inspiration and character development.

c. Measures to address technological infrastructure constraints

To effectively overcome infrastructural barriers in integrating artificial intelligence into literature teaching, a flexible system of solutions must be implemented to ensure compatibility between technological capacity and real-world conditions.

At the institutional level, schools should establish phased investment and upgrading plans, prioritizing the alignment of infrastructure modernization with pedagogical innovation. Mobilizing and optimizing social resources will help build a sustainable technological foundation capable of supporting digital platforms in general education.

For teachers and students, emphasis should be placed on selecting and utilizing lightweight AI applications that operate reliably on commonly available devices, ensuring accessibility even under limited technical conditions. Teachers should also proactively design flexible instructional strategies based on blended models, balancing technology-integrated activities with traditional methods. This approach not only ensures continuity in the teaching process but also fosters students' adaptive thinking, reduces overdependence on digital devices, and maintains the pedagogical depth and distinctive nature of Literature as a subject.

d. Measures to address limitations in time management and classroom organization

To optimize time management and maintain classroom discipline when integrating artificial intelligence into the warm-up phase, a coordinated system of pedagogical and technical solutions should be implemented, promoting the proactive engagement of both teachers and students.

From the perspective of teachers' organizational competence, emphasis should be placed on standardizing lesson design processes. Warm-up activities should be streamlined, with clearly defined objectives and strictly controlled time frames, ensuring their introductory function without encroaching upon the core reading comprehension process. Before instruction, teachers should develop a "technology operation scenario," including tool testing and contingency plans to effectively manage unexpected technical issues and eliminate downtime during lessons.

From the perspective of student interaction and responsibility, effective classroom management is maintained through clear task allocation. Students should be explicitly guided regarding their roles, positions, and procedures for interacting with AI tools from the outset of the activity. Establishing clear behavioral expectations and learning outcomes not only ensures classroom order but also enhances students' self-regulation and meaningful participation.

This coordinated approach enables the integration of AI to proceed smoothly, transforming time-related pressures into drivers of innovation, thereby improving pedagogical efficiency without disrupting the overall lesson structure.

4. CONCLUSION AND FUTURE DEVELOPMENT

The study affirms that the integration of artificial intelligence (AI) into the design of warm-up activities in Grade 10 Literature has generated positive transformations. Serving as a pedagogical "hook," AI facilitates the activation of prior knowledge and stimulates intrinsic motivation, thereby enabling students to actively engage with and master complex texts. Concurrently, this technology allows teachers to optimize instructional design processes and personalize learning pathways, thus improving overall system efficiency. However, practical implementation continues to face notable challenges, particularly limitations in digital pedagogical competence and concerns regarding the potential diminution of the teacher's guiding role. AI can only fully realize its value when deployed

in alignment with clear pedagogical intentions and within a coherent digital competence framework. To maximize the potential of AI in education (AIEd), the study proposes three strategic solutions: (1) investing in compatible technological infrastructure; (2) enhancing digital pedagogical competence in accordance with the DigCompEdu framework to maintain the teacher's coordinating role; and (3) developing intelligent learning resource repositories tailored to the specific characteristics of Grade 10 Literature genres. These solutions aim to foster a humanistic, adaptive, and creative learning environment in the digital era. Nevertheless, as this study was conducted within a limited scope—specifically in several upper secondary schools in Tuyên Quang Province—the generalizability of the findings may be constrained. Future research should expand the sample to include diverse geographical contexts.

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INNOVATING CURRICULUM, CONTENT, AND METHODS IN BUSINESS ADMINISTRATION TRAINING TOWARDS DEVELOPING STUDENTS' DECISION-MAKING COMPETENCY

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ABSTRACT

The article focuses on identifying the phenomenon of "mathematization" in Business Administration (BA) education in Vietnam—considered a barrier to the development of students' decision-making competency (DMC). Using a combination of document analysis and pedagogical observation, the author highlights a misalignment between the emphasis on quantitative formulas and the ability to provide managerial reasoning. The study proposes a DMC competency framework that emphasizes higher-order levels (contextual analysis and strategic execution), while also suggesting a pathway for reform based on the competency-based education (CBE) model, which has been adopted in advanced education systems.

