P-ISSN 2734-9748 • E-ISSN 2815-6471

VMOST Journal of Social Sciences and Humanities

DECEMBER 2024 • VOLUME 66 NUMBER 3

VMOST JOURNAL OF SOCIAL SCIENCES AND HUMANITIES * DECEMBER 2024 * VOLUME 66 NUMBER 3

d.vjst.vn or vmostscience.vn

Vietnam Ministry of Science and Technology

The VMOST Journal of Social Sciences and Humanities (VMOST JOSSH) is the official tri-annual scientific title in English of Vietnam Ministry of Science and Technology. The VMOST JOSSH aims to become an international journal that meets the standards of the world's leading databases of scientific journals such as Scopus, Web of Science. The VMOST JOSSH mainly publishes original peer-reviewed articles and reviews in interdisciplinary and multidisciplinary fields of social sciences and humanities with the focus on:

- Vietnamese Studies
- Economics and Business
- History and Archaeology
- Educational Sciences
- Sociology, Anthropology, and Ethnology
- Linguistics and Literature
- Psychology
- Philosophy and Religion
- Jurisprudence
- Political Sciences

CLASSIFICATION SCHEME

Social Sciences

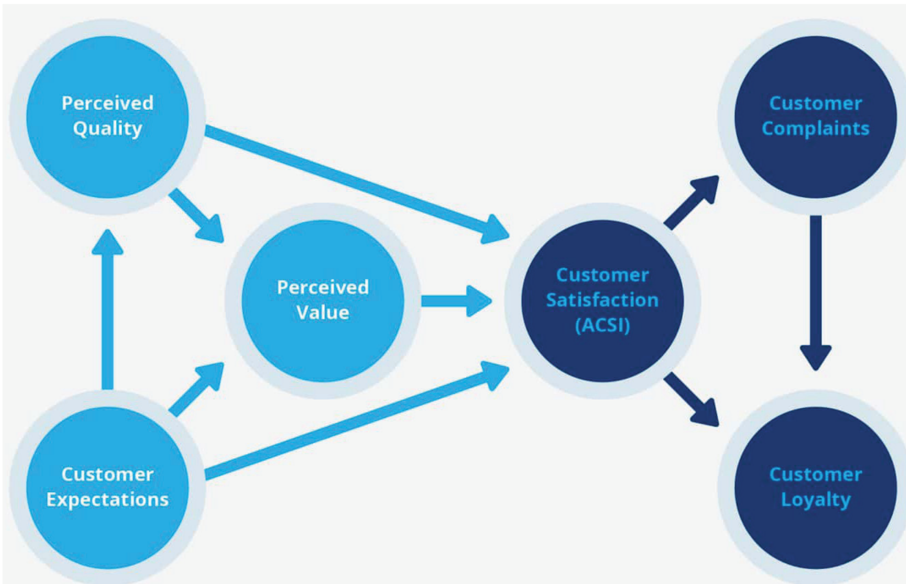
1. Psychology
   - 1.1. Developmental Psychology
   - 1.2. Counseling and Clinical Psychology
   - 1.3. Educational Psychology
   - 1.4. Other Psychology
2. Economics and Business
   - 2.1. Economics
   - 2.2. Business and Management
   - 2.3. Other Economics and Business
3. Educational Sciences
   - 3.1. Education Systems
   - 3.2. Curriculum and Pedagogy
   - 3.3. Specialist Studies in Education
   - 3.4. Other Education
4. Sociology, Anthropology, and Ethnology
   - 4.1. Sociology
   - 4.2. Anthropology
   - 4.3. Ethnology
   - 4.4. Other Sociology, Anthropology, and Ethnology
5. Political Sciences
   - 5.1. Political Science
   - 5.2. International Relations
   - 5.3. Other Political Science
6. Jurisprudence
7. Other Social Sciences

Humanities

8. History and Archaeology
   - 8.1. History
   - 8.2. Archaeology
   - 8.3. Other History and Archaeology
9. Linguistics and Literature
   - 9.1. Linguistics
   - 9.2. Literary Studies
   - 9.3. Cultural Studies
10. Vietnamese Studies
11. Philosophy and Religion
12. Other Humanities

CONTENTS

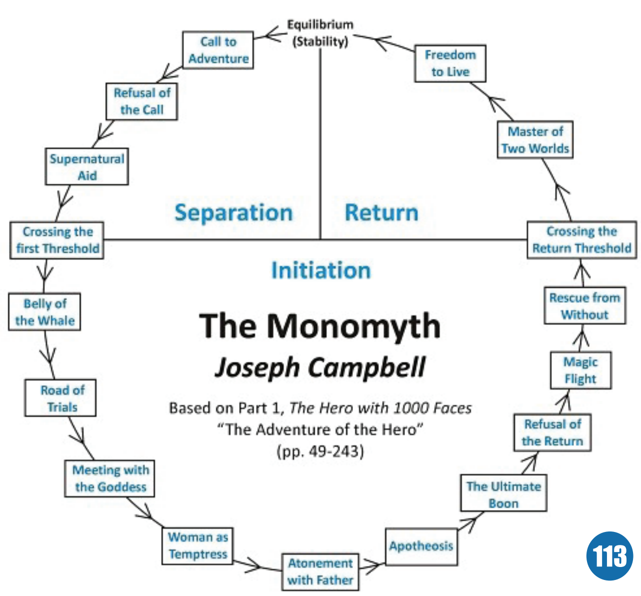
DECEMBER 2024 • VOLUME 66 NUMBER 3



26

CONTENTS

DECEMBER 2024 • VOLUME 66 NUMBER 3



113

DOI: 10.31276/VMOSTJOSSH.2023.0060 **PSYCHOLOGY** | OTHER PSYCHOLOGY; **ECONOMICS AND BUSINESS** | BUSINESS AND MANAGEMENT; **OTHER SOCIAL SCIENCES**

How does the cognitive process of knowledge accumulation affect Vietnamese entrepreneurs' success likelihood: A mindsponge-based interpretation

Minh-Hoang Nguyen[1], Quang-Loc Nguyen[2*], Phuong-Loan Nguyen[3], Tam-Tri Le[4, 5], Xuan-Tuan Phi[6], Cong Thuong Phi[7], Quan-Hoang Vuong[8]

[1]*Centre for Interdisciplinary Social Research, Phenikaa University, Yen Nghia Ward, Ha Dong District, Hanoi, Vietnam*
[2]*SP Jain School of Global Management, Lidcombe, 15 Carter Street, Lidcombe New South Wales 2141, Australia*
[3]*Spanish Department, Hanoi University, Km 9 Nguyen Trai Street, Trung Van Ward, Nam Tu Liem District, Hanoi, Vietnam*
[4]*A.I. for Social Data Lab (AISDL), Vuong & Associates, Yen Nghia Ward, Ha Dong District, Hanoi, Vietnam*
[5]*Centre for Interdisciplinary Social Research, Phenikaa University, Yen Nghia Ward, Ha Dong District, Hanoi, Vietnam*
[6]*TRE - Technology Resources Energy JSC., 48 To Huu Street, Trung Van Ward, Nam Tu Liem District, Hanoi, Vietnam*
[7]*Ministry of Science and Technology, 113 Tran Duy Hung Street, Trung Hoa Ward, Cau Giay District, Hanoi, Vietnam*
[8]*Centre for Interdisciplinary Social Research, Phenikaa University, Yen Nghia Ward, Ha Dong District, Hanoi, Vietnam*

Received 11 September 2023; revised 20 November 2023; accepted 18 January 2024

Abstract:

The economic reform in 1986 transformed Vietnam from a centrally planned economy to a socialist-oriented market economy. It is suggested that entrepreneurs and entrepreneurial spirits within the populace fuelled the structural changes. Despite the importance of entrepreneurship in Vietnam's economy, studies in Vietnam mainly focus on the practical aspects of entrepreneurial activities and neglect the cognitive and theoretical aspects of entrepreneurship. Thus, this study employs the information-processing perspective of the Mindsponge Theory to explore how entrepreneurs' knowledge accumulation affects their perceived likelihood of business success. By analysing a comprehensive dataset of Vietnamese entrepreneurship using Bayesian methods, our findings reveal that entrepreneurs with significant business-related experience have higher probabilities of success. Additionally, a greater willingness/readiness to transform thinking, actions, and beliefs can improve the business success of entrepreneurs who carefully study others' failures. However, for those who perceive learning from others' failures as unnecessary, a higher willingness/readiness to transform diminishes their chance of success. We recommend a balanced approach: entrepreneurs should build their knowledge pool through experience, learning, and open-mindedness. A sufficient pool of knowledge can empower Vietnamese entrepreneurs, enabling them to make informed decisions, foster innovation, and contribute substantially to the nation's entrepreneurial landscape.

Keywords: **Bayesian Mindsponge Framework, Bayesian Mindsponge Framework analytics, cognitive process, creativity, entrepreneurship, information-processing, innovation, knowledge management, openmindedness, success.**

Classification numbers: **1.4, 2.2, 7**

1. Introduction

Entrepreneurship is widely acknowledged to be vital to economic progress. Due to its benefits for employment, innovation, and welfare, entrepreneurship is a significant mechanism for fostering economic growth [1-4]. Theories of economic development, dating back to the 18th century, have attempted to account for the significance and function of entrepreneurship and the entrepreneurs who drive it [5, 6]. Throughout the 1990s, entrepreneurship research increased dramatically but was not widely recognised until the late 2000s. Anglo-Saxon researchers have dominated the field for the last two decades, with notable representation from the United States, the United Kingdom, and Canada [5]. Thus,

*Corresponding author: Email: loc.bs21don038@spjain.org

many scholars underline the need to better understand entrepreneurship's function in developing countries, as entrepreneurial spirit may be culturally influenced and, to some extent, institutionally supported [1, 7-9].

The *Đổi Mới* reform not only dramatically improved economic growth but also laid the ground for entrepreneurship development [10]. Vietnam's *per capita* income doubled from $202 to $417 in 2001. According to World Bank statistics, this figure skyrocketed to more than $3756, around 19 times higher than the *per capita* income in 1986. The rise of the first generation of Vietnamese entrepreneurs can be traced back to 1991 to 1999, when there were around 40,000 newly founded businesses [10]. Considering the relatively modest size of its economy, Vietnam is dominated by small and medium enterprises (SMEs), whose expansion in number and capital over the last two decades has firmly established entrepreneurship as the economic backbone. While there were only around 37,700 SMEs in 2000, accounting for 96.47% of all firms, the number has risen to approximately 593,600 in 2018, accounting for 97.2% (about 610,600 firms) [11]. According to the Global Entrepreneurship Research Association (2018) [12], Vietnam had the highest overall early-stage entrepreneurial activity (23.3%) and notable entrepreneurial spirit score (0.26) in 2018. Given the substantial composition of SMEs in Vietnam's economic structure and entrepreneurship potential, studying the determinants of entrepreneurs' success is crucial to bolster the country's socio-economic development. However, entrepreneurship research in Vietnam remains modest [13].

Most entrepreneurship studies in Vietnam concern firms' capital and economic efficiency [13-15]. Although financial capital is essential, other non-financial resources also significantly impact the performance or success of entrepreneurial ventures, such as innovation capability and knowledge management. However, scholars have discovered that Vietnamese enterprises pay little attention to innovation because it is costly and requires massive investment in technological upgrades [16]. Thus, the country's economic growth relies greatly on capital accumulation and cheap labour, which can lead to a resource curse and "resource poisoning" – adverse economic and social effects of excessive investment poured into society without considering resource abundance [17, 18]. Building a knowledge-based economy is a prominent way to avoid the adverse effects of the resource curse [18-20]. Moreover, a recent review suggests that entrepreneurship studies in Vietnam mainly focus on the practical aspects of entrepreneurial activities (e.g., determinants of firm performance) and neglect the cognitive and theoretical aspects of entrepreneurship, which are pivotal topics in global entrepreneurship research.

Entrepreneurial success is closely linked to the ability to make effective decisions [21, 22]. As cognitive factors are fundamental in determining individuals' thinking and behaviours, they play a substantial role in entrepreneurial decision-making and significantly affect the success of new businesses, where the entrepreneur is the main decision-maker and executor [23-25]. Although studies have found that entrepreneurial success is significantly affected by business experience [26, 27], human capital [28, 29], education [30, 31], knowledge [32], and competencies [33], few studies have explored the effect of knowledge accumulation from the cognitive perspective, hindering the understanding of the underlying cognitive processes of knowledge accumulation. J.M. Unger, et al. (2011) [29] underscore that researchers should use a moderator approach to study the connection between knowledge and entrepreneurial success instead of the static perspective, considering the ever-changing nature of business and the constant demand for learning and adaptation.

To fill this gap, this study explores how entrepreneurs' knowledge accumulation affects their perceived likelihood of business success through the information-processing lens of Mindsponge Theory. The information-processing perspective was employed for several reasons. First, it is founded on the metaphysical premise that everything inside and outside human brains may be analysed through the lens of information [34-36]. Hence, the information-processing-based viewpoint affords us additional analytical and explanatory freedom regarding the mental mechanism (or cognitive process). It is even more effective when studying entrepreneurs whose performance is greatly influenced by bricolage, serendipity, and creativity [37-39]. Lastly, the dynamic and constantly updating characteristics of the Mindsponge Theory's information-processing approach have proven effective in explaining other psychological and behavioural issues [40-50].

Using the Bayesian Mindsponge Framework (BMF) analytics on the most comprehensive dataset of 3,071 Vietnamese entrepreneurs, this study investigates how entrepreneurs' business-related knowledge and learning from others' failures affect their success likelihood in relation to their willingness to transform ways of thinking, acting, or beliefs. In other words, it examines the effects of business-related knowledge and learning from others' failures on the likelihood of business success and how entrepreneurs' willingness to transform ways of thinking, acting, or beliefs moderates those effects. BMF is an analytical framework that employs the strengths of Mindsponge Theory's theoretical reasoning and the inference advantages of Bayesian analysis. Detailed reasoning and model formulation based on Mindsponge Theory are presented in the next section.

Factors contributing to the success of entrepreneurs' businesses are crucial for shaping effective entrepreneurship policies, educational programmes, and support systems tailored to the unique needs of Vietnamese entrepreneurs, ultimately fostering a vibrant and innovative entrepreneurial ecosystem in the nation. Thus, this study's findings have the potential to contribute valuable knowledge that can enhance the success rates of entrepreneurs, drive economic growth, and bolster Vietnam's position in the global business landscape.

2. Methodology

2.1. Theoretical foundation

2.1.1. Overview of the Mindsponge theory

In their early research on acculturation and globalisation, Quan-Hoang Vuong and Nancy K. Napier coined the term "mindsponge" [51]. The notion was characterised as a dynamic process or mechanism that explains how a mind absorbs new cultural values and discards fading ones depending on the context, using the metaphor "the mind as a sponge that squeezes out inappropriate values and absorbs new ones that fit or complement the context" [51]. The original mindsponge mechanism is constructed by studying psychological and social phenomena, which is consistent with and complements a large number of other theories and frameworks [52-57]. Later, it evolved into a theory of mental information processing, integrating the most recent findings from brain and life sciences [58]. In the theory, the mind is described as a collection-cum-processor of information, including biological and social systems of varying degrees of complexity.

The following are the characteristics of a mindsponge information-processing system [59]: (i) It reflects underlying biosphere system patterns; (ii) It is a dynamic, dynamically balanced process; (iii) It involves cost-benefit analysis, which seeks to maximise the perceived benefits of the system while minimising its perceived costs; (iv) It consumes energy and thus adheres to the concept of energy saving; (v) It includes objectives and priorities based on system requirements; (vi) Its primary purpose is to ensure the continued life of the system, which includes survival, growth, and reproduction.

The mindset is the system's memory-resident collection of all accepted information. Based on the content of the existing mindset, the filtering mechanism governs what information enters and leaves the mindset. Filtering information changes both the thinking and the filtering mechanism. The trust mechanism (selective prioritisation) can be utilised to speed up the filtering process to save energy [58].

Through biochemical changes in neurons, information acquired from the external world or created internally is retained as engrams - cognitive information imprinted in a physical substance. In engram neurons, memory consolidation occurs as a result of DNA (deoxyribonucleic acid) methylation activated by signals that result in stable structural changes [60, 61]. The hippocampus and amygdala are thought to be in charge of constructing cognitive maps of stored information. Before being consolidated in the neocortex for long-term storage, information entering the brain is suggested to be stored temporarily in the hippocampus [62, 63]. In the process of long-term potentiation, the strength of synaptic connections grows as signals are transferred via synapses [64]. These dynamic information storage mechanisms serve as the foundation for neuroplasticity, enabling flexible adaptations for the processing system (or the mind).

Based on knowledge of neuroscience, mindsponge theory defines a mindset as a set of stored information in the central nervous system that can be aware of in the form of trusted (accepted) values - subjective meanings attached to the information. From this set of trusted values, the processing system develops responses (i.e., behaviours) deemed appropriate for the current situation. The outputs of conscious and non-conscious mental processes (e.g., beliefs, thoughts, attitudes, feelings, behaviours, etc.) are also influenced by the existing trusted values within the mindset. It is worth emphasising that interpretations of things are influenced by the information in mind rather than the objects themselves. Thus, a person's response to the surrounding environment is constrained by the amount and types of information available in their mind.

The evolution of minds tends to progress towards greater information storage and processing capability for more flexible and efficient utilisation of such information. The evolutionary tendency is founded on the most basic premise of all living things: survival. As a social species, humans also have a sense of social survival besides natural survival [65]. In this respect, a human being's thinking may be thought of as a well-optimised adaptive memory system.

2.1.2. Proposed hypotheses

Entrepreneurs are characterised as decision-makers "whose entire role arises out of his alertness to hitherto unnoticed opportunities" [66]. After noticing the opportunities, entrepreneurs have to monitor different sources of innovation, solve various issues regarding the implementation process *ex ante*, pool and utilise resources, and translate the implementation into realities [67]. Decision-making effectiveness can be defined as "the extent to which decisions result in desired outcomes or similarly the extent to which decisions achieve the objectives established by the decision-makers at the time they are made" [22, 68, 69]. As such, decision-making effectiveness can be a measure of a decision's success, and the effectiveness of entrepreneurs' judgments is critical to the success of their businesses.

From the mindsponge theory's perspective, entrepreneurs' decisions are products of information processes. Such decisions will lead to subsequent functions of entrepreneurial businesses [70]. The market or the external environment tests whether such businesses are successful or not. If entrepreneurs' thinking (or information in their minds) fits with reality, their decisions will likely generate revenue and make the businesses successful [71]. Otherwise, the decisions will likely result in businesses' poor performance, leading to failure [72]. As the mindset greatly influences the information processes, entrepreneurs who have experience (memories) with business-related work are more likely to respond to the surrounding environment (or market) better and generate better decisions, which might increase the likelihood of success for the businesses. Thus, our first hypothesis (H) is as follows:

H1: Entrepreneurs acquiring business-related experience are more likely to have a higher chance of business success.

The information absorption process is required for information to appear in mind. An organism cannot comprehend the world around it, navigate within it, or make decisions to adapt to a changing external environment without the absorption process. Absorbing the information of other entrepreneurs' failures is one effective way to make the information within the mind fit with reality, as failures are tested attempts. When the information is integrated into the mindset, it will be used to generate subsequent decisions that are likely to help entrepreneurs avoid risks inducing previous failures. Considering the complex and unpredictable legal practices in Vietnam's transitional context, learning from other failures is vital for success. For example, due to a set of unwritten rules, businesses have to pay out of their own pockets to smoothen operations, thereby increasing entrepreneurial transaction costs. In Vietnam, however, "giving an envelope" has a deeper meaning: it is about building a mutually beneficial relationship between the businesses and the authorities involved. In this sense, institutional boundaries are momentarily breached, allowing for personal manoeuvring. Some research has shown that bribery or "speed money" assists businesses in reducing expenses associated with a lack of security and transparency [73, 74]. As a result, we hypothesised that:

H2: Entrepreneurs learning from others' failures are more likely to have a higher chance of business success.

The absorption process in humans is influenced by sensory systems, information stored in the internal mind, and information accessible in the external world. When the four following conditions are met, information is absorbed into the mindset and turns into a highly trusted value [58].

(i) First, the information must be present in the environment to be absorbed.

(ii) Second, to absorb information, the mind must have a receptor compatible with the information (i.e., the visual system for seeing and the auditory system for hearing).

(iii) Even if the first and second conditions are met, the quantity of information that may be absorbed is subject to the reception efficiency of the receptors.

(iv) The fourth condition is whether the mind trusts or perceives the benefits of the information.

Even after the information is absorbed into the mind, it can still be discharged if perceived as waning values during the multi-filtering process. The filtering system uses stored information in the mindset to assess the compatibility of newly received information, so its evaluation is heavily subjective. Due to this mechanism, information with similar characteristics to trusted values will be accepted more easily, and vice versa. Suppose there is no relevant information existing in the mindset. In that case, information will be thoroughly evaluated using the information within the mind and that absorbed from the environment, which is a timely process. When new information is incorporated, the mindset is updated. The mindset can still be updated due to values contrasting with the mind if they result in positive feedback from the environment and the person is willing to change [75]. If an entrepreneur's willingness/readiness to change their mind is high, it will affect the filtering process and the updated mindset, subsequently influencing the decision-making processes and likelihood of success. For example, people with a high willingness/readiness to change will have a more effective absorption process of others' failures. Then, they will have a higher likelihood of success. Given this characteristic of the filtering system, we hypothesised that:

H3: The effect of business-related experience on a business's chance of success is conditional on the entrepreneurs' willingness to transform their ways of thinking, acting, and beliefs.