1. INTRODUCTION

In the context of rapid globalization and digital transformation, Vietnamese higher education is facing the need for comprehensive reform, particularly in line with the spirit of Resolution No. 71-NQ/TW of the Central Committee on breakthroughs in the development of education and training (Central Committee of the Communist Party of Vietnam , 2024). The Resolution emphasizes a shift from a knowledge-transmission model to a competency-based education model that focuses on developing learners' capacities and qualities, places learners at the center of the educational process, and strengthens the linkage between universities and enterprises. This orientation is also consistent with the competency-based curriculum reform issued by the Ministry of Education and Training (Ministry of Education and Training, 2018), as well as with international educational frameworks, notably OECD Education 2030, which highlights problem-solving ability, critical thinking, and decision-making in contexts of uncertainty (OECD, 2018). The overemphasis on purely quantitative tools (mathematization) is not only a challenge in Vietnam but also a barrier identified in numerous international studies. A study by (Meah, 2024), highlights a significant gap between solving mathematical problems and the ability to apply such knowledge in real-world

business contexts. Students may become proficient in computational techniques, yet struggle to "translate" quantitative results into meaningful managerial decisions.

For the field of Business Administration (BA), the demand for reform becomes even more urgent, as the core objective of the discipline is to develop decision-making competency for learners. The theory of constructive alignment proposed by Biggs & Tang [3] suggests that learning outcomes, curriculum content, teaching methods, and assessment must be closely aligned to effectively develop the intended competencies. However, the current practice of BA education in Vietnam reveals a considerable lack of alignment between program objectives and instructional implementation, leading to a significant gap between academic knowledge and real-world professional requirements.

Recent domestic studies have also highlighted an alarming situation. A report published in newspaper of Economics and Urbans indicates that more than 60% of BA graduates are either unemployed or working outside their field of study, primarily due to the fact that they "learn a great deal of theory but receive little practical training, and lack decision-making and problem-solving skills" (Mintzberg, 1976). Another study by (Anh.Trinh Thuy et al, 2022), based on survey data from multiple universities, shows that BA programs remain heavily theoretical, focusing largely on analytical models and calculations while being insufficiently connected to the practical needs of service enterprises—the sector where the majority of BA graduates are expected to work after graduation (OECD, 2018).

These warnings indicate an urgent need to reassess the structure of curricula, course content, and current teaching methods in order to ensure better alignment with the objective of developing students' decision-making competency.

In response to these issues, this study aims to systematically evaluate the current state of BA education through an analysis of curricula, course content, and teaching methods at several higher education institutions, while also comparing them with labor market requirements and contemporary competency frameworks. Based on this analysis, the study proposes solutions for curriculum and pedagogical innovation to comprehensively develop decision-making competency among BA students.

Decision-making competency in business administration is approached as an integrated capability that reflects the entire decision-making process of managers. A conceptual framework of decision-making competency. Specifically, a schematic diagram summarizing key components identified in prior studies (Simon, 1977) (Mintzberg, 1976) has been added. Furthermore, based on this foundation, the paper proposes a three-level DMC competency pyramid to better reflect the progression from data processing to decision execution.

The DMC competency pyramid consists of three hierarchical levels. Level 1 focuses on technical capabilities in data collection and processing. Level 2 emphasizes interpretive capabilities, requiring individuals to contextualize and make sense of data. Level 3 represents strategic decision-making capability, involving choice selection and accountability under conditions of uncertainty.

In the context of this study, particular emphasis is placed on the development of higher-order competencies at Levels 2 and 3, as these are critical for effective decision-making in dynamic and uncertain environments. This emphasis is further supported by (Mat Shoib and Talip, 2025), who,

indicate that decision-making competency at these higher levels accounts for approximately 55% of organizational effectiveness [10]. Therefore, the traditional focus on Level 1 (technical data processing) in current BA programs may be insufficient to meet the professional demands of the modern labor market.

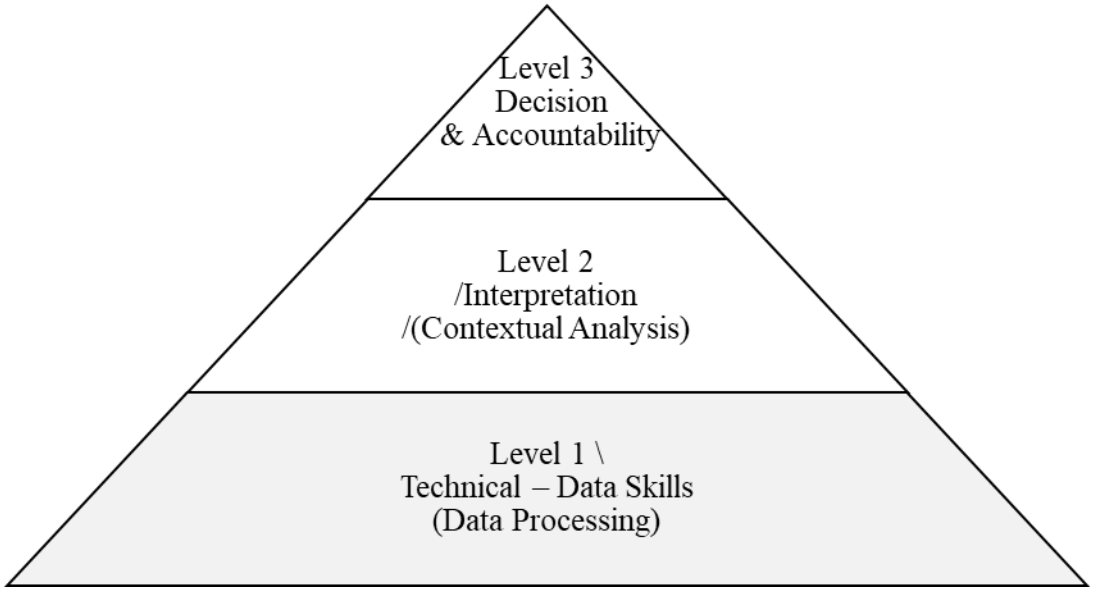

Figure 1. DMC Competency Pyramid (Proposed Model)

Source: Proposed by the author

2. RELATED WORKS

In recent years, the reform of higher education toward a competency-based approach has become a widely discussed topic in research on education and educational management. According to the orientation of the OECD (2018), higher education should shift from a knowledge-transmission model to one that develops core competencies such as critical thinking, problem-solving, and decision-making in the uncertain context of the knowledge economy. This approach is also reflected in Vietnam's education policies, particularly in the orientation toward competency-based higher education curricula issued by (Ministry of Education and Training, 2018). In modern higher education theory, (Biggs, J., & Tang, C. , 2011) emphasize the principle of "constructive alignment," according to which learning outcomes, curriculum content, teaching methods, and assessment methods should be systematically aligned to ensure that students truly acquire the competencies targeted by the training program.

In the field of management, many studies have shown that decision-making competence is a core capability of managers. (Simon, 1977) (Mintzberg, 1976) argue that the managerial decision-making process includes identifying problems, collecting and processing information, evaluating alternatives, and selecting actions under conditions of imperfect information. Later studies, such as (Bazerman, M. H., & Moore, D. A., 2013), further developed this theoretical perspective by emphasizing the role of analytical thinking, risk assessment, and behavioral factors in the decision-making process. These studies suggest that Business Administration education should aim to develop decision-making competence as an integrated capability that combines professional knowledge, analytical skills, and the ability to assess practical contexts.