H4: The effect of learning from others' failures on a business's chance of success is conditional on the entrepreneurs' willingness to transform their ways of thinking, acting, and beliefs.

2.2. Model development

2.2.1. Variable selection and rationale

In this study, we thoroughly analyse a comprehensive dataset sourced from Q.H. Vuong (2016) [76], aiming to unravel the intricate dynamics that influence entrepreneurs' success in the Vietnamese business landscape. The dataset, curated from a nationwide field survey, provides valuable resources to study entrepreneurs' perceptions and decisions regarding the likelihood of their businesses' success and continuity. This survey took place over a three-month period from March to May 2015, strategically targeting entrepreneurs actively participating in seminars, conferences, and meetings held in five pivotal regional economic centres of Vietnam: Hanoi, Ho Chi Minh city, Da Nang, Buon Ma Thuot, and Can Tho.

The survey was conducted under the guidance of authorised personnel who ensured that participating entrepreneurs were well-informed about the survey's objectives and methodologies. Entrepreneurs who expressed their willingness to participate were provided with detailed instructions on how to complete the questionnaire, ensuring the accuracy and depth of the gathered data. Following the conclusion of each event, the responses were meticulously compiled, capturing the diverse perspectives and insights of entrepreneurs from varied sectors and backgrounds.

A key aspect of this data collection effort was the random sampling strategy. Out of an estimated 50,000 entrepreneurs attending these events, the survey team strategically and randomly approached approximately 10,000 participants, ensuring a diverse and representative sample. Subsequently, 3,071 observations were obtained, forming the foundation of our study. This comprehensive dataset allows us to explore in detail the relationships between entrepreneurs' business-related knowledge, their ability to learn from failures, their willingness to embrace transformative thinking, actions, or beliefs, and their respective likelihood of success. Through this rigorous analysis, we aim to contribute valuable insights to the field of entrepreneurship and inform strategies that can enhance entrepreneurial success in the Vietnamese context. The dataset is available for public use at: https://data.mendeley.com/datasets/kbrtrf6hh4/2.

The survey included four questions related to the entrepreneurs' knowledge and knowledge-seeking behaviours: the previous job of participants, the pattern of learning from others' failures, entrepreneurial efforts to transform ways of thinking, acting, and beliefs, and the evaluated chance of success. In Q.H. Vuong's work (2016) [76], the author summarised all the data in three fields: coded name, explanation, and values. However, to serve our work, the variables needed to be transformed into a format readable by our methodology (i.e., converted to numbers for the estimations of models). Hence, in Table 1, the variables and how they were coded are described in five categories: coded name, explanation, values, converted variable, and converted value.

The variable *InternalInfor* was converted from variable *X1.job* in the original dataset to measure the business-related experience of the entrepreneur. This variable reflects the familiarity of entrepreneurs with the business environment in which they operate: the more familiarity, the better the fit between their mental expectations and realities. If the entrepreneur possessed any business-related job before starting the entrepreneurial businesses, they would be coded as 1; otherwise, they would be coded as 0.

The variable *ExternalInfor* was converted from variable *X10.failurel* in the original dataset to measure the entrepreneurs' patterns of learning from others' failures. This variable reflects how an entrepreneur can

Table 1. Data descriptions.

Coded name	Explanation	Values	Converted variable	Converted value
X1.job	Previous job	Human resources (hmr); sales/marketing (salesm), production/operations (pom); finance/accounting (finance); administrative or other departments (admin); no significant job experience (none)	*InternalInfor*	None =0 Others =1
X10.failurel	Learning from others' failures	Careful study (a); exploring few noteworthy cases (b); and no need (c)	*ExternalInfor*	a=3 b=2 c=1
X19.msponge	Entrepreneurial efforts to transform ways of thinking, acting and beliefs?	Strong; some aspects; negligible; none	*TransMind*	Strong =4 Some aspects =3 Negligible =2 Non =1
X23.chance	Evaluated chance of success?	Certain; high (>80%); med (50-80%); low (<50%).	*EvaluatedSuccess*	Certain =4 High =3 Med =2 Low =1

access more information about tested attempts, which can aid them in aligning their mental expectations with realities. Entrepreneurs with a more thorough examination of the failure cases were coded with a higher number; specifically, the careful study was coded as 3, exploring few noteworthy cases was coded as 2, and no need was coded as 1.

The variable *TransMind* was converted from *X19.msponge* in the original dataset to measure entrepreneurs' willingness/readiness to transform their thinking, actions, and beliefs (or set of trusted values in their minds). When the willingness/readiness is high, new and strange information will be evaluated less rigorously and more likely to be accepted into the mindset. As this willingness/readiness is difficult to measure objectively, we employed the self-evaluation method. The higher the willingness/readiness of the entrepreneur, the higher the value was coded, ranging from 1 to 4.

The success likelihood of entrepreneurs' businesses is difficult to measure objectively due to the significant variance among their businesses and contexts. Thus, self-evaluation of success was employed to measure the likelihood of success. Each entrepreneur has their own expectations of success (e.g., revenue, reputation, social improvement, etc.), so the more perceived realities fit their expectations, the more likely they will think the business will succeed. The variable *EvaluatedSuccess* was measured with four levels: certain, high (>80%), medium (50-80%), and low (<50%). These levels correspond to 4, 3, 2, and 1, respectively. This measurement aligns with the need for entrepreneurs to have a well-fitted mental model that aligns with the realities of their business context, analogous to the concept of life satisfaction as employed in related social science literature [77].

2.2.2. Statistical models

In this study, we assumed that working experience and the pattern of learning from others' failures might have positive impacts on a business's success chance (Hypotheses 1 and 2), and these effects are conditional on the entrepreneurs' willingness/readiness to change (Hypotheses 3 and 4). We constructed four multiple linear regression models to test our assumptions, starting with the simplest. Specifically, Model 1 was constructed to examine Hypotheses 1 and 3:

$$EvaluatedSuccess \sim normal(\mu,\sigma) \tag{1.1}$$

$$\mu_i = \beta_0 + \beta_{InternalInfor} * InternalInfor_i + \beta_{InternalInfor*TransMind} * InternalInfor_i * TransMind_i \tag{1.2}$$

$$\beta \sim normal(M,S) \tag{1.3}$$

The probability around μ is determined by the form of the normal distribution, whose width is specified by the standard deviation σ μ_i indicates the evaluated success of entrepreneur *i's* business; $InternalInfor_i$ indicates whether entrepreneur *i* had any business-related experience; $\beta_{InternalInfor*TransMind}$ indicates the coefficient of the non-additive effect of $InternalInfor_i$ and $TransMind_i$ on *EvaluatedSuccess*. If the coefficient $\beta_{InternalInfor*TransMind}$)'s distribution is significant, and the association between business-related experience and success likelihood is considered conditional on the willingness/readiness to transform. Model 1 has four parameters: the coefficients $\beta_{InternalInfor}$ and $\beta_{InternalInfor*TransMind}$, the intercept, β_0, and the standard deviation of the "noise", σ. The coefficients of the variable $InternalInfor_i$ and interaction variable between $InternalInfor_i$ and $TransMind_i$ are distributed as a normal distribution around the mean, denoted as *M*, and with the standard deviation denoted as *S*.

Similarly, to test Hypotheses 2 and 4, we constructed Model 2:

$$EvaluatedSuccess \sim normal(\mu,\sigma) \tag{2.1}$$

$$\mu_i = \beta_0 + \beta_{ExternalInfor} * ExternalInfor_i + \beta_{ExternalInfor*TransMind} * ExternalInfor_i * TransMind_i \tag{2.2}$$

$$\beta \sim normal(M,S) \tag{2.3}$$

$ExternalInfor_i$ indicates entrepreneur *i*'s pattern of learning from others' failures; $\beta_{ExternalInfor*TransMind}$ indicates the coefficient of the non-additive effect of $ExternalInfor_i$ and $TransMind_i$ on *EvaluatedSuccess*. If the distribution of $\beta_{ExternalInfor*TransMind}$ is significant, the association between the learning pattern and success likelihood is considered conditional on the willingness/readiness to transform.

To test whether Hypotheses 1-4 are robust when other factors appear in the model, we combined Models 1 and 2 and added variable $\beta_{TransMind}$ into the model. As a result, Model 3 is as follows:

$$EvaluatedSuccess \sim normal(\mu,\sigma) \tag{3.1}$$

$$\mu_i = \beta_0 + \beta_{InternalInfor} * InternalInfor_i + \beta_{InternalInfor * TransMind} * InternalInfor_i * TransMind_i + \beta_{ExternalInfor} * ExternalInfor_i + \beta_{ExternalInfor * TransMind} * ExternalInfor_i * TransMind_i + \beta_{TransMind} * TransMind_i \tag{3.2}$$

$$\beta \sim normal(M,S) \tag{3.3}$$

The logical model of Model 3 is plotted in Fig. 1.

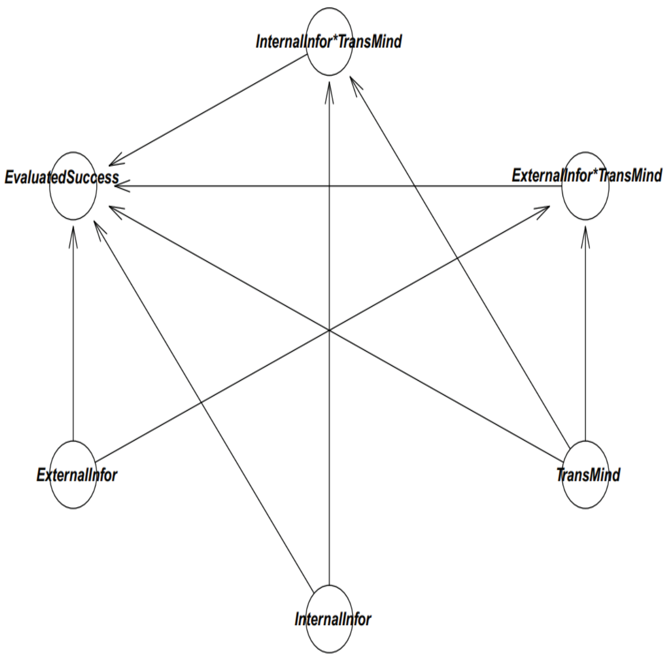


Fig. 1. Logical network of Model 1. Source: Authors.

2.3. Analysis and validation

This study employed BMF analytics, an analytical approach that combines the Mindsponge theory's ability to explain psychological complexity in the human mind and the statistical advantages of Bayesian as an analytical framework [62, 78]. There are several advantages to employing BMF analytics. First, the Mindsponge theory and Bayesian inference have many compatible properties with each other, of which some can be utilised in the current study: (i) they are built on subjectivity; (ii) they offer great flexibility in model construction and fitting; and (iii) they obtain the updating features. Second, Bayesian analysis probabilistically examines all attributes (including unknown parameters and uncertainties) [79, 80], so it helps researchers avoid concerning control factors and focus solely on the theoretically chosen variables, ensuring the parsimony principle (also known as Occam's razor). Moreover, the Hamiltonian Monte Carlo algorithm-supported Bayesian inference does not rely on the asymptotic assumption [59, 60], providing a more accurate estimation using the data at hand.

All Bayesian linear regression problems were evaluated using the bayesvl R package [81], chosen for its user-friendly and intuitive procedure, capacity to display stunning graphics, and affordability [82]. Four Markov chains, each having 5000 iterations, were used to fit the model. As a warm-up phase, the first 2000 iterations were installed. Since this is an exploratory study, the models were built using uninformative priors defining a flat prior distribution to offer as little prior information as possible to the model estimate. While the prior information is still there, it is so little as to be insignificant [83].

Following the simulation, the Pareto smoothed importance-sampling leave-one-out cross-validation (PSIS-LOO) method was used to verify the model's goodness of fit with the available data [84, 85]. LOO is computed using the following formula.

$$LOO = -2LPPD_{loo} = -2\sum_{i=1}^{n} \log \int p(y_i|\theta)p_{post(-i)}(\theta)d\theta$$

$p_{post(-i)}(\theta)$ is the posterior distribution based on the data minus data point *i*. When employing the PSIS method in R, *k*-Pareto values are used to compute leave-one-out cross-validation, which helps identify observations with a problematic influence on the PSIS estimate. If the *k* values are less than 0.5, the model has a sufficient degree of goodness-of-fit.

By analysing the effective sample size (*n_eff*) and Gelman-Rubin shrink factor (*Rhat*), the Markov property or the convergence of the Markov chains was evaluated to determine whether the estimated results are qualified for interpretation. After the stochastic simulation, the n_eff value reflects the number of non-autocorrelated iterative samples. The effective samples are deemed adequate for credible inference if the *n_eff* values are more than 1000. Another measure of convergence is the *Rhat* value (Gelman-Rubin shrink factor). If the *Rhat* values are more than 1.1, the chains may fail to converge. *Rhat* values equalling one indicate convergence. The convergence may additionally be diagnosed visually using the trace, Gelman-Rubin-Brooks, and autocorrelation plots. All the code and data employed for the current study were deposited in the following link to reduce the cost of reproduction [86].

3. Results

3.1. Model comparison

We measured the weight of model predictions using Pseudo-BMA without Bayesian bootstrap, Pseudo-BMA with Bayesian bootstrap, and Bayesian stacking. Model 3 appears to be the most predictive model as it outweighs other models in most categories (i.e., Pseudo-BMA with Bayesian bootstrap and Bayesian stacking). Thus, Model 3 is chosen for result presentation and interpretation (Table 2).

Table 2. Model weights comparison and model ranking.

Model	Pseudo-BMA without Bayesian bootstrap	Pseudo-BMA with Bayesian bootstrap	Bayesian stacking
Model 1	0.0000	0.3760	0.0532
Model 2	0.5021	0.4948	0.4642
Model 3	0.4979	0.5032	0.4826
Most predictive model	Model 2	Model 3	Model 3

Source: Authors.

The PSIS-LOO approach was then employed to check the model's goodness of fit with the data. Fig. 2 illustrates that all Model 3's Pareto *k* indicators are below the threshold of 0.5, suggesting a good fit with the data.

3.2. Convergence diagnostics

Based on convergence indicators, all models' posteriors are deemed well-convergent. Specifically, all *Rhat* values equal 1, and the effective sample size (*n_eff*) passes the standard threshold of 1000 (Table 3).

Table 3. Results of Model 3.

Parameters	Mean	SD	n_eff	Rhat
Constant	2.39	0.28	3521	1
TransMind	-0.16	0.08	3527	1
ExternalInfor	-0.14	0.13	3406	1
*ExternalInfor*TransMind*	0.10	0.04	3382	1
InternalInfor	0.14	0.16	4869	1
*InternalInfor*TransMind*	-0.03	0.05	4847	1

Source: Authors.

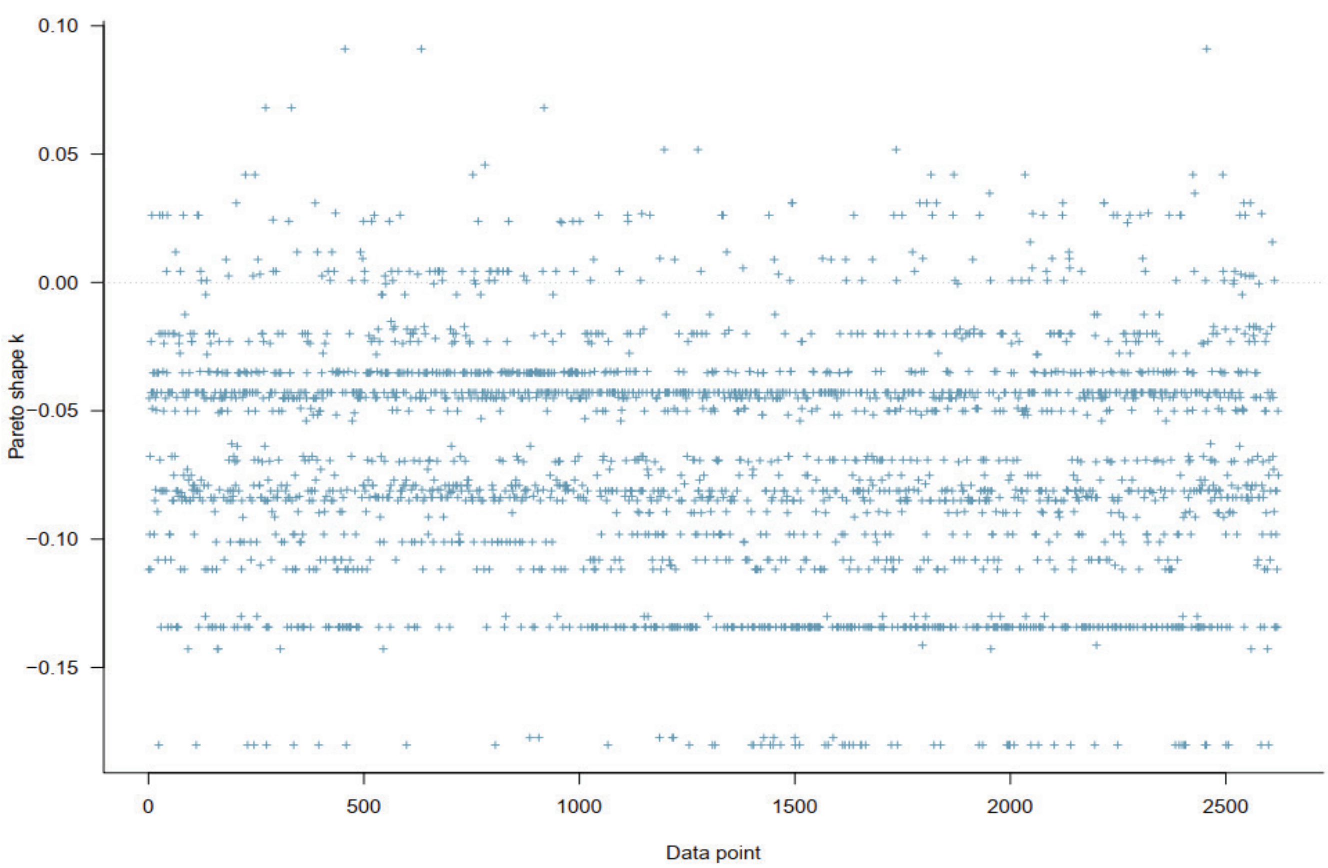


Fig. 2. Model 3's PSIS-LOO diagnosis plots. Source: Authors.

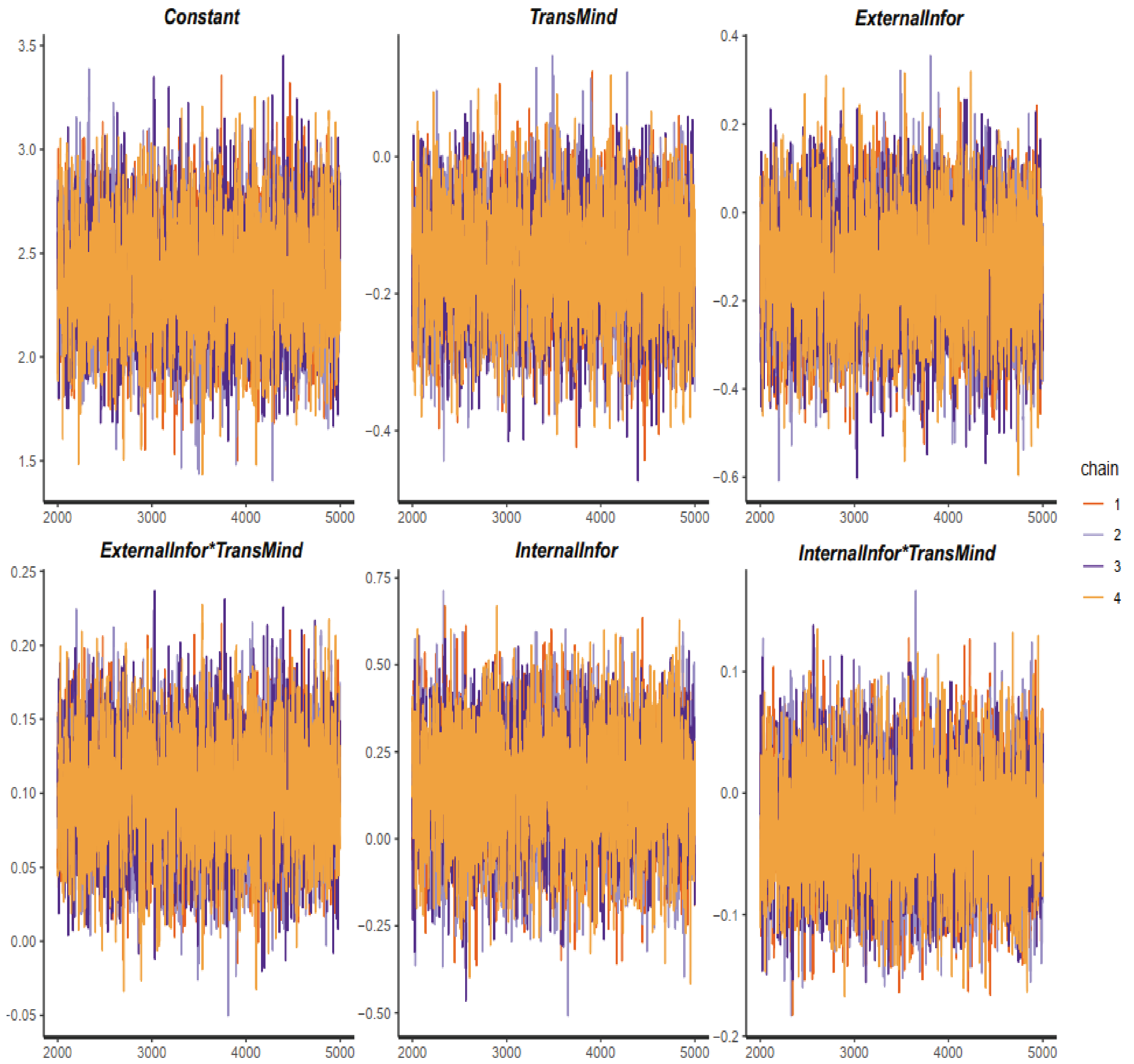


Fig. 3. Model 4's trace plots. Source: Authors.