In Vietnam, several studies have initially addressed the issue of reforming Business Administration training programs. The study by (Anh.Trinh Thuy et al, 2022) indicates that training programs in this field at many universities remain highly theoretical, heavily focused on computational models, and insufficiently connected to the practical needs of businesses, particularly in the context of international integration. A report in (Economic and Urban Newspaper, 2011) also warned that many Business Administration graduates face difficulties in finding jobs or end up working outside their field of study. The main reason is that training programs tend to be theory-oriented, lack practical components, and pay insufficient attention to developing real-world problem-solving skills.

Although previous studies have identified several limitations in Business Administration training programs, most of them remain at the level of general assessments regarding the weak linkage between education and labor market demands. These studies have not systematically analyzed the relationship between curriculum structure, training content, and teaching methods in relation to the objective of developing students' decision-making competence. In particular, the phenomenon of "mathematization" in training programs—referring to the increasing number of quantitative courses and computational models—has not been examined as a potential factor that may distort the objectives of management education. Moreover, previous studies have not clearly addressed the shift in the business environment from traditional manufacturing enterprises toward service- and trade-oriented business models, nor the implications of this transition for the content and methods of Business Administration education.

Based on these research gaps, this paper analyzes the current state of Business Administration education in Vietnam from the perspectives of curriculum structure, training content, and teaching methods, while examining them in relation to the requirement of developing students' decision-making competence in the context of an economy increasingly shifting toward services and digital transformation. On that basis, the study proposes directions for reforming curriculum design, training content, and teaching methods in order to enhance decision-making competence among Business Administration students.

3. PROPOSED METHODOLOGY

This study primarily employs qualitative research methods to describe, analyze, and evaluate the current situation of curriculum structure, course content, and teaching methods in Business Administration education. The specific methods include the following:

Firstly, document analysis.

The author collected and reviewed documents related to Business Administration training programs currently implemented at several universities in Vietnam. These sources include course syllabi, program descriptions, teaching plans, course content outlines, and instructional guidelines for program implementation. Document analysis helps identify the program structure, the composition of knowledge blocks, teaching–learning organization methods, as well as assessment practices currently in use.

In addition, studies published during the period 2011–2012 are used in this research as reference materials for comparison in order to examine changes in Business Administration curricula over time. Meanwhile, the analysis of the current situation is based on the existing training programs of higher education institutions, updated to 2024.

Secondly, the method of analysis and synthesis.

Based on the collected data, the study analyzes three main aspects: curriculum structure, training content, and teaching methods. The analytical results are then synthesized to form a comprehensive overview of the current state of Business Administration education at higher education institutions.

Thirdly, the comparative method.

The current curriculum and training content are compared with:

(1) the professional competency requirements for Business Administration graduates in the context of an economy increasingly shifting toward the service–trade sector;

(2) the trend toward competency-based education; and

(3) the practical requirements of enterprises.

This method helps identify the degree of alignment or misalignment between training content and labor market demands.

Fourthly, pedagogical observation.

Through practical teaching experience, supervising student theses, guiding internships, and interacting with recruiting enterprises, the author observed several notable issues related to students' learning skills, learning approaches, and their ability to apply knowledge in practice. These observations serve as supplementary evidence for analyzing the current situation of teaching methods and assessment practices.

Fifthly, logical reasoning.

Based on the identified limitations, the study employs logical reasoning to determine underlying causes and propose a system of corresponding solutions across key areas, including: curriculum design, training content, teaching methods, assessment approaches, and university–enterprise collaboration.

The combination of multiple qualitative research methods helps ensure objectivity, systematic analysis, and reliability in evaluating the current situation and proposing solutions for improving Business Administration education. In addition to document analysis and curriculum comparison, the arguments presented in this study are also derived from the author's teaching experience, supervision of student projects and internships, as well as professional exchanges with students and enterprise representatives within the context of training collaboration.

Although the study does not conduct an independent quantitative survey, pedagogical observations and feedback from teaching and recruitment practices are considered important qualitative data sources that help reflect common issues in Business Administration education today. This approach is consistent with the research objective of identifying systemic trends and issues, thereby providing a basis for proposing directions for innovation in Business Administration training programs.

4. RESEARCH RESULTS

4.1. Current situation of business administration training

4.1.1. Current Situation of Business Administration Training Programs

An analysis of Business Administration curricula at several universities in Vietnam shows that the total training volume is approximately 130–135 credits, typically divided into several blocks: general education, supporting courses, foundational courses, major courses, and specialized

courses. Although this structure ensures coverage of major functional areas of management, the programs exhibit a high degree of fragmentation, as most courses carry only 2–3 credits, making it difficult for students to develop integrated thinking—an important component of decision-making competency.

Notably, quantitative and mathematics-based content accounts for a large proportion of many courses, such as *Econometrics, Business Statistics, Production Management,* and *Corporate Financial Management*. This trend of the "mathematization" of the curriculum has been highlighted in previous studies. According to (Anh.Trinh Thuy et al, 2022), quantitative courses account for 35–40% of the total professional curriculum, yet most of them focus mainly on models and formulas, with limited connection to real-world case analysis. This situation leads to a misalignment between the goal of developing managerial competencies and the actual training content.

From the author's own teaching experience in Corporate Financial Management, the tendency toward mathematical formalization in Business Administration courses is clearly observable. The author has therefore suggested that adjustments are needed so that the curriculum better aligns with the primary objective of Business Administration education, which is to develop students' decision-making competencies. However, curriculum changes cannot be implemented rapidly, as they require consultation and approval from multiple institutional levels. To partially address this gap, the author has incorporated real economic and financial cases into classroom teaching to help students practice applying knowledge and to reduce the excessive emphasis on purely numerical exercises in the curriculum.

In addition, the training content still strongly reflects the model of traditional manufacturing enterprises—for example, topics such as EOQ, MRP, and production scheduling. However, according to *Economic and urban* newspaper, over 70% of Business Administration graduates work in service, trade, and office-based sectors, while only a small proportion work in manufacturing (Economic and Urban Newspaper, 2011). Consequently, the current curriculum does not fully correspond to the practical demands of the labor market.

4.1.2. Current Situation of Training Content

Although the curriculum covers the major areas of management comprehensively, it lacks newer courses that reflect trends such as service orientation and digital transformation, including service management, customer experience management, digital operations, and business data analytics.

A report by (Anh.Trinh Thuy et al, 2022) indicates that students perceive the curriculum content as being "detached from the realities of service enterprises," lacking real-world context and case studies derived from actual businesses. Training content remains overly focused on manufacturing sectors, while the economy and labor market are gradually shifting toward service-oriented activities.

From the author's experience supervising graduating students, more than half of the students undertake internships in small and medium-sized enterprises specializing in services, consulting, and trade, while the course materials and thesis report templates still focus mainly on manufacturing contexts. This mismatch often causes difficulties for students.

For example, in the Internship Report I, students are required to analyze issues such as production capacity management and production scheduling, even though many of them intern in

service companies. In such cases, students find it difficult to adapt. Although instructors may remind students to adjust their reports accordingly, the absence of courses such as Service Management or Operations Management in services makes it even more challenging for students to approach unfamiliar concepts during their final year of study.

Furthermore, the lack of integrated cross-functional courses also creates difficulties for students when they must make decisions in complex and multi-variable situations—an essential characteristic of modern Business Administration practice.

4.1.3. Current Situation of Teaching and Assessment Methods

Teaching methods still rely heavily on lecturing theoretical content and solving numerical exercises with predefined datasets. Students rarely encounter open-ended problems, real-world cases, or incomplete datasets, which are typical characteristics of real managerial decision-making contexts.

According to a survey reported by *Economic and urban* newspaper , 84% of Business Administration students believe their studies are "too theoretical and heavily focused on computational exercises," while 72% report that they have "never worked on real enterprise cases." Meanwhile, enterprises often assess graduates as having weak decision-making and analytical thinking skills (Economic and Urban Newspaper, 2011).

The study by (Anh.Trinh Thuy et al, 2022) also indicates that current teaching methods result in a situation of "learning one thing but doing another", as course content focuses on theoretical models while internships require students to analyze real business situations.