The convergence diagnosis plots also validate Model 3's Markov chains convergence. Fig. 3 shows a stable variation of the Markov chains of Model 3 around a central equilibrium, which is a sign of convergence. The Gelman-Rubin-Brooks plots also validate the convergence as shrink factors decrease to one before the warm-up periods end (Fig. 4).

Figure 5 presents the autocorrelation plots, further validating the Markov chain convergence. The autocorrelation levels drop to zero after several lags, implying that iterative samples in the stochastic simulation process are memoryless.

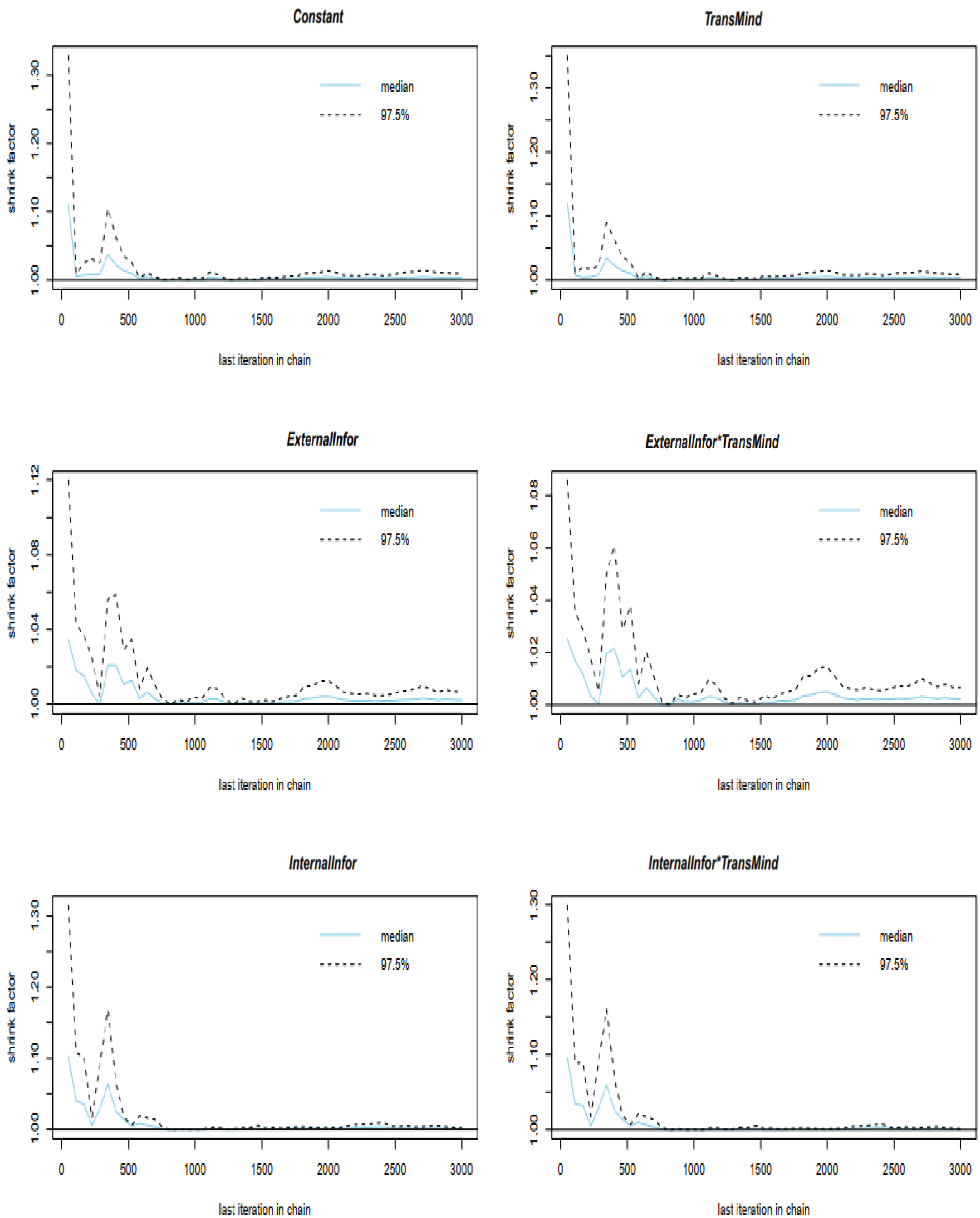


Fig. 4. Model 4's Gelman-Rubin-Brooks plots. Source: Authors.

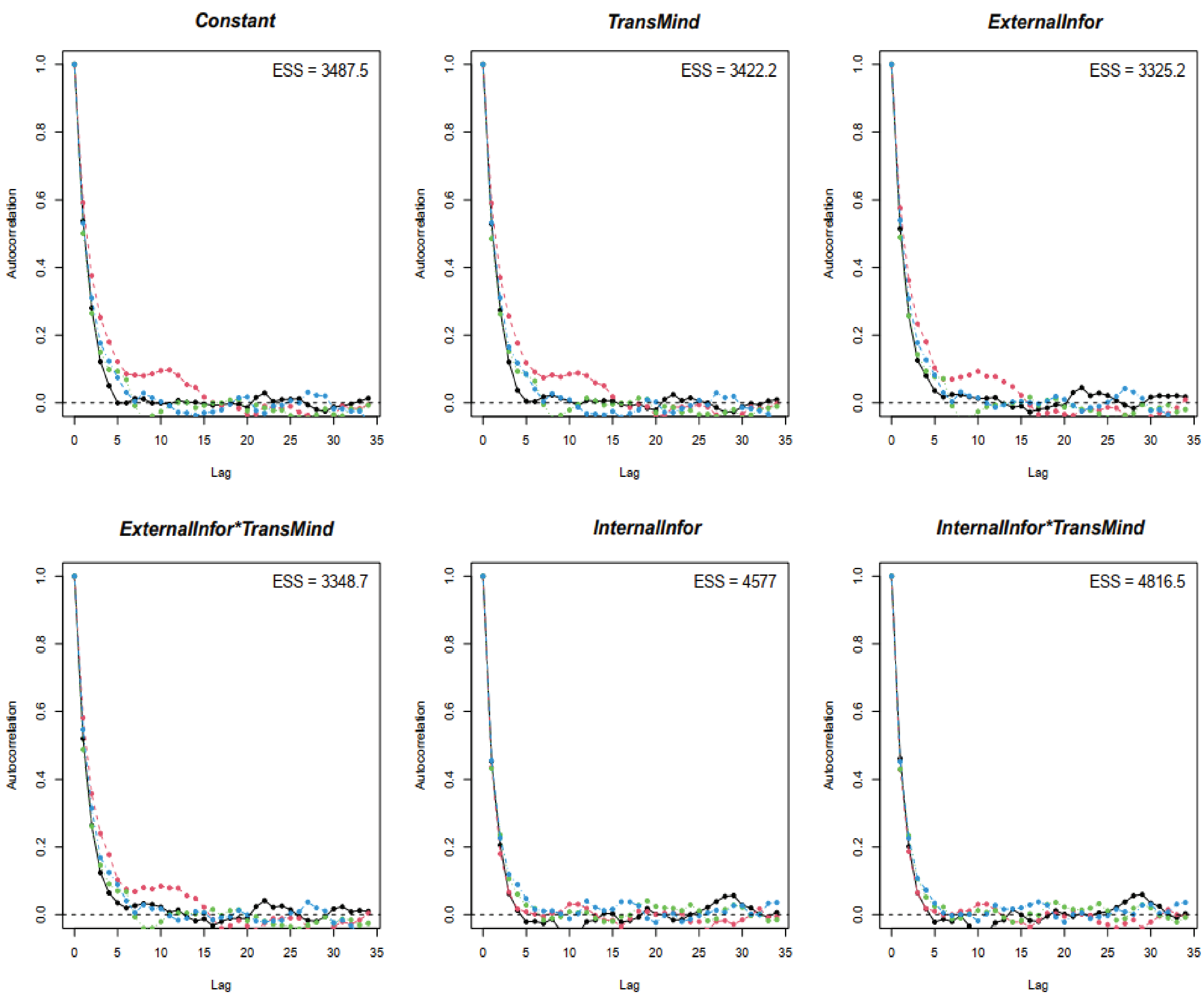


Fig. 5. Model 4's autocorrelation plots. Source: Authors.

3.3. Result interpretation

The posterior distributions of Model 3's coefficients are presented in Table 3 and visualised in Fig. 6.

Figure 6 presents the simulated posteriors of Model 3 on an interval plot. The thick blue lines display the probability density within the 89% Highest Posterior Density Intervals (HPDI), while the thin blue lines represent the probability distributed outside of the highest credible zone, and the dot indicates the mean value, which is considered the highest probability parameter. It is noted from Fig. 6 that *TransMind* and *ExternalInfor* have negative effects on the success of entrepreneurship ($M_{TransMind}$=-0.16 and $S_{TransMind}$=0.08; $M_{ExternalInfor}$=-0.14 and $S_{ExternalInfor}$=0.13). However, the interaction between *TransMind* and *ExternalInfor* has a positive influence on EvaluatedSuccess ($M_{ExternalInfor*TransMind}$=0.10 and $S_{ExternalInfor*TransMind}$=0.04). The effects of *TransMind* and *ExternalInfor*TransMind* are highly reliable because their HPDIs are located entirely on the side of the x-axis, while the effect of *ExternalInfor* is moderately reliable as a portion of its HPDI is still located on the positive side of the

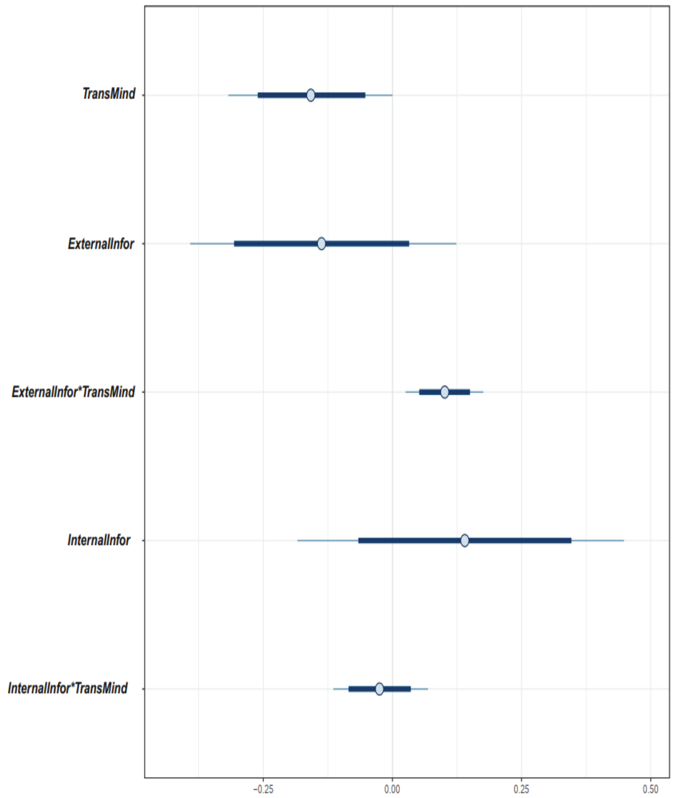


Fig. 6. Model 3's posterior distributions. Source: Authors.

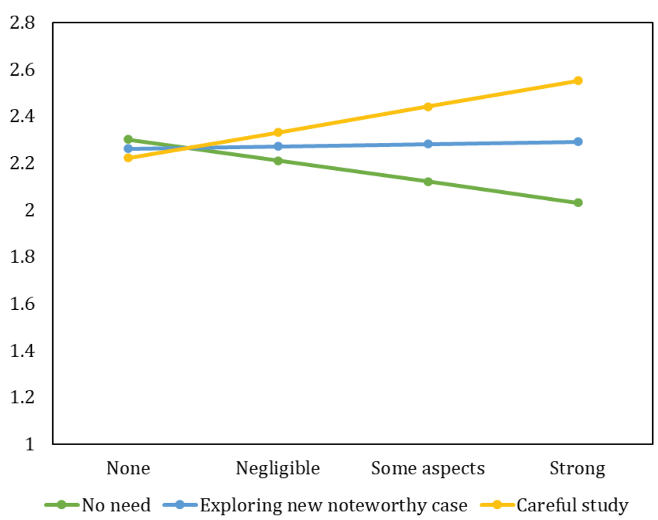


Fig. 7. Business-experienced entrepreneurs' likelihood of success according to their willingness/readiness to transform and patterns of learning from others' failures. Source: Authors.

x-axis. The *InternalInfor* also has a positive impact on the success ($M_{InternalInfor}$=0.14 and $S_{InternalInfor}$=0.16), but the effect is moderately reliable as there is still a portion of the distribution lying on the negative side of the x-axis. Meanwhile, the effect of *InternalInfor*TransMind* is negligible ($M_{InternalInfor*TransMind}$=-0.03 and $S_{InternalInfor*TransMind}$= 0.05).

To provide more detailed insights into our findings, we utilised Equation 3.2 along with the parameters' mean values obtained from Table 3 to calculate entrepreneurs' success probability. Fig. 7 visually represents this calculation, illustrating the relationship between the likelihood of success, the level of business experience among entrepreneurs, and their disposition towards transformative thinking and learning from others' failures. Notably, our analysis demonstrates that an entrepreneur's willingness and readiness to embrace transformative strategies significantly enhances their chances of success, but this effect is contingent on their approach to learning from others' failures. Entrepreneurs who conscientiously study others' failures experience a notable increase in their likelihood of success when they are open to transformation. However, a contrasting trend emerges among entrepreneurs who perceive learning from failures as unnecessary; in this case, a heightened willingness to transform is associated with a decline in their likelihood of success. This nuanced relationship underscores the importance of a strategic approach to both transformative thinking and failure learning, offering valuable insights for entrepreneurs seeking to optimise their success potential.

4. Discussion

The current study employed BMF analytics on a dataset of 3,071 Vietnamese entrepreneurs' perceptions to investigate how entrepreneurs' business-related experience and learning from others' failures affect the likelihood of business success and whether their willingness/readiness to adopt novel ways of thinking, acting, or beliefs moderates these effects.

We found that entrepreneurs with business-related experience are more likely to achieve higher success than those without experience. This result finds robust support in the mindsponge perspective. Business-experienced entrepreneurs possess a broader and more refined knowledge base related to the intricacies of conducting business. This knowledge base equips them with a well-calibrated set of expectations aligning with market dynamics, consequently elevating their decision-making and problem-solving capabilities. This pool of knowledge is accumulated through diverse channels such as experiential learning, direct observation, and formal training, all contributing to honing their decision-making and problem-solving acumen [87]. With this comprehensive pool of knowledge, entrepreneurs make decisions that seem to have the best chance of success and avoid actions that appear to be failures [88]. This adaptive decision-making process underscores the inherent value of hands-on experience and informed learning, emphasising the pivotal role of practical wisdom in navigating the complexities of entrepreneurship.

As a result, some information becomes trusted values that are crucial components of the information-processing system and influence the subsequent thinking process. This explanation is consistent with the dynamic model of entrepreneurial learning proposed by M. Minniti, et al. (2001) [89]. Trusted values will later affect information absorption by expediting the filtering process (or giving a "priority pass" to information analogous to the trusted values in the mindset), whereas distrusted information is discarded quickly without thorough examination. This mechanism is analogous to the term *heuristics* (or cognitive shortcuts) in entrepreneurial decisions [90]. Although the trust mechanism (or heuristics) will lead to both positive and negative outcomes [91], decisions induced by the trust mechanism (or heuristics) of experienced entrepreneurs are reasonably more effective than those of non-experienced ones. Besides better decisions, a larger knowledge pool also lays a better foundation for serendipity strikes, leading to innovation [92, 93].

Our findings also suggest that the willingness/readiness to transform thinking, acting, and beliefs is beneficial for business success only for entrepreneurs carefully learning others' failures. For entrepreneurs who perceive learning from others' failures as unnecessary, the willingness/readiness to transform even reduces their likelihood of success. Through the lens of mindsponge theory, the willingness/readiness to transform helps reduce the perceived cost of absorbing and filtering new information, making the mindset more likely to be updated. However, not all information is beneficial or accurate. Absorbing inaccurate information can create cognitive traps that deviate the mind from realities and influence it to adopt poor adaptive decisions to the changing environment, leading to a higher probability of failures [72, 94, 95]. Therefore, entrepreneurs should adopt willingness/readiness to transform together with in-depth learning from a good source of information (e.g., failure lessons) to update their minds to better fit with the realities.

Our theoretical contributions emphasise the multifaceted nature of entrepreneurial success, encompassing experiential learning, the transformation of cognitive processes, and the discerning acquisition of knowledge. This provides a mindsponge-based theoretical framework in the entrepreneurial success context, which can be used for future research to explore the intricate dynamics of entrepreneurial decision-making in diverse cultural and economic contexts.

Based on these findings, we suggest entrepreneurs build up their knowledge pool through experience, learning, and being open-minded. A sufficient pool of knowledge will support entrepreneurs in making better decisions and can create mental conditions for them to navigate the business, respond to market dynamics, and even innovate. Our recommendations are even more crucial in the context of Vietnam, where entrepreneurs prefer imitation to innovation and are usually based on personal intuition and pure luck, with no logical planning for initial settings [96]. However, knowledge learning should also be selective (i.e., learning from others' failures). Knowledge is power, but inaccurate knowledge is poison.

The implications of this research are manifold. They offer practical guidance and actionable insights to foster a dynamic, innovative, and resilient entrepreneurial ecosystem in Vietnam and potentially inspire similar advancements in other developing countries with analogous contexts:

• Entrepreneurs stand to benefit by understanding the critical interplay between knowledge accumulation, learning from failures, and transformative thinking, which can inform their strategic decisions and increase the likelihood of business success.

• Policymakers can leverage these insights to craft targeted policies and support systems, emphasising entrepreneurial education, mentorship, and networking initiatives that nurture a conducive environment for innovation and sustainable business growth.

• Educational institutions have an opportunity to enhance entrepreneurship curricula by incorporating the cognitive dimensions highlighted in this study, preparing future entrepreneurs to navigate challenges and make well-informed decisions.

• Investors and funding agencies can utilise these findings to guide their investment decisions, recognising entrepreneurs who emphasise knowledge acquisition and transformative thinking as potentially lower-risk, higher-reward ventures.

• For researchers, this study opens avenues for further exploration, encouraging in-depth investigations into specific industry contexts, regional variations, and entrepreneurial stages using an information-processing perspective.

Moreover, the research contributes to the global understanding of entrepreneurship by offering valuable insights from a non-Western culture.

The current study is not without limitations [97]. Thus, we present them here for transparency. First, the study employs the self-reported likelihood of success to proxy their success, so the evaluation might be influenced by some other mental characteristics of entrepreneurs, leading to cognitive biases. Future studies should validate the results using objective measurements of success. Each sector (e.g., technology, food and beverage, etc.) and business structure (e.g., family business, etc.) will have different characteristics, so entrepreneurs also need to possess a suitable mindset to operate successfully. However, the present study did not focus on these points, so they can be potential topics for further research.

5. Conclusions

Identifying factors contributing to entrepreneurial success plays a pivotal role in shaping policies, educational programs, and support systems tailored to the specific needs of Vietnamese entrepreneurs. This, in turn, fosters a vibrant and innovative entrepreneurial ecosystem in the country. Our study reveals that entrepreneurs with prior business-related experience are more likely to achieve higher levels of success compared to those without such experience. Furthermore, we found that the willingness to transform one's mindset, actions, and beliefs based on a careful examination of others' failures is beneficial for success. However, not all information is valuable-absorbing inaccurate or misleading information can create cognitive traps, distorting reality and leading to poor decision-making in an evolving business environment, thus increasing the likelihood of failure. Therefore, entrepreneurs must not only be open to change but also engage in thoughtful, informed learning, particularly from reliable sources, such as lessons from other failures. This is especially critical in Vietnam, where entrepreneurship often relies on imitation, intuition, and luck, with little logical planning during the initial stages.

CRediT author statement

Minh-Hoang Nguyen: Conceptualisation, Methodology, Formal analysis, Investigation, Writing - Original draft preparation, Reviewing, Editing, Validation; Quang-Loc Nguyen: Conceptualisation, Methodology; Phuong-Loan Nguyen: Methodology, Writing - Original draft preparation; Tam-Tri Le: Conceptualisation, Writing - Original draft preparation; Xuan-Tuan Phi: Writing - Original draft preparation; Cong Thuong Phi: Writing - Reviewing and Editing; Quan-Hoang Vuong: Conceptualisation, Methodology, Writing - Reviewing and Editing, Validation, Resources, Supervision.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] Z.J. Acs, S. Desai, J. Hessels (2008), "Entrepreneurship, economic development and institutions", *Small Business Economics*, **31**, pp.219-234.

[2] W.J. Baumol (2002), *The Free-market Innovation Machine: Analyzing The Growth Miracle of Capitalism*, Princeton University Press, 336pp.

[3] M. Fritsch (2017), "The theory of economic development: An inquiry into profits, capitai, credit, interest, and the business cycle", *Regional Studies*, **51(4)**, DOI: 10.1080/00343404.2017.1278975.