This situation can also be observed in practice at the author's institution. In several courses, teaching activities focus largely on numerical problem-solving using hypothetical datasets. Examples include *Production Management, Corporate Financial Management,* and project-based courses such as *Production Management Project* or *Corporate Financial Management Project*. However, when students reach their final year, Internship Reports and Graduation Theses require them to write analytical reports in Word format based on a specific real enterprise.

As a result, many students feel confused about how to properly structure and present their reports or theses. During their coursework, they are mainly accustomed to solving numerical exercises, whereas in the final stage of their studies they are required to conduct analysis and produce structured analytical reports based on real organizational contexts.

4.2. Evaluation of the Current Situation of Business Administration Education

4.2.1. Strengths

Firstly, the training program is relatively comprehensive and covers the core functional areas of management such as marketing, finance, human resource management, production management, and strategic management. This enables students to acquire a broad knowledge base that is appropriate for undergraduate education.

Secondly, the curriculum structure ensures a systematic organization of knowledge, with courses divided into supporting courses, foundational courses, major courses, and specialized courses. This arrangement allows students to gradually progress from fundamental knowledge to more advanced and specialized knowledge.

Thirdly, several quantitative courses contribute to the development of students' analytical thinking. These courses help students understand techniques for data processing and basic modeling of business-related problems.

Fourthly, teaching methods that combine theoretical instruction with problem-solving exercises help students understand and apply models and formulas to simulated situations. This is an important step in helping students develop initial technical skills.

Fifthly, the assessment methods are relatively diverse, including assignments, mid-term exams, final exams, and short essays. These forms of assessment help measure students' ability to acquire and understand theoretical knowledge.

4.2.2. Limitations

Despite the advantages mentioned above, the current state of Business Administration education still exhibits several systemic limitations.

Firstly, the curriculum remains highly fragmented. The large number of courses combined with the limited number of credits per course makes it difficult for students to develop integrated competencies and a holistic managerial perspective.

Secondly, the program content tends to emphasize quantitative models and technical methods, particularly in courses such as statistics, econometrics, business performance analysis, production management, and corporate finance. This emphasis reduces the time available for learning content connected to real-world business contexts.

Thirdly, the curriculum continues to be strongly influenced by the traditional manufacturing enterprise model, while the current labor market is rapidly shifting toward service, trade, and office-based business sectors. As a result, several practice-oriented topics relevant to service environments—such as service management, service operations, and customer experience design—remain insufficiently represented in the curriculum.

Fourthly, teaching methods still rely heavily on solving numerical exercises, typically based on datasets that are complete and well-structured. Students are rarely required to analyze real enterprise contexts. This approach leads to the "formula-driven" learning style, limiting opportunities for students to develop analytical thinking, case analysis skills, and decision-making capabilities.

Fifthly, assessment methods tend to focus on computational exercises, while evaluation formats that measure decision-making competence—such as case analysis, managerial memo writing, presentations, and critical discussion—have not yet received sufficient attention.

Sixthly, project-based courses in some specializations do not clearly reflect real business practice. These courses often require students to conduct formula-based simulations, rather than engaging in activities such as field investigation, real data collection, or analysis of actual business problems. As a result, a disconnect emerges between the learning process and the internship experience. This situation makes it difficult for students to write internship reports and to transform theoretical knowledge into practical skills.

4.3. Solutions for Improving Business Administration training toward Developing Students' Decision-Making Competency

Based on the analyzed limitations regarding the "mathematization" phenomenon and the lack of higher-order competency levels, this study proposes a synchronized reform system. These

solutions are not isolated but revolve around three core pillars aimed at transitioning from a knowledge-transmission model to a Decision-Making Competency (DMC) development model.