[4] S. Wennekers, R. Thurik (1999), "Linking entrepreneurship and economic growth", *Small Business Economics*, **13**, pp.27-56.

[5] M. Meyer, D. Libaers, B. Thijs, et al. (2014), "Origin and emergence of entrepreneurship as a research field", *Scientometrics*, **98**, pp.473-485.

[6] S.C. Parker (2018), "Entrepreneurship and economic theory", *Oxford Review of Economic Policy*, **34(4)**, pp.540-564.

[7] D.B. Audretsch, A.R. Thurik (2001), "What's new about the new economy? Sources of growth in the managed and entrepreneurial economies", *Industrial and Corporate Change*, **10(1)**, pp.267-315.

[8] E. Autio (2008), "High-and low-aspiration entrepreneurship and economic growth in low-income economies", *UNU-WIDER Workshop on Entrepreneurship in Economic Development*, Helsinki.

[9] W. Naudé (2010), "Entrepreneurship, developing countries, and development economics: New approaches and insights", *Small Business Economics*, **34**, pp.1-12.

[10] Q.H. Vuong (2018a), "The financial economy of Vietnam in an age of reform, 1986-2016", *Routledge Handbook of Banking and Finance in* Asia, Routledge, pp.201-222.

[11] Vietnam General Statistics Office (2017), *Vietnamese Enterprises: First 15 Years of The Century (2000-2014)*, https://www.gso.gov.vn/wp-content/uploads/2020/04/Ruot-sach-trang-2020.pdf, accessed 1 September 2023 (in Vietnamese).

[12] Global Entrepreneurship Research Association (2018), *Global Entrepreneurship Monitor 2017/2018 Global Report*, https://www.gemconsortium.org/report/gem-2017-2018-global-report, accessed 1 September 2023.

[13] Q.H. Vuong, V.P. La, T.T Vuong, et al. (2020), "Multi-faceted insights of entrepreneurship facing a fast-growing economy: A literature review", *Open Economics*, **3(1)**, DOI: 10.1515/openec-2020-0002.

[14] H. Tran, M. Abbott, C.J. Yap (2017), "How does working capital management affect the profitability of Vietnamese small-and medium-sized enterprises?", *Journal of Small Business and Enterprise Development*, **24(1)**, pp.2-11.

[15] H.T. Tran, E. Santarelli (2014), "Capital constraints and the performance of entrepreneurial firms in Vietnam", *Industrial and Corporate Change*, **23(3)**, pp.827-864.

[16] V. Nguyen, T. Pham (2017), "Knowledge management strategies, imitation, and innovation: An empirical study of Vietnamese firms", *Organizational Learning in Asia*, Elsevier, pp.85-108.

[17] T. Nguyen (2013), "Dr. Vuong Quan Hoang: Prevent "resource poisoning", *Thanh Nien Newspaper*, https://thanhnien.vn/van-hoa/tien-si-vuong-quan-hoang-chong-ngo-doc-nguon-luc-42437.html, accessed 1 September 2023 (in Vietnamese).

[18] Q.H. Vuong, N.K. Napier (2014), "Resource curse or destructive creation in transition: Evidence from Vietnam's corporate sector", *Management Research Review*, **37(7)**, pp.642-657.

[19] B.R. Entele (2021), "Impact of institutions and ICT services in avoiding resource curse: Lessons from the successful economies", *Heliyon*, **7(2)**, DOI: 10.1016/j.heliyon.2021.e05961.

[20] H. Sepehrdoust, S.Z. Shabkhaneh (2018), "How knowledge base factors change natural resource curse to economic growth?", *Technology in Society*, **54**, pp.149-154.

[21] P.C. Nutt (2008), "Investigating the success of decision making processes", *Journal of Management Studies*, **45(2)**, pp.425-455, DOI: 10.1111/j.1467-6486.2007.00756.x.

[22] S. Sassetti, V. Cavaliere, S. Lombardi (2019), "Entrepreneurial success: A theoretical contribution linking affect and cognition", *The Anatomy of Entrepreneurial Decisions: Past, Present and Future Research Directions*, Springer, pp.57-77.

[23] T. Kautonen, M.V. Gelderen, M. Fink (2015), "Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions", *Entrepreneurship Theory and Practice*, **39(3)**, pp.655-674, DOI: 10.1111/etap.12056.

[24] L.H. Middermann (2020), "Do immigrant entrepreneurs have natural cognitive advantages for international entrepreneurial activity?", *Sustainability*, **12(7)**, DOI: 10.3390/su12072791.

[25] L.H. Middermann, J. Kratzer, S. Perner (2020), "The impact of environmental risk exposure on the determinants of sustainable entrepreneurship", *Sustainability*, **12(4)**, DOI: 10.3390/su12041534

[26] D.A. Nina, J.C. Guzmán, G.M.Q. Fernández, et al. (2023), "The determinants of success in entrepreneurship: A study in the urban area of Ecuador", *Sustainability*, **15(6)**, DOI: 10.3390/su15065277.

[27] H. Wijewardena, S. Cooray (1996), "Factors contributing to the growth of small manufacturing firms: Perceptions of Japanese owner/managers", *Journal of Enterprising Culture*, **4(4)**, pp.351-361, DOI: 10.1142/S0218495896000204.

[28] J. Gimeno, T.B. Folta, A.C. Cooper, et al. (1997), "Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms", *Administrative Science Quarterly*, **42(4)**, pp.750-783, DOI: 10.2307/2393656.

[29] J.M. Unger, A. Rauch, M. Frese, et al. (2011), "Human capital and entrepreneurial success: A meta-analytical review", *Journal of Business Venturing*, **26(3)**, pp.341-358, DOI: 10.1016/j.jbusvent.2009.09.004.

[30] P.H. Dickson, G.T. Solomon, K.M. Weaver (2008), "Entrepreneurial selection and success: Does education matter?", *Journal of Small Business and Enterprise Development*, **15(2)**, pp.239-258, DOI: 10.1108/14626000810871655.

[31] I. Kolstad, A. Wiig (2015), "Education and entrepreneurial success", *Small Business Economics*, **44**, pp.783-796, DOI: 10.1007/s11187-014-9621-1.

[32] M.W. Staniewski (2016), "The contribution of business experience and knowledge to successful entrepreneurship", *Journal of Business Research*, **69(11)**, pp.5147-5152, DOI: 10.1016/j.jbusres.2016.04.095.

[33] Z.M. Makhbul, F.M. Hasun (2011), "Entrepreneurial success: An exploratory study among entrepreneurs", *International Journal of Business and Management*, **6(1)**, DOI: 10.5539/ijbm.v6n1p116.

[34] P. Adriaans (2020), "Information", *Stanford Encyclopedia of Philosophy*, Stanford: Stanford University.

[35] P. Davies, N.H. Gregersen (2014), *Information and The Nature of Reality*, Cambridge University Press, DOI: 10.1017/CBO9781107589056.

[36] M.S.A. Graziano (2022), "A conceptual framework for consciousness", *Proceedings of The National Academy of Sciences*, **119(18)**, DOI: 10.1073/pnas.211693311.

[37] S.D. Klerk (2015), "The creative industries: An entrepreneurial bricolage perspective", *Management Decision*, **53(4)**, pp.828-842.

[38] N. Dew (2009), "Serendipity in entrepreneurship", *Organization Studies*, **30(7)**, pp.735-753, DOI: 10.1177/0170840609104815.

[39] L. Fuglsang (2010), "Bricolage and invisible innovation in public service innovation", *Journal of Innovation Economics Management*, **1**, pp.67-87, DOI: 10.3917/jie.005.0067.

[40] O. Asamoah, J.A. Danquah, D. Bamwesigye, et al. (2024), "The perception of the locals on the impact of climate variability on non-timber forest products in Ghana", *Acta Ecologica Sinica*, **44(3)**, pp.489-499, DOI: 10.1016/j.chnaes.2023.07.004.

[41] L. Cheng, Y. Yu, Y. Wang, et al. (2023), "Influences of mental accounting on consumption decisions: Asymmetric effect of a scarcity mindset", *Frontiers in Psychology*, **14**, DOI: 10.3389/fpsyg.2023.1162916.

[42] M. Kumar, S. Srivastava, T. Muhammad, et al. (2022), "Examining the association between health status and subjective life expectancy among older Indian adults based on the mindsponge approach", *Humanities and Social Sciences Communications*, **9(1)**, pp.1-10, DOI: 10.1057/s41599-022-01368-1.

[43] P. Mantello, M.T. Ho, M.H. Nguyen, et al. (2023), "Machines that feel: Behavioral determinants of attitude towards affect recognition technology - upgrading technology acceptance theory with the mindsponge model", *Humanities and Social Sciences Communications*, **10**, DOI: 10.1057/s41599-023-01837-1.

[44] M.H. Nguyen, T.E. Jones (2022a), "Building eco-surplus culture among urban residents as a novel strategy to improve finance for conservation in protected areas", *Humanities & Social Sciences Communications*, **9**, DOI: 10.1057/s41599-022-01441-9.

[45] M.H. Nguyen, T.E. Jones (2022b), "Predictors of support for biodiversity loss countermeasures and bushmeat consumption among Vietnamese urban residents", *Conservation Science and Practice*, **4(12)**, DOI: 10.1111/csp2.12822.

[46] M.H. Nguyen, Q.V. Khuc, V.P. La, et al. (2022c), "Mindsponge-based reasoning of households' financial resilience during the COVID-19 crisis", *Journal of Risk Financial Management*, **15(11)**, DOI: 10.3390/jrfm15110542.

[47] N. Tanemura, M. Kakizaki, T. Kusumi, et al. (2022), "Levels of trust in risk-only negative health messages issued by public agencies: A quantitative research-based mindsponge framework", *Humanities and Social Sciences Communications*, **9**, DOI: 10.1057/s41599-022-01415-x.

[48] H. Wang, M. Cui, S. Li, et al. (2023), "Perception and willingness toward various immunization routes for COVID-19 vaccines: A cross-sectional survey in China", *Frontiers in Public Health*, **11**, DOI: 10.3389/fpubh.2023.1192709.

[49] Q.H. Vuong, T.T. Le, R. Jin, et al. (2023), "Near-suicide phenomenon: An investigation into the psychology of patients with serious illnesses withdrawing from treatment", *International Journal of Environmental Research and Public Health*, **20(6)**, DOI: 10.3390/ijerph20065173.

[50] J. Lu, Q. Deng, Y. Chen, et al. (2023), "Impact of perceived ease of use, organisational support mechanism, and industry competitive pressure on physicians' use of liver cancer screening technology in medical alliances", *Frontiers in Public Health*, **11**, DOI: 10.3389/fpubh.2023.1174334.

[51] Q.H. Vuong, N.K. Napier (2015), "Acculturation and global mindsponge: An emerging market perspective", *International Journal of Intercultural Relations*, **49**, pp.354-367.

[52] I. Ajzen (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, **50(2)**, pp.179-211.

[53] G. Hofstede, G.J. Hofstede, M. Minkov (2005), *Cultures and Organizations: Software of The mind*, McGraw-Hill, 576pp.

[54] A.H. Maslow (1981), *Motivation and Personality*, Prabhat Prakashan.

[55] H. Mintzberg (1973), *Nature of Managerial Work*, Harper & Row.

[56] I. Nonaka, N. Konno (1998), "The concept of "Ba": Building a foundation for knowledge creation", *California Management Review*, **40(3)**, pp.40-54.

[57] M.E. Porter (2011), "*Competitive Advantage of Nations: Creating and Sustaining Superior Performance*, Simon & Schuster.

[58] Q.H. Vuong (2023), *Mindsponge Theory*, Walter de Gruyter GmbH, 256pp.

[59] M.H. Nguyen, V.P. La, T.T. Le, et al. (2022d), "Introduction to Bayesian Mindsponge Framework analytics: An innovative method for social and psychological research", *MethodsX*, **9**, DOI: 10.1016/j.mex.2022.101808.

[60] C.M. Alberini, E.R. Kandel (2015), "The regulation of transcription in memory consolidation", *Cold Spring Harbor Perspectives in Biology*, **7(1)**, DOI: 10.1101/cshperspect.a021741.

[61] C. Bernstein (2022), "DNA methylation and establishing memory", *Epigenetics Insights*, **15**, DOI: 10.1177/25168657211072499.

[62] T. Kitamura, S.K. Ogawa, D.S. Roy, et al. (2017), "Engrams and circuits crucial for systems consolidation of a memory", *Science*, **356(6333)**, pp.73-78.

[63] S. Tonegawa, M.D. Morrissey, T. Kitamura (2018), "The role of engram cells in the systems consolidation of memory", *Nature Reviews Neuroscience*, **19(8)**, pp.485-498.

[64] T.V. Bliss, G.L. Collingridge (1993), "A synaptic model of memory: Long-term potentiation in the hippocampus", *Nature*, **361**, pp.31-39.

[65] T.T. Le (2022), "Natural and social survival: The drivers of serendipity", *A New Theory of Serendipity: Nature, Emergence and Mechanism*, De Gruyter, pp.75-90.

[66] I.M. Kirzner (2015), *Competition and Entrepreneurship*, University of Chicago Press, 256pp.

[67] J. Bessant, J. Tidd (2007), *Innovation and Entrepreneurship*, John Wiley & Sons, https://www.tillvaxtanalys.se/in-english/publications/reports/reports/2009-01-20-entrepreneurship-and-innovation.html, accessed 1 September 2023.

[68] J.W. Dean, M.P. Sharfman (1996), "Does decision process matter? A study of strategic decision-making effectiveness", *Academy of Management Journal*, **39(2)**, pp.368-392, DOI: 10.5465/256784.

[69] K.M. Eisenhardt, M.J. Zbaracki (1992), "Strategic decision making", *Strategic Management Journal*, **13(S2)**, pp.17-37, DOI: 10.1002/smj.4250130904.

[70] Y.R. Choi, D.A. Shepherd (2004), "Entrepreneurs' decisions to exploit opportunities", *Journal of Management*, **30(3)**, pp.377-395.

[71] M.H. Nguyen, T.T. Le, Q.H. Vuong (2023), "Ecomindsponge: A novel perspective on human psychology and behavior in the ecosystem", *Urban Science*, **7(1)**, DOI: 10.3390/urbansci7010031.

[72] D. Ucbasaran, D.A. Shepherd, A. Lockett, et al. (2013), "Life after business failure: The process and consequences of business failure for entrepreneurs", *Journal of management*, **39(1)**, pp.163-202.

[73] T.Q. Tuyen, V.V. Huong, D.T. Tinh, et al. (2016), "Corruption, provincial institutions and manufacturing firm productivity: New evidence from a transitional economy", *Estudios de Economía*, **43(2)**, pp.199-215.

[74] H.V. Vu, T.Q. Tran, T.V. Nguyen, et al. (2018), "Corruption, types of corruption and firm financial performance: New evidence from a transitional economy", *Journal of Business Ethics*, **148**, pp.847-858, DOI: 10.1007/s10551-016-3016-y.

[75] C. Dweck (2017), *Mindset-updated Edition: Changing The Way You Think to Fulfil Your Potential*, Hachette UK, 320pp.

[76] Q.H. Vuong (2016), "Survey data on entrepreneurs′ subjective plan and perceptions of the likelihood of success", *Data in Brief*, 6, pp.858-864.

[77] E. Diener, R.A. Emmons, R.J. Larsen, et al. (1985), "The satisfaction with life scale", *Journal of Personality Assessment*, **49(1)**, pp.71-75.

[78] M.H. Nguyen, V.P. La, T.T. Le, et al. (2022e), "Bayesian Mindsponge Framework analytics: A novel methodological approach for social sciences and humanities", *The Mindsponge and BMF Analytics for Innovative Thinking in Social Sciences and Humanities*, De Gruyter, pp.87-116, DOI: 10.2478/9788367405119-010.

[79] K. Csilléry, M.G. Blum, O.E. Gaggiotti, et al. (2010), "Approximate Bayesian computation (ABC) in practice", *Trends in Ecology and Evolution*, **25(7)**, pp.410-418. DOI: 10.1016/j.tree.2010.04.001.

[80] J. Gill (2014), *Bayesian Methods: A Social and Behavioral Sciences Approach* CRC Press.

[81] V.P. La, Q.H. Vuong (2019), "Bayesvl: Visually learning the graphical structure of Bayesian networks and performing MCMC with'Stan'", *The Comprehensive R Archive Network (CRAN)*, https://cran.r-project.org/web/packages/bayesvl/index.html, accessed 1 September 2023.

[82] Q.H. Vuong, M.H. Nguyen, V.P. La (2022), "Updated protocol for performing BMF analytics using bayesvl", *The Mindsponge and BMF Analytics for Innovative Thinking in Social Sciences and Humanities*, De Gruyter, pp.301-370, DOI: 10.2478/9788367405119-015.

[83] P. Diaconis, D. Ylvisaker (1985), "Quantifying prior opinion", *Bayesian Statistics,* North Holland Press, **2**, pp.133-156.

[84] A. Vehtari, A. Gelman, J. Gabry (2017), "Practical Bayesian model evaluation using leave-one-out cross-validation and WAIC", *Statistics and Computing*, **27(5)**, pp.1413-1432, DOI: 10.1007/s11222-016-9696-4.

[85] A. Vehtari, J. Gabry (2019), *Bayesian Stacking and Pseudo-BMA Weights Using The Loo Package* (version loo 2.2.0), https://mc-stan.org/loo/articles/loo2-weights.html, accessed 1 September 2023.

[86] Q.H. Vuong (2018b), "The (ir)rational consideration of the cost of science in transition economies", *Nature Human Behaviour*, **2**, DOI: 10.1038/s41562-017-0281-4.

[87] A.P. Petkova (2009), "A theory of entrepreneurial learning from performance errors", *International Entrepreneurship and Management Journal*, **5(4)**, pp.345-367, DOI: 10.1007/s11365-008-0075-2.

[88] R. Funken, M.M. Gielnik, M.D. Foo (2020), "How can problems be turned into something good? The role of entrepreneurial learning and error mastery orientation", *Entrepreneurship Theory and Practice*, **44(2)**, pp.315-338.

[89] M. Minniti, W. Bygrave (2001), "A dynamic model of entrepreneurial learning entrepreneurship: Theory and practice", *Journal of GEM*, **4**, pp.41-52.

[90] M. Cristofaro, F. Giannetti (2021), "Heuristics in entrepreneurial decisions: A review, an ecological rationality model, and a research agenda", *Scandinavian Journal of Management*, **37(3)**, DOI: 10.1016/j.scaman.2021.101170.

[91] F. Artinger, M. Petersen, G. Gigerenzer, et al. (2015), "Heuristics as adaptive decision strategies in management", *Journal of Organizational Behavior*, **36(S1)**, pp.S33-S52.

[92] M.H. Nguyen, R. Jin, G. Hoang, et al. (2022), "Examining contributors to Vietnamese high school students' digital creativity under the serendipity-mindsponge-3D knowledge management framework", *Thinking Skills and Creativity*, **49**, DOI: 10.1016/j.tsc.2023.101350.

[93] Q.H. Vuong (2022), *A New Theory of Serendipity: Nature, Emergence and Mechanism*, Walter De Gruyter GmbH, 258pp.

[94] P. Drucker (2013), "7 Making effective decisions - And avoiding cognitive traps", *Enhancing Entrepreneurial Excellence: Tools for Making the Possible Real*, Edward Elgar Publishing.

[95] J.S. Hammond, R.L. Keeney, H. Raiffa (1998), "The hidden traps in decision making", *Harvard Business Review*, **76(5)**, pp.47-58.

[96] M.T.T. Thai, N.H. Anh (2016), "The impact of culture on the creation of enterprises", *Journal for International Business and Entrepreneurship Development*, **9(1)**, pp.1-22.

[97] Q.H. Vuong (2020), "The limitations of retraction notices and the heroic acts of authors who correct the scholarly record: An analysis of retractions of papers published from 1975 to 2019", *Learned Publishing*, **33(2)**, pp.119-130, DOI: 10.1002/leap.1282.

Digital banking model for promoting retail banking services at Vietnamese commercial banks

Chien Thang Nguyen[1], Thi Minh Hang Nguyen[2*], Mai Anh Le[3]

[1]*Digital Banking Centre, Bank for Investment and Development of Vietnam, 191 Ba Trieu Street, Le Dai Hanh Ward, Hai Ba Trung District, Hanoi, Vietnam*
[2]*Banking Strategies Institute, State Bank of Vietnam, 504 Xa Dan Street, Nam Dong Ward, Dong Da District, Hanoi, Vietnam*
[3]*Central Institute for Economic Management, 68 Phan Dinh Phung Street, Quan Thanh Ward, Ba Dinh District, Hanoi, Vietnam*

Received 29 May 2024; revised 10 June 2024; accepted 10 July 2024

Abstract:

The Fourth Industrial Revolution is inducing rapid transformations globally, notably in the banking industry's digitalisation surge. This transformation is vital for the "survival" and growth of Vietnamese commercial banks. In recent years, commercial banks have recognised the importance of digital transformation strategies. Consequently, they have heavily invested in digital technology and conducted extensive research on its application in banking operations, particularly in the retail banking sector. However, this transition faces multiple obstacles such as limited technological capacity, rising security issues, and limitations in R&D and human resources. Using data collected from ten commercial banks in Vietnam, representing 50% of the State-owned commercial banks and 56% of the top sixteen banks with the largest total assets, and their 200 individual customers, this study analyses the difficulties those banks are encountering, the factors impacting their customers' satisfaction and loyalty, and provides a roadmap for Vietnamese commercial banks to successfully transition towards digital banking models. The empirical results indicate that: (i) a successful approach towards digital banking necessitates prioritising customers in all initiatives; (ii) security concerns are a fundamental factor undermining customer trust in retail products on digital banking platforms; (iii) effective communication by bank staff enhances customer experience with digital banking; (iv) the outdated legal framework, intense competition from fintech. In response to these challenges, the study proposes a three-phase roadmap for the development of digital banking in Vietnam, as well as suggesting recommendations for the Government, the State Bank of Vietnam, and other relevant ministries.