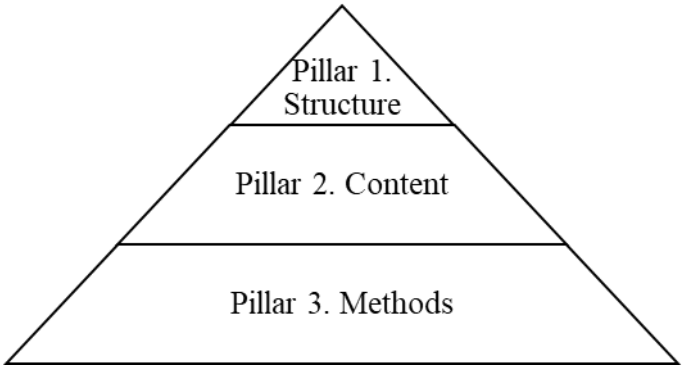

Figure 2: The Three-Pillar Model of Business Administration Training Reform

Source: Proposed by the author

This model establishes a comprehensive innovation roadmap from "hardware" (curriculum structure) to "software" (intellectual content) and "operational methods" (teaching pedagogy):

- Pillar 1 (Structure): Adjusting the curriculum towards integration. This involves reducing fragmented quantitative-heavy courses to create space for Decision Science and integrated business modules.

- Pillar 2 (Content): Innovating academic content. Shifting the focus from formula-solving to managerial insight and reasoning (Level 2), while updating knowledge on service management and digital transformation.

Pillar 3 (Method): Transforming teaching and assessment. Adopting Competency-Based Education (CBE) through experiential methods such as Case Studies and Simulations to cultivate strategic execution and accountability (Level 3).

4.3.1. Adjusting Curriculum Structure toward Integration and Competency Development

One of the most important reforms is to shift from fragmented course-based curriculum design to competency-based curriculum design. The program should be restructured to reduce fragmentation among small individual courses and increase the number of integrated learning modules.

Instead of maintaining a large number of 2–3 credit courses that merely introduce basic concepts, universities could reorganize them into larger modules that integrate the content of several related subjects, allowing students to approach knowledge through a coherent learning pathway.

Interdisciplinary modules such as *Integrated Business Analysis*, *Comprehensive Operations Management*, or *Marketing – Sales – Customer Experience* would help students develop the ability to address problems from multiple perspectives and better reflect real managerial decision-making contexts.

A competency-based approach also requires the curriculum to clearly reflect a developmental learning trajectory, moving from problem identification to analysis, information synthesis, evaluation of alternatives, and ultimately decision-making. Therefore, the curriculum structure should ensure logical progression among courses, enabling students to gradually improve their ability to handle increasingly complex managerial situations.

4.3.2. Updating Training Content to Reflect Service Orientation and Digital Transformation

The strong influence of traditional manufacturing models in the current curriculum calls for significant adjustments. As the economy increasingly shifts toward the service and trade sectors,

training content should be expanded to include areas such as service management, service operations, service process design, customer experience management, and digital operations.

These are the domains in which most Business Administration graduates will work and therefore require practical decision-making competencies.

While traditional topics such as production planning, EOQ calculation, MRP, and production scheduling still have educational value, they should be placed within a broader context that includes management in service environments.

Such an approach helps students understand that modern business management is no longer limited to managing production lines, but increasingly involves managing experiences, flexible processes, customer relationships, and service touchpoints.

Moreover, integrating content related to digital transformation, integrated e-commerce operations, and customer data analytics would enhance the relevance of the curriculum and better respond to labor market demands.

4.3.3. Innovating Teaching Methods to Strengthen Decision-Making and Case-Based Learning

To address the current tendency toward excessive mathematization in teaching, an essential solution is to shift the focus from teaching technical calculations to developing decision-making capabilities.

Instead of providing students with standardized datasets and requiring them to solve exercises with a single correct answer, lecturers should introduce open-ended situations, incomplete datasets, and uncertain contexts, requiring students to evaluate options and select appropriate courses of action.

Encouraging students to explain their reasoning and evaluate the risks associated with their choices is one of the most effective ways to develop managerial thinking.

In addition, teaching approaches such as case studies, business simulations, role-playing, business games, and decision-oriented group assignments should be increasingly applied. These methods are particularly suitable for Business Administration education, as they allow students to experience decision-making processes rather than simply memorizing formulas.