Keywords: **digital banking models, digital transformation, retail banking services.**

Classification numbers: **2.1, 2.2**

1. Introduction

This study was conducted in the context of the Fourth Industrial Revolution, which is significantly influencing various economic sectors in Vietnam, particularly the banking industry. Financial-technology companies (FinTech) have posed a challenge to traditional banks in their capacity to cater to the demands of young customers, particularly in providing retail services. This segment has long been regarded as one of the most lucrative and secure business segments for Vietnamese commercial banks. The number of fintech companies in Vietnam has increased fourfold over the past six years, rising from 39 companies in 2015 to surpassing 150 companies in 2021 [1].

Based on a survey conducted by the State Bank of Vietnam, it was found that the majority of fintech services in Vietnam are similar to retail banking activities, including payments, lending, capital mobilisation, personal finance services, credit scoring, and solutions for credit institutions [2]. Fintech companies are intensifying competition by providing services that traditional financial institutions execute less efficiently. This presents a potential threat to the income generated from retail banking services. In

*Corresponding author: Email: hangnguyen.sbv@gmail.com

addition to generating profits, retail banking services also function as a crucial marketing channel for enhancing the bank's public image and expanding its market presence.

Moreover, the COVID-19 pandemic has significantly influenced Vietnamese consumer behaviour, leading to a shift towards digitalisation. Vietnamese people are transitioning from traditional retail establishments to online shopping platforms and delivery apps. Payment methods for these transactions have consequently changed. A significant proportion of customers, particularly tech-savvy young individuals, have transitioned to utilising e-wallets for bill payments and employing internet banking, e-banking, and mobile banking applications for purposes such as saving money and making investments.

To prevent lagging behind and relinquishing market dominance to fintech companies, Vietnamese commercial banks must formulate strategies for digital banking models, with a particular focus on the retail sector. This policy aligns with the government's plan to promote non-cash payments from 2021 to 2025, as stated in Decision No. 1813/QD-TTg issued by the Prime Minister on 28 October 2021. It also aligns with the banking industry's action plan outlined in Resolution No. 50/NQ-CP issued by the Government on 17 April 2020, which aims to implement Resolution No. 52-NQ/TW issued by the Politburo on 27 September 2019, regarding guidelines and policies for active participation in the Fourth Industrial Revolution. Furthermore, it is consistent with the Plan for Digital Transformation of the Banking Industry until 2025, with further directions until 2030, as stated in Decision No. 810/QD-NHNN issued on 11 May 2021, and Decision No. 06/QD-TTg by the Prime Minister on 6 January 2022 approving the Scheme on developing the application of data on population, identification, electronic authentication data for national digital transformation in the 2022-2025 period, with a vision toward 2030. The main objective is to create digital banking models that improve convenience, consumer satisfaction, and achieve overall financial goals and sustainable development.

With an emphasis on retail services, the research will add to the body of knowledge about digital banking in Vietnam. While numerous economists have examined the digital transformation in the Vietnamese banking industry, none have yet provided a clear roadmap for this process. Consequently, the study seeks to address that void in research.

The research employs the technique of synthesising and analysing both domestic and foreign academic documents to identify patterns in the evolution of digital banking models worldwide, including Vietnam.

Additionally, the study analyses the current state of Vietnamese commercial banks' digital transformation and the challenges they are facing by using survey methods for both the banks and individual customers. Furthermore, the study examines the factors that influence customer satisfaction when utilising retail services on digital platforms. As a result, the study will offer a development roadmap for digital banking in Vietnam.

2. Literature review and research questions

2.1. Digital banking concept

The concept of "digital banking" represents a paradigm shift in the banking industry, characterised by a reliance on technology platforms to digitise traditional banking products and services [3]. Essentially, it entails a business model grounded in technology, facilitating seamless exchange of information and transactions between banks and customers. Services such as fund transfers, savings deposits, lending, and investment advice are seamlessly integrated into the digital banking framework, accessible via web portals or mobile applications. This eliminates the necessity for physical bank visits, offering unparalleled convenience for customers while streamlining operational processes for banks [4].

Analogous to electronic banking (e-banking), digital banking leverages modern technology to enhance efficiency and convenience in online service provision [4]. However, digital banking transcends electronic banking by embracing a more comprehensive approach, aiming to digitise all aspects of banking activities rather than focusing solely on specific features like internet or SMS banking. Consequently, it emerges as a contemporary and forward-looking model in the banking landscape. The business model of digital banking encompasses all facets of a traditional bank's operations, including organisational structures, human resource management, and the provision and processing of financial services [5]. Notably, digital banking boasts superior features such as 24/7 service accessibility, facilitated-through-internet transactions and technologically-driven applications, along with simplified administrative procedures. It heralds the emergence of branchless or automated banking, marking a significant evolution in the banking industry.

2.2. Digital banking transition

M. Sajić, et al. (2017) [6] argue that the transition from traditional banking models to digital banking is a natural and inevitable process due to several factors. Firstly, the proportion of younger customers in banks is increasing and gradually replacing the middle-aged group. Younger customers are more capable of accessing and proficient with technology and the internet. Therefore, this customer group prefers to use retail banking services through the internet and mobile phones, rather than visiting traditional bank branches like the middle-aged group. Secondly, the emergence of financial technology (FinTech) applications has created new habits for bank customers, gradually diminishing their need to access traditional banks for transactions.

R.E. Byers, et al. (2001) [7] predicted that one day bank branches would be completely replaced by digital banks in the retail sector. The most crucial factor driving this process is the change in customers' transaction methods. Banks will have to compete based on technology, and the winner will be the one that can provide the best banking service experience to customers. S. Ananda, et al. (2020) [8] conducted a survey of 200 bank customers in Oman and concluded that digital banking saves time and costs compared to traditional banking, driven by the development and widespread adoption of the internet. The major factors influencing customers' use of digital banking include the utility of the product, customer perception, and the user-friendly interface of digital banking applications.

Similarly, U. Filotto, et al. (2021) [9] conducted a survey with 446 bank customers in Italy and reached conclusions similar to those of S. Ananda, et al. (2020) [8]. The three factors affecting the frequency and preference for digital banking applications among people include the user-friendly interface of the application, the safety and security of the application, and the utility of the product (in terms of saving time and transaction costs for people). S. Reydet, et al. (2017) [10] presented a rather novel study, combining the digital transformation of banks with the behavioural psychology of customers based on quantitative surveys and analyses. Accordingly, digital banking applications (especially those that are well-designed and easy to use) significantly contribute to increasing customer satisfaction, thereby making customers more loyal to the digital banking products they prefer and are accustomed to using. Thus, digital banking acts as an intermediary that enhances customer loyalty to banks.

S.J. Kaur, et al. (2021) [11] studied the trend of people transitioning from using traditional retail services to retail services provided on digital banking platforms in India. The reality in India shows that although banks have spent substantial amounts on technology to design the most advanced digital banking applications, the participation rate of the population has not matched the level of investment. Although about 80% of India's population has digital bank accounts, 48% of accounts registered between 2014 and 2017 were not used. From this, S.J. Kaur, et al. (2021) [11] argue that technology is not the most critical factor in encouraging people to use digital banking services, but rather education. The survey by S.J. Kaur, et al. (2021) [11] shows that customer satisfaction increases when bank staff guide them in using retail services on digital banking platforms. Communication between bank staff and customers is key to making customers feel comfortable and more confident in the digital services provided by Indian commercial banks. S.J. Kaur, et al. (2021) [11] pointed out a crucial point: commercial banks should not view digital banking as merely a marketing channel, but as a channel to connect, interact, and understand the real needs of customers.

In delineating the transition process from conventional to digital banking, C. Skinner (2014) [3] proposed a nuanced roadmap for traditional banks. C. Skinner (2014) [3] underscored the paramount importance of adopting a customer-centric approach as the cornerstone of digital banking evolution. This necessitates an intensified focus on customer dialogue and guidance, aimed at enriching the overall customer experience within the digital banking ecosystem.

A pivotal facet highlighted by C. Skinner (2014) [3] is the customisation of login methodologies to align with customer preferences. Rather than mandating separate account creations, digital banking platforms are encouraged to explore integration options with popular third-party platforms such as Google or Facebook, while steadfastly upholding stringent data security protocols.

Moreover, C. Skinner (2014) [3] emphasised the ascendancy of mobile banking applications over their web-based counterparts, citing the inherent agility and convenience afforded to customers. Mobile platforms empower users to seamlessly execute transactions, make enquiries, and capture transactional snapshots, underscoring their efficacy in enhancing user engagement and satisfaction vis-à-vis web applications.

C. Skinner (2014) [3] predicted that in the near future, the Bank-as-a-Service (BAAS) model will replace mobile applications and websites, as all customer information will be stored on the iCloud. M. Sajić, et al. (2017) [6] outlined a two-step process to help traditional banks transition to the digital model, which includes integrating traditional and digital banking activities (Step 1) before completely changing into an independent digital bank (Step 2).

M. Sajić, et al. (2017) [6] also pointed out that the speed of digital transformation in banking heavily depends on the level of support from the country's regulatory framework. Therefore, institutional reform is one of the prerequisites and mandatory conditions to promote the development of digital banking.

According to Casu's 2015 textbook *Introduction to Banking*, retail banking or individual banking relates to financial services provided for customers [12], often at a small scale. Usually, all big banks provide a variety of individual banking services including payment (current accounts with cheques, credit transfers, standing orders, direct debits and cards), savings, loans, mortgages, insurance, pensions and other services. Retail banking services include: (i) Payment; (ii) Mobilisation and credit; and (iii) Investment products (Fig.1).

2.3. Digital banking models available in Vietnam

There are two principal approaches to the development of digital banking in Vietnam. The first approach involves the digitisation of an existing bank, which may include the digitisation of internal processes, business products, and distribution channels. The second approach combines the first method with the development of independent digital banks [6]. Despite these strategies, the pace of digital transformation among banks remains sluggish. Among the banks implementing core banking digitisation, the majority are only in the preliminary stages, while the rest have yet to take any concrete steps.

The systems of Vietnamese commercial banks (NHTMs) have not undergone substantial changes and continue to predominantly follow traditional

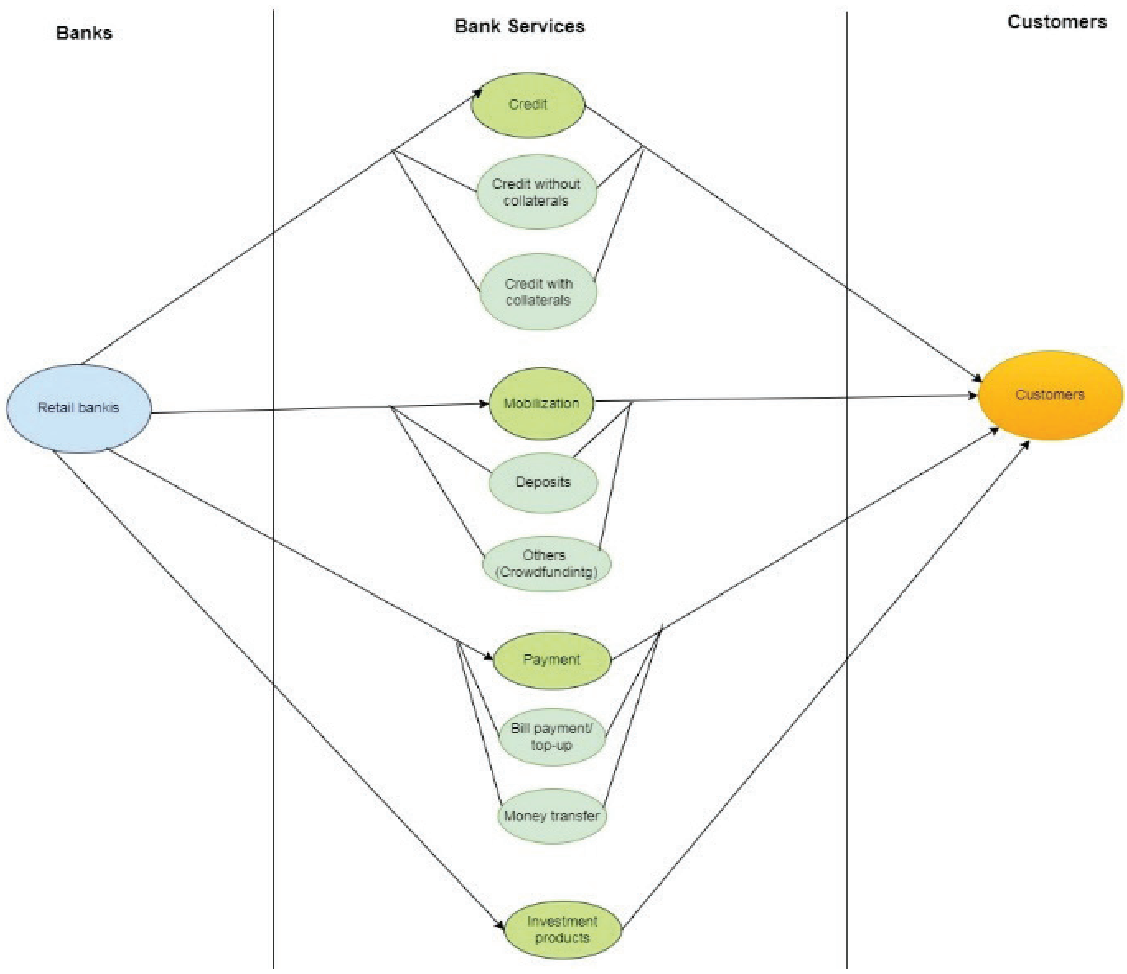


Fig. 1. Retail banking services. Source: Authors'compilation.

development models, with a continuous expansion of physical distribution channels. Although there is an acknowledgment of the significance of big data, only a few banks, such as Vietinbank and VPBank, are employing big data in a nascent and limited way. Additionally, Vietnamese commercial banks do not possess a true banking ecosystem; rather, what exists is essentially a collection of digital payment products that are quite fragmented. Current digitisation efforts have been primarily focused on customer-facing departments (front end), while operational departments (back office) continue to rely on outdated technologies [13].

Moreover, although digital transformation has been identified as a paramount objective, the level of preparation and readiness for digitisation among Vietnamese commercial banks varies significantly. According to the 2019 Vietnam ICT Readiness Index report (ICT Index 2019), the Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV) consistently ranked first in the ICT Index among commercial banks from 2017 to 2019 and led in terms of readiness to invest resources in IT development and application. Despite being in the group of state-owned commercial banks, Vietcombank and Vietinbank have significantly lower ICT indices compared to BIDV, ranking only the 18th and 22nd, respectively, among commercial banks [14]. This disparity highlights a pronounced divergence in the pace of digital transformation among Vietnamese commercial banks.

Commercial banks in Vietnam are presently implementing the following three digital banking models in order to develop retail banking services:

1. *Digital banking:* Conventional banks implement this strategy by establishing supplementary digital channels to their existing ones. Additionally, some financial institutions advance the digital ecosystem by implementing Open Banking with ground-breaking Open Application Programming Interface (a.k.a. Open API) technology. In addition to technological obstacles and complexities, the implementation of Open API is also impacted by shifts in public opinion and modifications to the legal framework. The effective execution of the legal structure governing Open API will empower the fintech sector to introduce novel and innovative services, thereby satisfying the growing expectations of customers in line with the global advancements in banking service provision.

2. *Digital bank:* Several foreign banks are presently operating in Vietnam, including CIMB's Octopus, UOB's TMRW, and an upcoming branch of KB-Thailand, which have established autonomous digital banks with the aim of advancing retail banking and banking services in general. Nevertheless, the existing legislation fails to specify the category of digital bank or the particular criteria that must be met in order to obtain a distinct authorisation for the establishment of an autonomous digital bank entity. As a result, Vietnamese commercial banks are presently unable to implement this model, and competition between Vietnamese commercial banks and foreign banks will intensify with regard to market share of customers, products, and services.

3. *Neo-bank:* The majority of payment intermediary firms are currently adopting this framework as a means to implement their business strategies. Investing in research and technological advancement to construct and develop this model, in fact, entails enormous expenses. Furthermore, similar to the majority of non-bank financial institutions globally, neo-banks operate under a restricted and insufficient legal framework. Consequently, the deployment of advanced technological applications by neo-banks may give rise to legal liabilities, including breaches of regulations pertaining to customer identification, data security, account and transaction limits, and anti-money laundering.

Commercial banks have significantly expanded their offerings of retail services, deposits, payments, and credit through the aforementioned digital banking models. By utilising cutting-edge products and services on the digital platform, these banks have facilitated the retail banking market's growth and contributed to the promotion of non-cash payment methods within the economy. The complete digitisation of services such as establishing a payment account, transferring funds, and depositing funds/savings enables customers to conduct these transactions exclusively through digital channels. Numerous banks in Vietnam have documented a consumer transaction conversion rate of over 90% through digital channels [15]. The digital banking and digital payment ecosystem has been established through the integration of numerous digital services within the economy with digital banking services. This integration provides service users with seamless experiences and substantial advantages in the digital realm.

2.4. Research questions

Based on the preceding analyses, the transition to a digital banking model emerges as a significant trend for many commercial banks in Vietnam, with corresponding plans for implementation. It is anticipated that this transition will yield positive signals for these banks in expanding their market share among individual customers. By delivering retail services more effectively, diversifying customer demographics, and catering to technologically savvy younger users, Vietnamese commercial banks can enhance their competitive edge in the retail banking market.

However, the selection of a suitable digital banking model and the development of a conversion roadmap necessitate careful consideration and detailed planning. Specific research questions regarding this matter are:

RQ1: What are the factors affecting customer loyalty to the retail services on a digital banking platform provided by Vietnamese commercial banks?

RQ2: What are the challenges for the development of digital banking by Vietnamese commercial banks?

RQ3: How can a conversion roadmap to digital banking, with an emphasis on retail banking, be designed for Vietnamese commercial banks?

These questions are poised to play a pivotal role in shaping the strategic direction and conversion plans of Vietnamese commercial banks in the future.

3. Methodology

3.1. Models and variables

To address research question 1, the study employed the Vietnam Customer Satisfaction Assessment Index (VCSI), which is inspired by the original American Consumer Satisfaction Index (ACSI) approach with adaptations to fit Vietnam's socio-economic characteristics (Fig. 2).

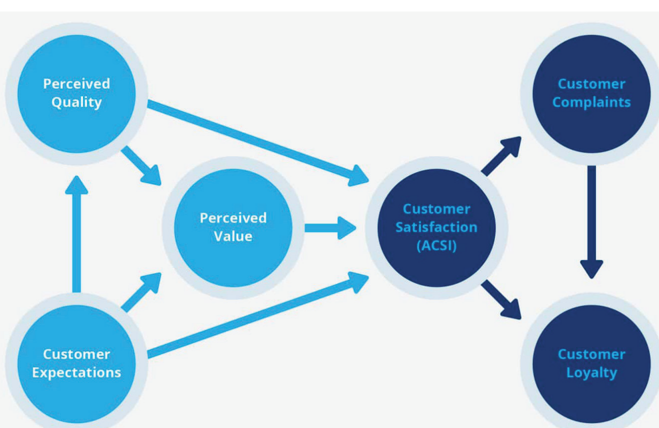


Fig. 2. The American Consumer Satisfaction Index (ACSI). Source: https://theacsi.org/.

For this study, the authors focused on customer satisfaction to determine their behaviour (either complaints or loyalty). To model customer satisfaction, two representative variables are employed: (1) Brand image and (2) Service quality. A survey was conducted with 200 randomly selected customers from ten Vietnamese commercial banks to gather insights into their experiences with the banks' digital retail services. The interviews were conducted at various banks' branches in Hanoi. This approach allowed the authors to identify the factors influencing customer satisfaction and, consequently, their loyalty to the bank.

A statistical analysis was carried out to address research questions 2 and 3. To assess the advantages and challenges that Vietnamese commercial banks face when transitioning to digital banking to better serve the retail sector, the research team conducted a survey on the plans and current status of digital banking development in ten Vietnamese commercial banks (Phuong Dong Bank, A Chau Bank, TP Bank, BIDV, Nam A Bank, Sea Bank, VPBank, OceanBank, Military Bank, and Agribank). These banks represent 50% of the number of state-owned commercial banks and 56% of the banks in the top 16 banks with the largest total assets. The authors calculated these figures based on the banks' 2023 financial statements and reports from the State Bank of Vietnam.

The questionnaire was meticulously designed to encompass questions regarding the banks' overarching strategic direction for digital transformation, with a particular emphasis on the retail sector. It included inquiries about conversion rates, challenges faced during the digital transformation process, the extent of investment in research and development (R&D) dedicated to digital transformation, and the range of services being transitioned to digital platforms.

Upon collecting responses from the surveyed banks, the research team analysed the data to gain insights into the banks' strategies, progress, and challenges in digital banking development. Additionally, the analysis encompassed an evaluation of customer satisfaction with the retail services provided by digital banking apps. The overarching goal was to achieve a comprehensive understanding of the current digital banking landscape in Vietnam. This understanding would then inform actionable recommendations aimed at advancing future initiatives and improving the overall performance of the retail banking sector of Vietnamese commercial banks, which will be presented in the research findings section.

3.2. Data

The selection of the ten prominent Vietnamese commercial banks for this survey - Phuong Dong Bank, A Chau Bank, TP Bank, BIDV, Nam A Bank, Sea Bank, VP Bank, OceanBank, Military Bank, and Agribank - was deliberate due to their varying sizes and ownership structures, encompassing both state-owned and private banks.

Despite the sample size not being extensive, the inclusion of banks with diverse sizes and ownership types enhances the study's representativeness. This approach provides a nuanced view of the digitalisation landscape within the Vietnamese commercial banking sector, particularly regarding retail services.

However, it is important to acknowledge the study's limitations. The sample, while diverse, may not fully capture the entire spectrum of state-owned commercial banks nationwide. Nevertheless, the findings offer valuable insights into prevalent trends and challenges in digital transformation across different types of banks in Vietnam. These insights are pertinent for policymakers, industry practitioners, and researchers seeking to advance digital banking initiatives and strategic planning in the Vietnamese banking industry.

4. Research findings

4.1. Understanding commercial banks' digital transformation from customer perspectives

The results show that banks that enhance their brand image are more likely to meet the demand of retail customers. For example, TPBank has developed the LiveBank digital banking service and several other products, including Savy (a universal savings application), QuickPay (payment by QR code), and Ebank (an electronic banking application). In January 2021, Cake, an additional digital banking model, was introduced with the intention of efficiently fulfilling customer requirements. Cake's vibrant and intuitive interface, which integrates retail services closely associated with daily necessities, has resonated particularly well with younger users. These new apps are user-friendly and easy to navigate, thus boosting user engagement. This finding indicates that brand image not only fosters the development of cutting-edge products but also significantly enhances customer satisfaction and loyalty.

In relation to service quality, the survey results reveal that a successful approach entails prioritising customers in all endeavours; strategies pertaining to product supply, services, distribution channels, ecosystem, technology utilisation, and internal governance that underpin all retail support activities should all be designed with the customer experience in mind. Digital banking has since introduced financial service products that optimise the customer experience by catering to their specific requirements. This focus on service quality has resulted in complete satisfaction for all customer segments, including retail customers, those residing in urban or rural areas, and even international tourists. Consequently, the high service quality in digital banking has significantly enhanced consumer confidence, enabling financial institutions to not only retain current clients but also acquire prospective ones, thereby increasing customer loyalty and preserving their competitive edge.

However, during interviews with retail customers of the ten Vietnamese commercial banks in the survey, several concerns were expressed, which negatively impact their experience when using digital banking platforms:

• *Information security:* The information security provided by commercial banks is perceived as inadequate, as these institutions are frequently targeted by hackers. Customers who register for cards through online platforms are particularly vulnerable to personal data leaks. Scammers often steal information by sending notifications containing malicious links via SMS, email, and messaging software.

• *Cyber fraud detection:* The banks' inability to effectively detect cyber fraud undermines customer trust in their digital banking services. Due to their lack of understanding of the dangers associated with online transactions, many people allow criminals to borrow their identities to create ghost accounts and engage in other fraudulent activities. The complexity and difficulty of detecting such fraud lead to significant consumer dissatisfaction.

• *Limited digital retail services:* Customers are dissatisfied with the limited types of digital retail services offered by the banks. Most customers have used their digital bank apps to make payments, transfer money, or open savings accounts, which they feel fail to adequately meet their rising needs. Additionally, the pricing policies for these products and services are seen as irrational.

• *Bank staff attitude and capability:* The attitude and capability of the bank staff during the service process are not perceived as entirely professional. There are instances where critical customer situations are not managed promptly due to sluggish operations and poor communication, further contributing to customer dissatisfaction.

4.2. The current state of digital banking development in Vietnam, with a focus on the retail services of commercial banks

The survey conducted among ten Vietnamese commercial banks aims to shed light on the factors considered as their challenges for the digital transformation process (RQ2) as well as to provide Vietnamese commercial banks with a roadmap for transitioning into digital banking with an emphasis on retail services (RQ3).

4.2.1. Vietnamese commercial banks' digital transformation strategies

In recent years, Vietnamese commercial banks have been actively involved in researching and investing in digital transformation strategies, especially in retail service. However, the effort is at a nascent stage due to a multitude of obstacles and challenges such as: (i) Outdated Legal Framework: The legal framework governing digital transformation often lags behind the development of technology, creating a significant barrier to implementation. (ii) Limited Technological Infrastructure: The digital and technological infrastructure of the banking system is limited and frequently misaligned with the requirements for efficient digital transformation. (iii) Cyber Securities Threats: There is increasing pressure from cyberattacks and fraud, which pose significant risks to banks' digital operations. (iv) Intense Competition: Growing competition from fintech companies challenges traditional banks, necessitating rapid and effective digital adaptation.

4.2.2. Vietnamese commercial banks' retail banking services provided via digital banking models

The current state of digital processing applications in retail banking reveals that Vietnamese commercial banks heavily rely on third parties for data processing and verification, which hinders the speed of service delivery. For instance, retail credit granting services exhibit the lowest level of digital processing. Risk assessment procedures for credit grants involve significant manual intervention, requiring bank personnel to access and verify information about collateral assets to validate the loan's mortgaged value.

The administration of this information is often entrusted to third-party agencies. To increase the use of digital processing in business processes, Vietnamese commercial banks should innovate methods of collaboration with these relevant organisations and further develop their internal operations. For instance, working with organisations that manage information and property data to streamline verification processes can enhance efficiency and service speed (Fig. 3).

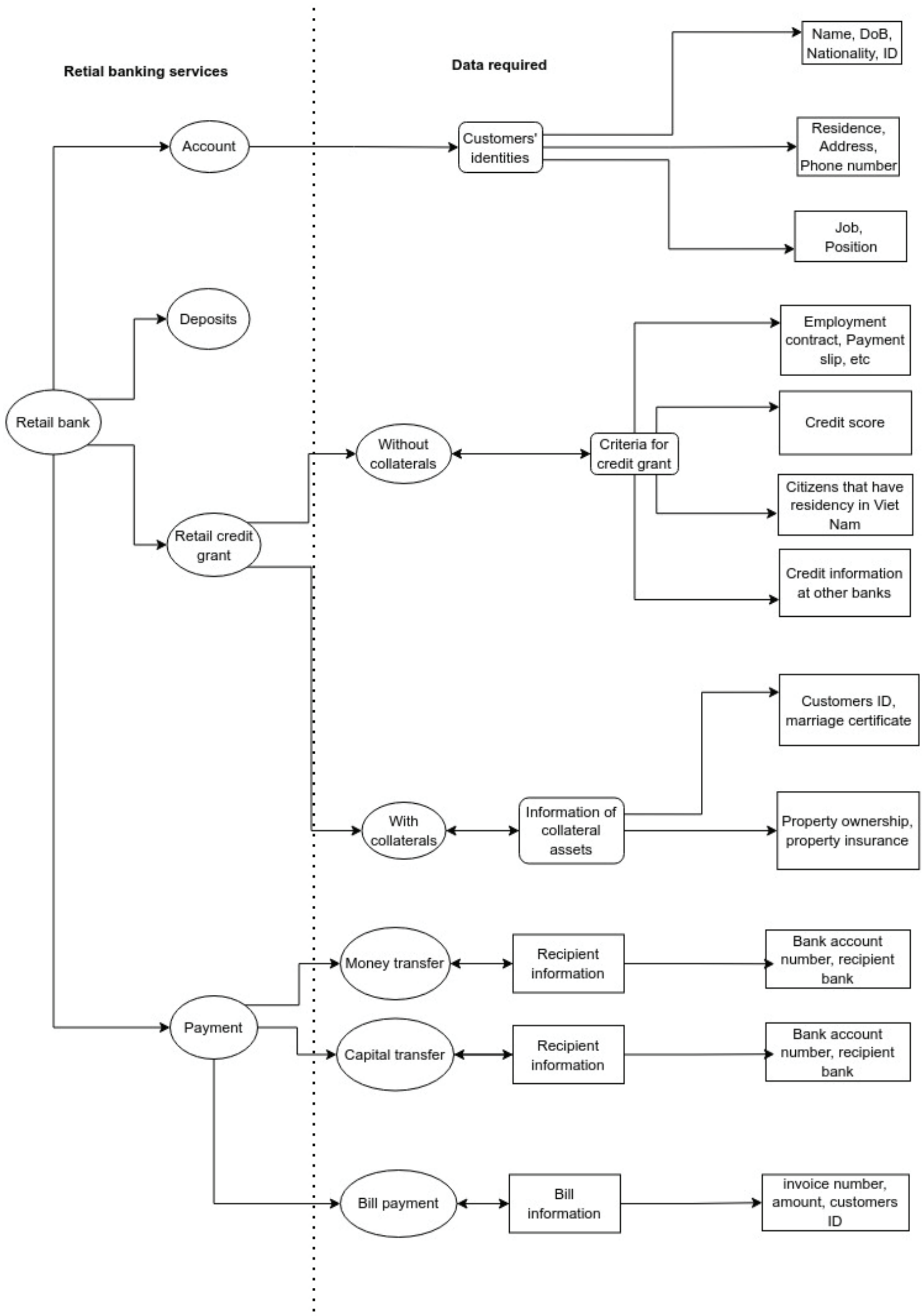


Fig. 3. Retail banking activities and required input data. Source: Authors' compilation.

When these data storages are locked and only banks are permitted access to them, this is regarded as the most formidable barrier to expanding digital processing and transformation in banking operations. The verification process is executed through a comparison with original data or through validation by a third party, such as notary bodies. Consequently, regulations and solutions governing the sharing of data storage pertaining to properties utilised as mortgages in credit granting dossiers are required.

Moreover, the absence of a synchronised and consistent electronic identification and authentication platform hinders the delivery of retail banking services through digital channels. Many financial institutions are compelled to develop their own digital signature platforms to digitise internal administrative processes. However, the authenticity of these platforms is limited to within the respective financial institutions. A standardised and consistent authentication platform would enable the implementation of numerous activities across all banking operations and other fields, including smart contracts and electronic guarantees.

Additionally, the State Bank of Vietnam (SBV) is currently engaged in the process of amending Circular No. 39/2016/TT-NHNN (as well as Circular No. 06/2023/TT-NHNN, which revises and supplements certain provisions of Circular No. 39/2016/TT-NHNN) to include regulations for small and minor loans conducted through electronic methods. However, there has been no research or policy issuance regarding the promotion of technology in credit activities to allow for electronic methods and the full automation of the lending process by credit institutions for their customers.

4.2.3. Technological and infrastructure aspects of digitising retail banking services

Nearly 70% of banks surveyed reported that they were encountering minimal to moderate difficulties in aligning their current technical infrastructure with their digital transformation objectives. Only 10% perceived this as a highly challenging issue. Additionally, 60% of banks believe that selecting investment priorities and technologies is not a significant challenge for digital transformation. These findings suggest that while the surveyed banks have generally formulated a vision and strategy for deploying digital banking, they still face significant obstacles, particularly in securing the necessary resources for implementation. Notably, 50% of the surveyed banks identified capital investment for research and development as a moderate to very challenging issue (Fig. 4).

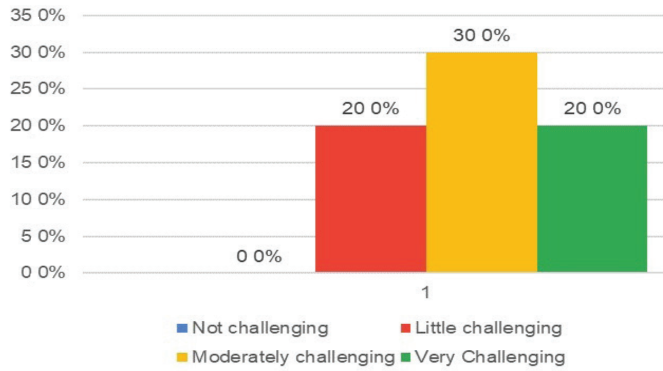


Fig. 4. Limits in investment for R&D. Source: Survey of 10 commercial banks by the authors.

The uneven development of infrastructure and technological systems across different departments within banks presents a moderate challenge, identified by 30% of surveyed institutions (Fig. 5). This discrepancy impedes the smooth integration and connectivity required across various stages in delivering retail services on digital banking platforms.

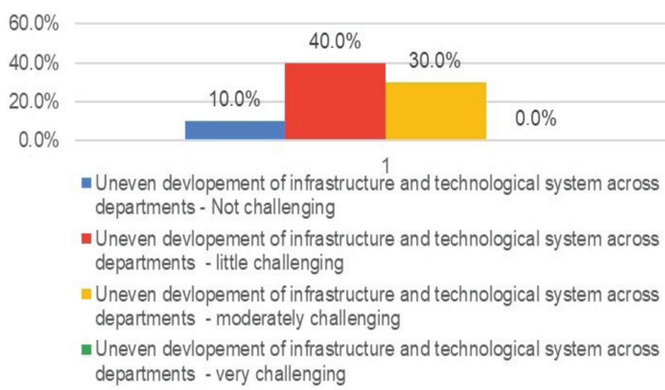


Fig. 5. Uneven development of infrastructure and technological system across departments. Source: Survey of 10 commercial banks by the authors.

It is worth noting that a significant proportion of banks, reaching 70%, perceive the swift rate of technological advancements and their application to the banking sector as a moderate to enormous challenge (Fig. 6). Specifically, the issue of escalating criminal activities and cyber-attacks is regarded by banks as the most difficult, with 50% of commercial banks responding that these are very challenging issues (Fig. 7).

Fig. 6. Swift rate of technological advancement. Source: Survey of 10 commercial banks by the authors.

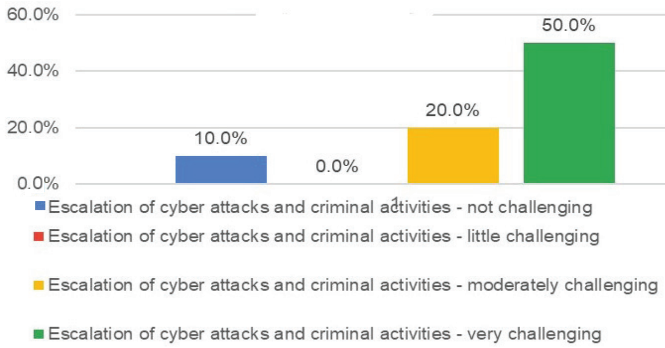


Fig. 7. Escalation of cyber-attacks and criminal activities. Source: Survey of 10 commercial banks by the authors.

4.2.4. Resources required to implement digital banking for retail services

Several banks have established specialised divisions tasked with the direct development and deployment of digital transformation projects. Nevertheless, human resources departments that support digital transformation to develop retail services continue to face the challenges and obstacles while the demand for information technology and digital transformation personnel at all levels continues to rise, for example, the domains of data analysis and management, marketing, business operations on digital platforms, applications development and technology advancement.

Figure 8 showed that only 10% of banks have provided training on digital transformation to more than 70% of their executives, ranging from departmental to high-level positions. Meanwhile, the proportion of specialised personnel that received training on digital transformation in the surveyed banks is even lower. Only 10% of respondents indicated that 10-15% of their specialised personnel were trained in this area (Fig. 9). Vietnamese commercial banks have not yet made sufficient efforts to keep pace with the digital banking trend, despite their awareness of its significance, in comparison to their concern with the rapid advancement of technology.

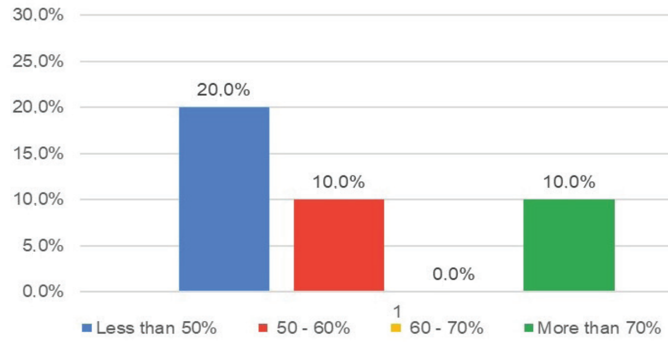


Fig. 8. Percentage of banks' leaders trained on digital transformation. Source: Survey of 10 commercial banks by the authors.

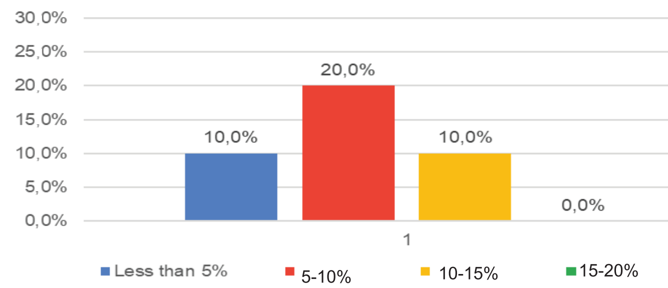


Fig. 9. Percentage of specialized staff trained on digital transformation. Source: Survey of 10 commercial banks by the authors.

4.2.5. Roadmap for the transitioning into digital banking with an emphasis on retail services (RQ3)

According to the present condition of commercial banks in Vietnam, every bank possesses a distinct scale, set of operations, consumer segments, and market. Consequently, determining a universally applicable model for all institutions is unattainable. It is the duty of every commercial bank to identify a digital banking model that aligns with their particular business strategy. Notably, the model must adhere to Decision No. 810/QD-NHNN issued by the Governor of the State Bank of Vietnam. The proposed digital banking development roadmap consists of the following three phases (Fig. 10).

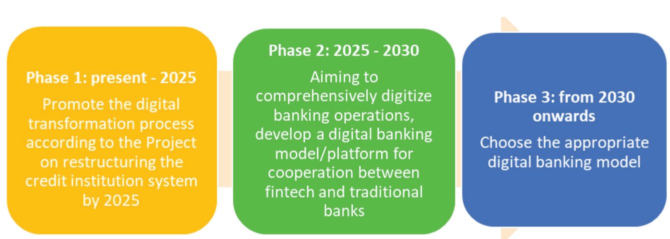


Fig. 10. Roadmap for digital banking development. Source: Authors' proposal.

Vietnamese commercial banks should establish a well-defined digital banking model strategy that prioritises the following objectives: reforming business processes and procedures, perfecting the legal framework, fostering innovation, enhancing customer experience, and meeting their needs; safeguarding legislation; and ensuring safe and diverse service provision to accommodate the growing demands of customers and the overall economy in a sustainable and secure manner.

Furthermore, the successful implementation of retail services based on digital banking models and the digital transformation of the banking industry require the coordination of relevant sectors and units, as well as the guidance of the government, in the dissemination, editing, and supplementation of legal documents. This is particularly crucial in removing impediments and challenges that may arise during the implementation and practical application of Vietnamese commercial legislation.

5. Discussion and recommendations

The customer survey results from ten commercial banks exhibit similarities to the research conducted by M. Sajić, et al. (2017) [6]. Young customers (aged 20 to 40) are the demographic that utilises digital banking services the most. Payment services are the primary service utilised. Similar to the research conducted by S. Ananda, et al. (2020) [8], young individuals opt for digital banking due to its convenience and time-saving benefits. Vietnamese commercial banks are thus advised to promptly migrate their retail services to digital banking to accommodate their most critical customers in the future.

Nevertheless, the assessed group of consumers who frequently utilise digital banking services offered by these ten commercial banks expressed dissatisfaction with the information security and the limited range of retail services available on banks' digital platforms. This indicates that the current demand from customers exceeds the capacity of Vietnamese commercial banks. Vietnamese commercial banks are recommended to expand their range of retail services, including the provision of personal loans through digital platforms. To achieve this, Vietnamese commercial banks should prioritise the requirements of their customers. This advice is analogous to the findings of C. Skinner (2014) [3].

The lack of professionalism displayed by bank staff when providing instructions for online retail services is also a contributing factor that negatively impacts consumers' experiences. Customer loyalty is strongly influenced by customer experience, as highlighted in the research conducted by U. Filotto, et al. (2021) [9] and S.J. Kaur, et al. (2021) [11]. This finding indicates that Vietnamese commercial banks should offer comprehensive training in digital transformation for their officers and specialised workers to enhance customer satisfaction.

The survey uncovered numerous significant findings regarding the methods, obstacles, and challenges encountered by Vietnamese commercial banks in their digital transformation of retail services. The majority of Vietnamese commercial banks have plans to adopt digital transformation in their retail services. Nevertheless, they lack the essential resources required, specifically in terms of investment in R&D, technology, and human resources.

Moreover, these banks are facing a multitude of obstacles, including swift changes in technology, a rise in sophisticated cybercrimes, intense competition from fintech firms, and a lack of coordination in information systems across various departments within the bank. To ensure a smooth transition to digital retail services and maintain competitiveness in the changing financial landscape, it is imperative for Vietnamese commercial banks to tackle these challenges.

The study on the digital banking development strategy for Vietnamese commercial banks indicates parallels with the findings of M. Sajić, et al. (2017) [6]. It highlights the crucial role of support from the government and relevant agencies and ministries in accelerating the development of digital banking models. The proposed roadmap consists of three stages (Fig. 10), which the authors believe are suitable for Vietnam's economic characteristics, legal framework, and the Prime Minister's goal of developing digital banking models by 2025, as outlined in Decision No. 689/QD-TTg dated 8 June 2022.

Accordingly, the authors recommend several key solutions as follows for the Government, the State Bank of Vietnam, and other line ministries:

1. For the government

• Expedite the deployment of a shared database (especially the residence and biometrics database), implement more practical solutions, and provide people's data.