When students are placed in the role of managers, they develop essential competencies such as analytical reasoning, evaluation of qualitative factors, communication skills, and teamwork abilities, all of which are fundamental in modern management practice.

4.3.4. Reforming Assessment Methods toward Evaluating Practical Competencies

Curriculum innovation cannot be successful if assessment methods remain focused primarily on computational exercises. Therefore, assessment should shift toward evaluating practical competencies, analytical ability, and decision-making skills.

Midterm and final examinations may incorporate real business cases, requiring students to analyze the situation, propose solutions, and justify their decisions. Assessment formats such as decision memos, presentations and debates, case analyses, and group projects allow for a more comprehensive evaluation of students' competencies.

Assessment should also be based on clear rubrics, focusing on criteria such as analytical ability, synthesis of information, logical reasoning, coherence of decisions, and feasibility of proposed solutions. In this way, assessment measures not only knowledge acquisition but also the competencies that the program aims to develop.

In line with recent international practices, competency-based education models increasingly emphasize assessment as the core mechanism for validating learning outcomes. For example, the competency-based BBA program at University of Massachusetts Global (Massachusetts Global , n.d) evaluates students based on their demonstrated mastery of competencies rather than time spent in instruction. Students are required to provide evidence of their abilities through performance-based assessments, such as applied projects and real-world problem-solving tasks.

This approach highlights a fundamental shift from knowledge testing to competency validation, aligning assessment with real-world performance expectations. However, it also suggests that effective assessment reform should be accompanied by corresponding changes in curriculum design and teaching methods to ensure that students are adequately prepared to demonstrate higher-order competencies, particularly in interpretation and decision-making.

4.3.5. Reforming Project-Based Courses through Stronger Links with Real Enterprises

Another key solution is to redefine the role of project-based courses, which should ideally represent the most practice-oriented component of the curriculum.

To avoid projects becoming merely formula-based simulations, universities and lecturers should require students to work with real business problems, including conducting surveys, interviews, and collecting real data from enterprises.

When students work with real data—which is often unstructured, incomplete, and influenced by qualitative factors—they develop the adaptability and decision-making mindset required in real professional environments.

Enterprise-based projects not only strengthen professional skills, analytical abilities, and report-writing competencies, but also reduce the gap between academic learning and practical work, a problem frequently observed in current Business Administration education.

4.3.6. Strengthening University–Enterprise Collaboration and Experiential Learning

Collaboration with enterprises should be considered a continuous component of the curriculum, rather than being limited to the final internship period.

Activities such as professional seminars, thematic workshops, company visits, managerial shadowing programs, and career experience activities can help students identify real business problems as early as their first or second year.

Early exposure to enterprises enables students to better understand professional expectations, shape their competency development pathways, and increase their motivation for learning.

5. CONCLUSION AND FUTURE DEVELOPMENT

This study has systematically analyzed the current state of Business Administration education in Vietnam through three main dimensions: curriculum structure, training content, and teaching methods. The findings reveal a noticeable misalignment between the core objective of the discipline—developing students' decision-making competency—and the current organization and implementation of training programs.

The tendencies toward "mathematization" and "formula-driven learning" in many courses have reduced practical applicability and limited students' ability to transform theoretical knowledge into practical managerial actions after graduation.

Based on these findings, the study proposes a set of integrated reform solutions in three directions:

(1) restructuring the curriculum according to a competency-based approach, reducing fragmentation and increasing integration;

(2) updating training content to reflect the shift toward service- and trade-oriented economies and digital transformation; and

(3) innovating teaching and assessment methods by strengthening case analysis, simulations, and decision-making practices.

However, the study also has several limitations. The analysis is primarily conducted at a general level based on commonly used training programs and has not yet involved in-depth investigation at a specific university or direct surveys of lecturers, students, and enterprises.

Future research could adopt case-study approaches at particular institutions or evaluate the effectiveness of pilot curriculum innovations. Such studies would provide deeper empirical evidence to support the development of more effective and practical policies for improving Business Administration training.

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