• Direct the issuance of detailed guidelines for the implementation of Project No. 06 in accordance with Decision No. 06/QD-TTg by the Prime Minister on 6 January 2022, approving the Scheme on developing the application of data on population, identification, and electronic authentication for national digital transformation in the 2022-2025 period, with a vision toward 2030.

• Direct the establishment of a nationwide financial education programme. Simultaneously, invent an incentive mechanism to promote collaboration among service providers, local authorities, and socio-political organisations to construct and execute individualised financial education programmes for each customer type.

2. For the State Bank of Vietnam

• Review and revise Circular No. 06/2023/TT-NHNN regarding lending transactions of credit institutions and foreign bank branches in an effort to facilitate the implementation of loan products offered by commercial banks on electronic platforms, thereby achieving the objectives outlined in Decision No. 810 regarding the digital transformation strategy.

• It is imperative to provide commercial banks with transparent and streamlined implementation guidelines for the process of electronic credit contract signing. Specifically, commercial banks should be tasked with the proactive development of technological solutions and the selection of methods to verify customer acceptance prior to contract execution, in accordance with the nature of the contract, product attributes, and system operating model (including the utilisation of an OTP authentication form).

• It is advisable to incorporate regulations governing the security of banking technology and data in the rescue and management of information security incidents that surpass the capabilities of the bank.

• With respect to electronic lending channels, it is imperative to assess the financial capabilities of customers and viable capital use plans in accordance with current lending regulations (e.g., by employing customer scoring models, alternative data models, or system integration for appraisal data).

• In relation to the mandate to assess and precisely identify the customer's related persons (including numerous subjects that necessitate identification) as well as the aggregate outstanding credit balance of related persons, regulations pertaining to minor value loans on digital channels should be taken into account.

• In regard to the electronic establishment of payment accounts, it is advisable to incorporate legal regulations that address the risks associated with fraud and forgery.

3. For other line ministries

• In the near future, it is imperative that the Ministry of Public Security issue directives concerning connection procedures, technical prerequisites, connection methods, protocols, and application programming interfaces. These directives should enable credit institutions to utilise data from the National Population Database to support banking operations, such as fraud prevention and anti-money laundering.

• Effective coordination between the Ministry of Information and Communications, the State Bank of Vietnam, and the Ministry of Public Security is imperative to safeguard and prevent deliberate assaults on the banking system in a timely manner.

• Together with the State Bank, the Ministry of Education and Training should coordinate the development of a national financial education programme regarding digital banking channels and services. This initiative aims to foster sustainable and rational public awareness regarding financial management and the utilisation of digital banking platforms.

6. Conclusions

Vietnam's financial landscape is undergoing a profound shift with the adoption of digital transformation in its banking sector. The rapid expansion of fintechs and the integration of digital banking services by Vietnamese commercial banks underscore a proactive response to emerging trends, despite the transformation being in its early stages. Findings from our survey of ten major commercial banks and 200 retail customers highlight critical success factors and challenges, emphasising the need for customer-centric approaches, addressing security concerns, improving communication between customers and bank staff, and overcoming regulatory hurdles.

To navigate these challenges and capitalise on opportunities, the study proposes a structured three-phase roadmap for digital banking development in Vietnam. Moreover, it recommends governmental support to expedite the deployment of shared databases, establish detailed implementation guidelines for key digital transformation projects, and incentivise collaborative financial education initiatives. Recommendations for the State Bank of Vietnam include revising regulatory frameworks to facilitate electronic transactions and bolstering cybersecurity measures through enhanced collaboration across relevant ministries.

Effective collaboration among regulatory bodies and stakeholders is pivotal in fostering an enabling environment for digital banking innovation and security. By embracing these recommendations, Vietnam can accelerate its journey towards a robust digital banking ecosystem that meets the evolving needs of its economy and consumers, ensuring sustainable growth and inclusivity in financial services.

Despite making significant contributions to the literature on digital banking in Vietnam, this study is not without limitations. Specifically, the data collected from only ten commercial banks may not fully represent the broader spectrum needed to draw definitive research conclusions. However, as initial research, this study sets a foundation for ongoing development, with future efforts aimed at closely monitoring the digital transformation process within Vietnamese commercial banks, particularly in the realm of retail banking services.

CRediT author statement

Chien Thang Nguyen, Thi Minh Hang Nguyen: Conceptualisation, Validation, Supervision, Project administration; Mai Anh Le, Thi Minh Hang Nguyen: Methodology, Investigation, Writing - Original draft preparation, Writing - Reviewing and Editing, Formal analysis, Data analysis, Data collection.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] D.B. Ngoc (2022), "Fintech market in Vietnam: Opportunities and challenges", *The Banking Review*, https://tapchinganhang.gov.vn/thi-truong-fintech-tai-viet-nam-co-hoi-va-thach-thuc.htm, accessed 14 April 2024 (in Vietnamese).

[2] L.A. Dung, N.T. Anh, B.T. Hang, et al. (2021), *State Management on Digital Banking - Practice, International Experience, and Solutions for Vietnam*, State Bank of Vietnam (in Vietnamese).

[3] C. Skinner (2014), *Digital Bank: Strategies to Launch or Become a Digital Bank*, Marshall Cavendish International (Asia), 300pp.

[4] G. Sarma (2017), "What is digital banks?", *VentureSkies*, https://www.ventureskies.com/blog/digital-banking, accessed 1 May 2024.

[5] J. Kelman (2016), *The History of Banking: A Comprehensive Reference Source & Guide*, Create Space Independent Publishing Platform, 384pp.

[6] M. Sajić, D. Bundalo, Z. Bundalo, et al. (2017), "Digital technologies in transformation of classical retail bank into digital bank", *IEEE*, pp.1-4, DOI: 10.1109/TELFOR.2017.8249404.

[7] R.E. Byers, P.J. Lederer (2001), "Retail bank services strategy: A model of traditional, electronic, and mixed distribution choices", *JSTOR*, **18(2)**, pp.133-156.

[8] S. Ananda, S. Devesh, A.M.A. Lawati (2020), "What factors drive the adoption of digital banking? An empirical study from the perspective of omani retail banking", *Springer Nature*, **25**, pp.14-24.

[9] U. Filotto, M. Caratelli, F. Fornezza (2021), "Shaping the digital transformation of the retail banking industry. Empirical evidence from Italy", *ScienceDirect*, **39(3)**, pp.366-375, DOI: 10.1016/j.emj.2020.08.004.

[10] S. Reydet, L. Carsana (2017), "The effect of digital design in retail banking on customers' commitment and loyalty: The mediating role of positive affect", *Journal of Retailing and Consumer Services*, **37**, pp.132-138, DOI: 10.1016/j.jretconser.2017.04.003.

[11] S.J. Kaur, L. Ali, M.K. Hassan, et al. (2021), "Adoption of digital banking channels in an emerging economy: Exploring the role of in-branch efforts", *Journal of Financial Services*, **36**, pp.107-121.

[12] B. Casu, C. Girardone, P. Molyneux (2012), *Introduction to Banking (2nd Ed)*, Pearson Education Canada.

[13] N.T.T. Dung (2021), "Development of digital banking in Vietnam", *Journal of Trade Union Scientific*, **21**, pp.71-76 (in Vietnamese).

[14] N.D. Hung (2020), *Development of Digital Currency and Digital Banking Technology in The Current Phase of International Economic Integration*, Scientific Research Project (in Vietnamese).

[15] M. Phuong (2024), "Many credit institutions have over 90% of transactions conducted on digital channels", *Communist Party of Vietnam Online Newspaper*, https://dangcongsan.vn/kinh-te/nhieu-to-chuc-tin-dung-co-ty-le-tren-90-giao-dich-thuc-hien-tren-kenh-so-663894.html, accessed 1 May 2024 (in Vietnamese).

DOI: 10.31276/VMOSTJOSSH.2024.0011

Factors influencing gold demand: Evidence from developing countries

Bich Ngoc Vu[1*], Hai Yen Hoang[2]

[1]*School of Advanced Studies, Ho Chi Minh City Open University, 97 Vo Van Tan Street, Vo Thi Sau Ward, District 3, Ho Chi Minh City, Vietnam*
[2]*School of Banking, University of Economics Ho Chi Minh City, 279 Nguyen Tri Phuong Street, Ward 5, District 10, Ho Chi Minh City, Vietnam*

Received 24 January 2024; revised 25 April 2024; accepted 27 May 2024

Abstract:

Gold serves not only as a store of wealth but also as a safe hedge against socio-economic risks, particularly during times of uncertainty. The recent surge in gold demand, despite its high price, may contribute to overall macroeconomic instability, as it could exacerbate the burden of external debt and lead to the depreciation of a country's sovereign currency. This study investigates the determinants influencing physical gold demand in 10 developing countries across different continents over the period from 2008 to 2020, utilising data from World Gold Council (WGC) reports and the World Bank database. By employing various regression models - Pooled Ordinary Least Squares, Fixed Effects, and Random Effects-for a micro panel dataset, the study provides further empirical analysis, suggesting several important factors influencing gold demand in these developing economies, such as gross domestic product (GDP), GDP per capita volatility, and the real interest rate. The results offer significant implications for development policy, financial intermediation, and the gold market in developing economies.

Keywords: **COVID-19, developing countries, gold demand, gross domestic product, real interest rate.**

Classification numbers: **2.1, 2.2**

1. Introduction

Despite the demonetisation of gold following the collapse of the Bretton Woods system, gold continues to function as a store and symbol of wealth, particularly in emerging economies [1, 2]. Gold provides a reliable hedge against socio-economic risks due to its relatively stable value, especially in times of uncertainty. Furthermore, the return on gold is generally independent of that on other assets, making it an effective tool for investment diversification [3-5]. During the COVID-19 pandemic, for example, gold prices remained robust amid the market sell-off in early 2020. Specifically, between 1 February and 1 April 2020, the S&P 500 declined by 23%, while the price of gold fell by less than 0.1% [6].

Since the onset of the COVID-19 pandemic, inflation rates have risen as a result of ongoing disruptions in global supply chains, labour market turmoil, and strong consumer demand following the reopening of local economies. Consequently, gold demand reached its highest level in the past two years as retail investors sought a safe haven against rising inflation and ongoing economic uncertainties. Central banks in both emerging and developed markets have also continued to add to their gold reserves, remaining net purchasers of gold. Overall, demand for gold from investors, central banks, jewellers, and technology companies has been growing over the past decade, with global gold demand increasing by 12% year-on-year to 2,189 tons in the first half of 2022.

The rising demand for gold, despite its high price, could lead to substantial dollar outflows, potentially worsening a country's current account deficit. This deficit might, in turn, increase the burden of external debt and cause the depreciation of that country's sovereign

*Corresponding author: Email: ngoc.vb@ou.edu.vn

currency, thereby leading to overall macroeconomic instability [7]. Thus, studying the determinants of gold demand is crucial for governments aiming to stabilise their economies, especially during periods of economic turbulence.

A review of empirical studies on the determinants of gold demand reveals several factors that influence gold demand. Most studies have been conducted in developed countries such as the United States and within the European Union, or in countries with high gold demand, such as India. There is a need for more research into the determinants of gold demand in developing markets to understand the long-term effects of macroeconomic and non-macroeconomic factors on gold demand. These countries have distinct economic and political environments, and as such, their gold demand may be influenced by different factors compared to developed countries. Furthermore, there is still limited consensus in the literature regarding the factors affecting countries' gold demand. To the best of our knowledge, this is the first empirical study to investigate the determinants influencing physical gold demand in 10 developing countries across continents during the period from 2008 to 2020. Additionally, previous studies have primarily focused on the influence of macroeconomic factors on gold demand, rarely considering the volatility of these factors, except in studies on developed countries [8]. It is essential to explore the role of macroeconomic volatility in influencing gold demand in developing countries to determine whether these influences differ among countries or groups of countries.

This paper aims to fill this gap by investigating the determinants that influence physical gold demand in 10 developing countries, including Vietnam, Sri Lanka, Thailand, the Philippines, Malaysia, Indonesia, Brunei, Chile, Peru, and Mexico, over the period from 2008 to 2020. A major hypothesis to be examined is whether financial and economic volatilities stimulate a country's demand for gold. Our findings provide further empirical analysis, suggesting that GDP, GDP per capita volatility, and the real interest rate statistically influence gold demand in these developing economies, with levels of significance at 1%, 5%, and 1%, respectively. The results imply critical implications for development policy, financial intermediation, and the gold market in developing economies.

A brief literature review on the determinants of physical gold demand is presented in section 2. Section 3 outlines the methods and empirical work employed to analyse gold demand and its determinants. The estimation results are discussed in section 4, followed by the conclusion and policy implications in section 5.

2. Literature review and hypothesis formation

2.1. The gold market

The composition of gold demand has been evolving, particularly in the context of global socio-economic instability, while gold supply remains relatively fixed [5]. According to the WGC, total gold demand is categorised into four components: jewellery, technology, central bank reserves, and investment demand. While demand for gold in the jewellery and technology sectors tends to follow the business cycle - which is largely determined by consumer income and, consequently, spending power - the demand for gold from investors appears to be counter-cyclical, with demand rising during economic downturns [5]. Historically, gold demand has been dominated by the jewellery sector. However, the pattern of gold consumption has shifted as investment demand, particularly through exchange-traded funds (ETFs) and similar products, has surged in recent years. Specifically, the demand for gold jewellery dropped significantly in 2020, by 38% compared to 2019. In contrast, investment demand for gold through ETFs increased by 38.8% in 2020, reaching 1,769.2 tonnes, making it the largest single category of gold demand that year, accounting for over 48% of total gold demand in 2020 (Fig. 1).

The dramatic rise in gold prices observed since 2015 can thus be attributed to increased investor interest in this precious commodity, reinforcing the perception of gold as a secure investment.

2.2. Empirical studies on determinants of gold demand

Empirical studies focusing on gold demand in both developed and emerging economies have identified several key determinants of gold demand [1, 9-12].

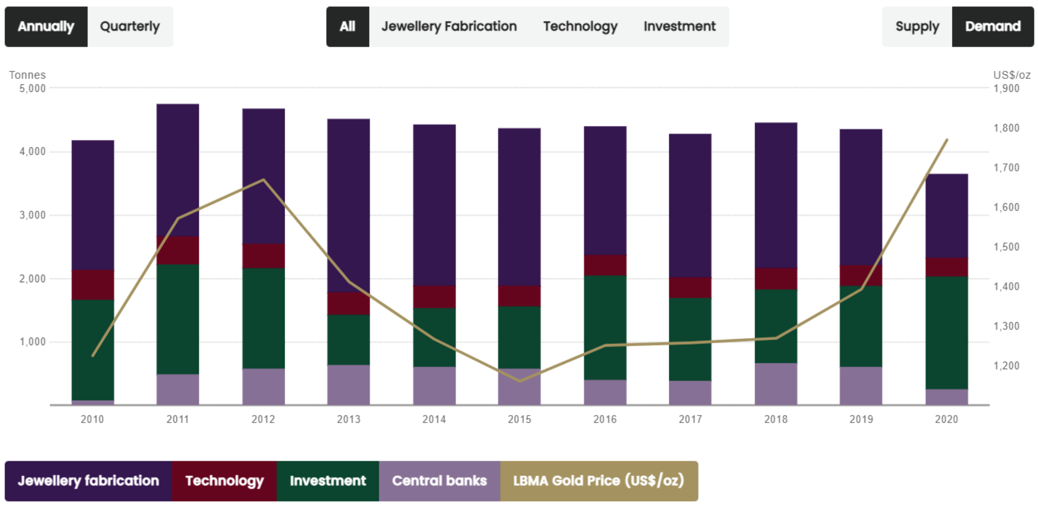


Fig. 1. Composition of gold demand from 2010-2020.

Sources: ICE Benchmark Administration, Metals Focus, Refinitiv GFMS, World Gold Council.

Regarding central bank demand for gold reserves, this significant component of gold demand tends to increase substantially during periods of heightened exchange rate risk and monetary policy instability, while higher economic growth and financial development tend to reduce central banks' demand for gold reserves [12, 15, 16]. Additionally, previous studies have re-emphasised that gold (along with real estate) is considered a reliable hedge against inflation, suggesting that gold demand is likely to increase during periods of high inflation and lower real interest rates [5, 17]. In situations of economic policy uncertainty and volatility in major currencies such as the USD, Euro, GBP, and Chinese Yuan, gold demand responds positively to these fluctuations [8]. Gold also acts as a hedging instrument against economic downturns or financial uncertainty [8, 18, 19].

Notably, real income has a positive impact on gold demand, even in the long run, whereas price tends to negatively affect demand [10, 13, 14]. However, in some countries, such as India, gold consumption is unaffected by changes in gold prices [13].

Within this body of literature, previous studies have found that while gold demand in developed countries is income elastic, it is likely to be independent of income changes in developing countries [1]. The authors attribute this finding to the influence of socio-cultural factors across different countries. Additionally, it has been observed that the impact of income and gold prices on gold imports has shifted over time [7]. Specifically, gold demand is found to be moderately inelastic with respect to price in the long run, while higher income is associated with higher gold demand, suggesting that gold is a luxury commodity. Conversely, gold demand exhibits high elasticity concerning price in the short run [7]. However, empirical evidence on this matter is not consistent across studies. For instance, some studies have found no evidence that real income impacts gold demand in certain industrial economies [9, 10]. A recent study suggests that the elasticity of gold demand relative to price depends on macroeconomic conditions and the type of gold. Generally, gold demand and price are positively correlated in middle-income countries but not in high-income ones. Specifically, jewellery demand inversely correlates with gold prices in middle-income nations but is positively unrelated in high-income nations.

Focusing on gold demand in India - one of the largest consumers of gold globally - research suggests that monetary, fiscal, and financial sectors, such as interest rates, exchange rates, personal income tax, and government spending, in addition to real income and gold prices, influence gold demand in India [20]. Unlike in other countries, gold demand in India is not significantly affected by macroeconomic uncertainty [8]. Many countries maintain gold reserves [8]. Many countries maintain gold reserves [2]. Central banks with substantial external financing or excessive external debt tend to hold higher gold reserves. Specifically, demand for gold bars and coins is positively correlated with global risk in high-income countries but not in middle-income countries. Besides macroeconomic factors, some studies focus on the relationship between gold and other financial instruments, which falls under investor behaviour. For example, the global financial crisis of 2007-2008 strongly motivated the study of gold's viability as a safe haven against financial market downturns. During periods of global risk, higher-income countries tend to demand greater gold reserves [21]. Particularly in developing countries, where confidence in the financial system is lower, gold remains an asset of significant interest due to its ability to be held outside conventional financial systems and its stable value [22, 23]. Furthermore, in developing countries with limited borrowing options due to less developed credit markets, gold is often seen as precautionary wealth, which can be converted into cash to finance consumption or investment during economic turbulence. Studies have found that gold demand is positively correlated with stock market volatility and the performance of strong currencies such as the US dollar, GBP, or Chinese Yuan [19]. When stock markets or strong currencies are volatile, investors turn to gold as a safe haven asset [5, 8].

3. Research methods

3.1. Sample of data

This study presents estimates of factors affecting gold demand, using panel data from the WGC covering 10 developing countries (Brunei, Chile, Indonesia, Malaysia, Mexico, Peru, the Philippines, Sri Lanka, Thailand, and Vietnam) over the period from 2008 to 2020. We examine the relative importance of various factors that may influence gold demand, including income growth, exchange rate and inflation volatility, the gold price, the extent of a country's financial development, real returns on safe financial assets, and access to credit. Specifically, data on gold demand were collected from annual statistics published by the WGC, while data on other macroeconomic variables were sourced from the World Bank's database (World Bank Open Data) for the same period. Additionally, we include a one-year lagged variable, as current-year gold demand tends to be associated with that of the previous year. Other financial and macroeconomic variables were also obtained from the World Bank database.

3.2. Empirical model and principal variables

The research model is as follows:

$$Y_{it} = a_0 + a_1.Y_{i,t-1} + \sum_{j=1}^{n} b_j\, X_{itj}$$

where *i* indexes countries and *t* indexes times, a_0 and a_1 are the regression coefficient of the lagged variable, *Y* represents gold demand (import) in dollars, *t*-1 represents the one-year lagged period, b_j is the regression coefficient of the independent variable *j*, X_{itj} are independent variables that affect gold demand across countries and change over time, *n* represents number of countries.

The dependent variable is the annual gold demand (GOLI). Given that world production and exploitation of gold are relatively small compared to the existing gold stock, the entire stock can be assumed to constitute total potential supply. Thus, flows of gold between countries can be considered as demand [1]. Therefore, the demand for gold can be measured as the level of gold imports into a country in a given year.

A list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD).

Below is the list of variable definitions and their measurements (Table 1):

Table 1. Variable measurements.

Variable	Measurements	Data sources (2008-2020)
GOLI	Log of annual gold import in dollars	WGC
GDPC	Log of GDP per capita, adjusted for purchasing power parity	World Bank Data
VOLC	Standard deviation of income per capita over the previous 5 years	World Bank Data
EVOL	Standard deviation of nominal exchange rate against USD over the previous 5 years	World Bank Data and Penn World Tables
INF	Log of CPI	World Bank
INFV	Standard deviation of CPI over the previous 5 years	Computed from the above inflation rate
CGP	Change in world gold price	WGC
MGD	Private credit as a share of GDP	World Bank
RIR	Real deposit interest equal nominal interest minus CPI inflation	World Bank
MOG	Market capitalisation as a share of GDP	World Bank

*: The dependent variable is the annual gold demand (GOLI), a list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD). Source: Authors' summary.

4. Empirical analysis and discussion

4.1. Descriptive statistics summary

The descriptive statistics table presents the maximum, minimum, mean, and standard deviation of the studied variables. Specifically, the average amount of GOLI by the countries from 2008 to 2020 is 1.28 billion tonnes of gold. The country with the highest gold import volume is Thailand, with 16.3 billion tonnes of gold, while the lowest is Chile, with 2,216 tonnes of gold. The difference in the amount of gold imported among countries is 2.53 billion tonnes, making this the variable with the largest disparity between countries (Table 2).

Table 2. Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
GOLI	130	1.28E+09	2.53E+09	2216	1.63E+10
GDPC	130	9260.081	9781.591	1149.424	47739.56
VOLC	130	1147.246	1804.712	98.24203	8904.661
EVOL	130	182.9284	426.0565	0.013687	2014.119
INF	130	3.623465	3.582907	-1.26051	23.11545
INFV	130	1.954314	1.802936	0.239191	7.987018
CGP	130	0.0940823	0.149724	-0.25	0.77
MGDP	130	69.20636	42.46503	20.67314	160.2671
RIR	130	5.096898	4.794507	-10.2458	22.32387
MOG	130	60.99892	36.90466	10.52702	160.2598

*: The dependent variable is the annual gold demand (GOLI), a list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD). Source: Analysis results from STATA (Period time: 2008-2020).

The GDPC across countries is USD 9,260 per person per year, with the lowest per capita income in Vietnam at USD 1,149 per person per year and the highest in Brunei at USD 47,739 per person per year. Interestingly, the highest inflation rate is observed in Vietnam at 23.11%, while the lowest is in Brunei with a negative inflation rate of -1.26%. The average INF across countries is 3.62%. Among the studied variables, the CGP shows the least variation, at around 0.14%, indicating relative consistency in gold price movements across countries. In terms of credit market capitalisation relative to per capita income (MGDP), the average country-to-country ratio is 69.2%, with the highest being Thailand at 160.26% and the lowest in Mexico at 20.67%. For stock market capitalisation relative to GDP (MOG), the average cross-country ratio is 60.9%, with the highest in Malaysia at 160.25% and the lowest in Sri Lanka at 10.52%.

4.2. A closer look at gold import

Overall, the level of gold imports fluctuated significantly between 2008 and 2014, before stabilising gradually from 2015 onwards. Vietnam experienced the highest levels of gold imports in 2008 and 2011, amounting to 2.7 and 2.5 billion tonnes, respectively. This surge in imports can be attributed to the country's soaring inflation rates during these two specific years, which reached 23% in 2008 and 18% in 2011 (Fig. 2). High inflation typically drives investors to purchase gold as a safe haven for their investments. Thailand consistently recorded the highest gold import levels throughout the period. As one of the most developed economies in Southeast Asia with a high income per capita, Thailand's demand for gold is likely higher than in other countries.

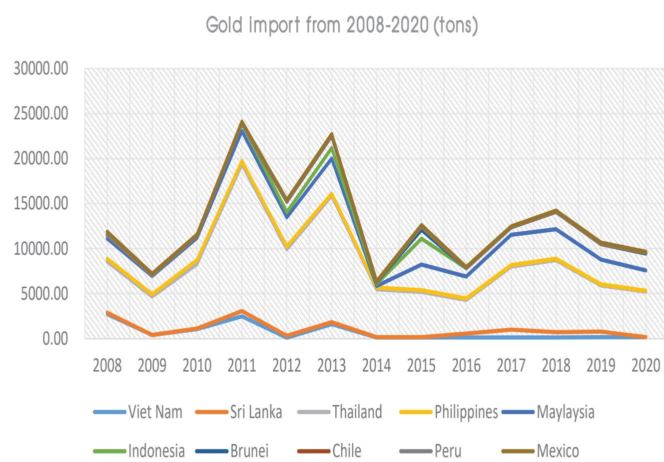


Fig. 2. Gold import in developing countries from 2008-2020.

Sources: WGC report.

In the Americas, Chile and Peru had relatively low levels of gold imports. Chile, for instance, imported only around 2,216 tonnes in 2008 (in USD), but there has been a gradual increase in gold imports since 2012.

Table 3. Correlation matrix.

Variables	LOGGDPC	VOLC	EVOL	INF	INFV	CGP	MGDP	RIR	MOG
LOGGDPC	1.000								
VOLC	0.730***	1.000							
EVOL	-0.441***	-0.203**	1.000						
INF	-0.525***	-0.316***	0.345***	1.000					
INFV	-0.565***	-0.255***	0.351***	0.559***	1.000				
CGP	-0.074	-0.058	-0.051	0.028	0.174**	1.000			
MGDP	0.008	-0.182**	0.039	-0.152*	0.065	-0.034	1.000		
RIR	0.149*	0.184**	-0.042	-0.312***	-0.264***	-0.013	-0.253***	1.000	
MOG	0.235***	-0.085	-0.251***	-0.388***	-0.232***	-0.067	0.627***	-0.174**	1.000

The dependent variable is the annual gold demand (GOLI), a list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD). *** p<0.01, ** p<0.05, * p<0.1; *: The notations ***, **, * denote the significance levels of 1, 5, and 10%. Source: Analysis results from STATA (Period time: 2008-2020).

Table 4. Variance inflation factor.

Variable	VIF	1/VIF
MOG	2.21	0.451922
INF	2	0.499219
MGDP	1.91	0.524158
INFV	1.68	0.594198
RIR	1.3	0.769816
EVOL	1.3	0.772184
VOLC	1.22	0.817083
CGP	1.06	0.942237
Mean VIF	1.59	

*: The dependent variable is the annual gold demand (GOLI), a list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD). Source: Analysis results from STATA (Period time: 2008-2020).

4.3. Correlation matrix, multi-collinearity test and regression results

Based on the correlation coefficient matrix, no coefficients exceed 0.8, indicating a low likelihood of severe multi-collinearity (Table 3) [24]. The mean variance inflation factor (VIF) is 1.5 (Table 4), suggesting a low correlation among explanatory variables.

Regression results for the Pooled OLS model, fixed effect model (FEM), and random effect model (REM) are presented in the following table (Table 5):

Table 5. Determinants of gold demand.

Dependent variable (LogGOLI)	POLS	FEM	REM
LogGOLI	0.632***	0.285***	0.632***
	-10.32	-3.39	-10.32
logGDPC	-0.972**	1.913	-0.972**
	(-2.23)	-1.53	(-2.23)
VOLC	0.000177	0.000471**	0.000177
	-1.11	-2.17	-1.11
EVOL	0.000393	0.000608	0.000393
	-0.85	-0.95	-0.85
INF	-0.0719	0.0102	-0.0719
	(-1.09)	-0.15	(-1.09)
INFV	-0.268*	-0.116	-0.268**
	(-1.97)	(-0.71)	(-1.97)
CGP	-0.00473	0.476	-0.00473
	(-0.00)	-0.44	(-0.00)
MGDP	0.00376	-0.0107	0.00376
	-0.69	(-0.50)	-0.69
RIR	-0.179***	-0.155***	-0.179***
	(-4.34)	(-3.02)	(-4.34)
MOG	0.00206	-0.0103	0.00206
	-0.3	(-0.96)	-0.3
constant	16.39***	-1.759	16.39***
	-3.71	(-0.16)	-3.71
N	129	129	129

*: The dependent variable is the annual gold demand (GOLI), a list of explanatory variables includes income per capita (GDPC) and its volatility (VOLC), exchange rate volatility (EVOL), inflation (INF) and its volatility (INFV), changes in the gold price (CGP), the extent of a country's financial development (represented by stock market development, MOG), real returns on safe financial assets (real interest rate, RIR), and access to credit (MGD). The notations ***, **,* denote the significance levels of 1, 5 and 10%, respectively. Source: Analysis results from STATA (Period time: 2008-2020).

The Hausman test indicates that the FEM is preferred over the REM. The results show that the lagged variable logGOLI exerts a significant positive impact on the dependent variable at a significance level of 1%, indicating that current gold import demand tends to influence future gold import demand. Additionally, the demand for imported gold statistically increases with higher volatility in income, with significance levels of 5%. This positive impact of income volatility on gold demand aligns with previous studies, even those conducted during different time periods. This finding supports the notion that gold serves as a hedge against economic uncertainty. As per capita income fluctuates, particularly during economic crises such as the 2008 financial crisis or the COVID-19 pandemic (2019-2021), investors and countries view gold as a preservation tool and a financial cushion for economic support and social welfare programmes. These findings confirm the role of gold as a diversification tool or a safe haven asset during economic turbulence.

However, the results also show no statistical evidence linking income per capita with gold import demand in these developing countries. The inability to determine the impact of income per capita on imported gold demand suggests that gold is not perceived as a luxury good but rather as an ordinary one. While other studies have shown that gold is a risk management tool for economic instability and fragile currencies, our analysis of 10 developing countries during the 2008-2020 period revealed no impact of inflation, inflation volatility, exchange rate fluctuations, or the gold price index on imported gold demand [8, 18, 19].

This result suggests that gold is no longer a safeguard for countries developing under conditions of fluctuating inflation and foreign exchange. This can be explained by the trade-off between risk and return when holding gold to hedge against inflation and exchange rate volatility. Moreover, to discourage physical gold hoarding, countries have applied policies derived from studies showing a very low interest rate on gold deposits compared to domestic currencies. Similar to previous studies, this research finds no evidence of an effect of gold prices on gold demand [13, 22]. This result can be attributed to the small net income margin between buying and selling prices, which does not incentivise investors to treat gold as a financial asset for trading. Furthermore, countries like Vietnam, which prior to 2000 used gold for high-value transactions such as real estate and automobile purchases, have seen a gradual decline in this practice since 2008. By 2010, nearly all such transactions were conducted in national currency.

The results above explain the disparities between previous research [5, 8]. Specifically, the finding that inflation and exchange rates have no impact on imported gold prices aligns with previous results [20]. The research also finds no impact of the development of stock markets and private credit markets on imported gold demand.

5. Conclusions

This analysis demonstrates that the demand for gold in developing countries between 2008 and 2020 was influenced by several factors. Specifically, statistical evidence shows that volatility in GDPC and the RIR significantly impact the demand for imported gold, with significance levels of 5 and 1%, respectively. These findings are consistent with the observation that increased income volatility generally signals a less stable economy, prompting nations and individuals to increase their gold holdings as a safeguard against economic instability. Gold is a relatively safe and liquid asset, making it an attractive option during periods of economic uncertainty. Additionally, when real interest rates decline, the appeal of investment opportunities other than gold diminishes, motivating investors to seek alternative investment channels that ensure stable and safe returns, such as gold, thereby driving up demand. This research provides insights that can help governments and investors identify and mitigate risks in the gold market.

CRediT author statement

Bich Ngoc Vu: Data collection, Writing; Hai Yen Hoang: Reviewing, Supervision.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] M. Starr, K. Tran (2008), "Determinants of the physical demand for gold: Evidence from panel data", *World Economy*, **31(3)**, pp.416-436, DOI: 10.1111/j.1467-9701.2007.01091.x.

[2] H. Öztunç, M. Orhan (2021), "Gold demand by central banks: A comparative study of emerging market and advanced economies", *Emerging Markets Finance and Trade*, **57(9)**, pp.2687-2698, DOI: 10.1080/1540496X.2019.1660160

[3] D.G. Baur, T.K. McDermott (2010a), "Is gold a safe haven? International evidence" *Journal of Banking & Finance*, **34(8)**, pp.1886-1898, DOI: 10.1016/j.jbankfin.2009.12.008.

[4] A.B. Jaffe (1989), "Real effects of academic research", *The American Economic Review*, pp.957-970.

[5] D.G. Baur, B.M. Lucey (2010b), "Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold", *Financial Review*, **45(2)**, pp.217-229, DOI: 10.1111/j.1540-6288.2010.00244.x.

[6] W. Duggan (2022), "Is gold an inflation hedge", *Forbes Advisor*, https://www.forbes.com/advisor/investing/gold-inflation-hedge/#:~:text=Gold%20has%20been%20an%20inconsistent,as%20a%20tool%20of%20diversification, accessed 5 May 2023.

[7] S. Ghosh, K. Kanjilal (2014), "Long-term equilibrium relationship between urbanization, energy consumption and economic activity: Empirical evidence from India", *Energy*, **66**, pp.324-331, DOI: 10.1016/j.energy.2013.12.052.

[8] T.C. Chiang (2022), "The effects of economic uncertainty, geopolitical risk and pandemic upheaval on gold prices", *Resources Policy*, **76**, DOI: 10.1016/j.resourpol.2021.102546.

[9] S.A. Baker, R.C.V. Tassel (1985), "Forecasting the price of gold: A fundamentalist approach", *Atlantic Economic Journal*, **13**, pp.43-51, DOI: 10.1007/BF02304036.

[10] B.S. Rao, K. Nagabhushanam (2001), "India's demand for imports of non-monetary gold, non-monetary silver and merchandise during 1901-1913", *The Indian Economic Journal*, **48(3)**, pp.34-38, DOI: 10.1177/0019466220010303.

[11] K. Kanjilal, S. Ghosh (2014), "Income and price elasticity of gold import demand in India: Empirical evidence from threshold and ARDL bounds test cointegration", *Resources Policy*, **41**, pp.135-142, DOI: 10.1016/j.resourpol.2014.05.003.

[12] A. Ghosh (2016), "What drives gold demand in central bank's foreign exchange reserve portfolio?", *Finance Research Letters*, **17**, pp.146-150, DOI: 10.1016/j.frl.2016.03.007.

[13] S.M. Immanuvel, D. Lazar (2020), "Elasticities of gold demand - An empirical analysis using cointegration and error correction model", *Arthaniti: Journal of Economic Theory and Practice*, **20(2)**, pp.131-142, DOI: 10.1177/0976747920903118.

[14] M. Feldstein (1980), "Inflation, tax rules, and the prices of land and gold", *Journal of Public Economics*, **14(3)**, pp.309-317, DOI: 10.1016/0047-2727(80)90029-8.

[15] E.J. Sherman (1983), "A gold pricing model", *The Journal of Portfolio Management*, **9(3)**, pp.68-70, DOI: 10.3905/jpm.9.3.68.

[16] F. Capie, T.C. Mills, G. Wood (2005), "Gold as a hedge against the dollar", *Journal of International Financial Markets, Institutions and Money*, **15(4)**, pp.343-352, DOI: 10.1016/j.intfin.2004.07.002.

[17] L. Sumer, B. Ozorhon (2021), "Investing in gold or REIT index in Turkey: Evidence from global financial crisis, 2018 Turkish currency crisis and COVID-19 crisis", *Journal of European Real Estate Research*, **14(1)**, pp.84-99, DOI: 10.1108/JERER-04-2020-0023.

[18] D. Ghosh, E.J. Levin, P. Macmillan, et al. (2004), "Gold as an inflation hedge?", *Studies in Economics and Finance*, **22(1)**, pp.1-25, DOI: 10.1108/eb043380.

[19] T.C. Chiang (2020), "US policy uncertainty and stock returns: Evidence in the US and its spillovers to the European Union, China and Japan", *The Journal of Risk Finance*, **21(5)**, pp.621-657, DOI: 10.1108/JRF-10-2019-0190.

[20] R. Kannan, S. Dhal (2008), "India's demand for gold: Some issues for economic development and macroeconomic policy", *Indian Journal of Economics and Business*, **7(1)**, pp.107-128.

[21] B. Gopalakrishnan, S. Mohapatra (2018), "Turning over a golden leaf? Global liquidity and emerging market central banks' demand for gold after the financial crisis", *Journal of International Financial Markets, Institutions and Money*, **57**, pp.94-109, DOI: 10.1016/j.intfin.2018.07.002.

[22] D.G. Baur, L. A. Smales (2020), "Hedging geopolitical risk with precious metals", *Journal of Banking & Finance*, **117**, DOI: 10.1016/j.jbankfin.2020.105823.

[23] L. Batrancea, M.M. Rathnaswamy, I. Batrancea (2021), "A panel data analysis of economic growth determinants in 34 African countries", *Journal of Risk and Financial Management*, **14(6)**, DOI: 10.3390/jrfm14060260.

[24] N. Shrestha (2020), "Detecting multicollinearity in regression analysis", *American Journal of Applied Mathematics and Statistics*, **8(2)**, pp.39-42, DOI: 10.12691/ajams-8-2-1.

DOI: 10.31276/VMOSTJOSSH.2024.0020

The impact of green recruitment on environmental and social sustainability: Empirical evidence in Vietnam

Nguyen Hoang Nam*

College of Economics, Law and Government, University of Economics Ho Chi Minh City, 279 Nguyen Tri Phuong Street, Ward 5, District 10, Ho Chi Minh City, Vietnam

Received 5 April 2024; revised 8 May 2024; accepted 8 July 2024

Abstract:

Green recruitment has been applied by many organizations around the world in selecting potential candidates suitable for recruitment positions and committing to long-term companionship with businesses, thereby contributing to building a national green workforce towards global green citizens. This study examines the effects of green recruitment on environmental and social sustainability in green business-oriented organisations in Vietnam. Research data were collected from 450 responses using survey questionnaires at 10 businesses in Vietnam. Through the linear regression analysis method on SPSS 22 statistical analysis software, the research results indicate that green recruitment affects environmental and social sustainability. Specifically, green recruitment has a positive impact on both environmental and social sustainability. This research is helpful in raising awareness among organisations to adopt green recruitment practices to benefit the organisation in all aspects. The research also provides policymakers with a better understanding of how to promote green recruitment practices and enhance sustainability in organisations. Consequently, organisations should establish and develop green recruitment processes to promote environmental and social sustainability.

Keywords: **environmental sustainability, green human resources, green recruitment, social sustainability.**

Classification numbers: **2.1, 2.2, 7**

1. Introduction

Green recruitment is the process of recruiting and selecting candidates based on criteria for sustainable development, including economic efficiency, social responsibility, and environmental protection [1, 2]. Vultus Recruit's statistical report indicates that green recruitment is one of the recruitment trends in 2023. A recent survey conducted by Totaljobs (UK) on quarterly recruitment trends with 1,011 HR decision-makers showed that more than 1/5 (approximately 23%) of organisations are actively expanding their green workforce to address increased demand. For large corporations, this rate increases to more than 2/5 (approximately 43%). Foundit Insights Tracker's analytical data recorded a significant increase in the number of green job postings. It is forecast that by 2030, the need for green recruitment will increase year by year.

Green recruitment has a positive and significant impact on environmental performance, economic performance, and social performance [3]. Reports from the World Commission on Environment and Development (WCED) and the United Nations Conference on Environment and Development (UNCED) identified three components for sustainable development: (1) environmental protection, (2) economic growth, and (3) social equity. Additionally, Totaljobs' report analysing candidate organisational expectations noted that working for a sustainable organisation became a key motivator for employees, as most candidates express higher job satisfaction when working with a sustainable recruitment organisation. Regarding the sustainable development of the environment and society, the International Labour Organization (ILO), the United Nations Environment Programme (UNEP), and the United Nations Children's Fund (UNICEF) have launched initiatives to build green recruitment processes in organisations through

*Email: nguyenhoangnam2506@gmail.com

the Green Jobs for Youth Compact, which aims for a just transition to build sustainable economies and create meaningful opportunities for adolescents by 2030.

In recent years, worldwide research related to aspects of green human resource development in general, and green recruitment in particular, has received increasing attention. In Vietnam, research topics on green recruitment are relatively few in both quantity and quality. Therefore, this study will explore green recruitment and its impact of green recruitment on environmental and social sustainability. Within the scope of this article, we will focus on answering two questions: (1) Does green recruitment have an impact on environmental and social sustainability? (2) How does green recruitment impact environmental and social sustainability? To clarify, in terms of research layout, the study is divided into six parts. The theoretical basis is presented after the introduction. Part 3 constructs the model and research hypotheses. Part 4 provides a description of the research data sample collection and analysis process. The research results and discussion are presented in Part 5. Conclusions and policy implications are presented in Part 6. This research article on the impact of green recruitment on environmental and social sustainability was conducted not only to contribute theoretical value in terms of referencing academic documents but also to provide practical value to the green development orientation in organisational recruitment work, moving towards a quality green workforce.

2. Theoretical background

2.1. Concept of green recruitment

Originating from traditional recruitment, "green recruitment" gradually formed and now plays an increasingly important role in the economy [2, 3]. Green recruitment is the process of attracting and recruiting candidates with green knowledge, skills, and values [2]. In many countries, green recruitment is established in the centralised recruitment system as a crucial element of the organisation's personnel recruitment policy. Typically, some companies in Germany, such as Siemens, BASF, Bayer, and Mannesmann, use environmental activities and green images to attract and retain high-quality personnel.

Green recruitment is a paperless recruitment process with minimal environmental impact [3]. Recruitment using traditional paper-based tests is gradually being replaced by computer-based exams through various methods. These methods integrate and combine assessments of a candidate's thinking ability, professional knowledge, working skills, professional experience, and personality.

According to the Human Resource Management Institute (HRMI), green recruitment is defined as the process of recruiting individuals with knowledge, skills, approaches, and behaviours consistent with the environmental management system within an organisation [4]. Recruitment activities can support effective environmental management by ensuring that new entrants are familiar with the organisation's environmental culture, are aware of the company's environmental policies, and are loyal from the beginning of their employment, thereby upholding the organisation's environmental values.

In other words, green recruitment is a process of identifying, assessing, and confirming (if necessary) a candidate's thinking, values, and sensitivity to environmental issues. In terms of evaluation criteria, green recruitment is a method to select candidates with attitudes, behaviours, knowledge, and skills suitable for an organisation's environmental management (Fig. 1) [5]. This process seeks competent individuals based on criteria and principles associated with environmental protection activities, aiming to select candidates who are highly conscious and responsible for jobs related to the environment.

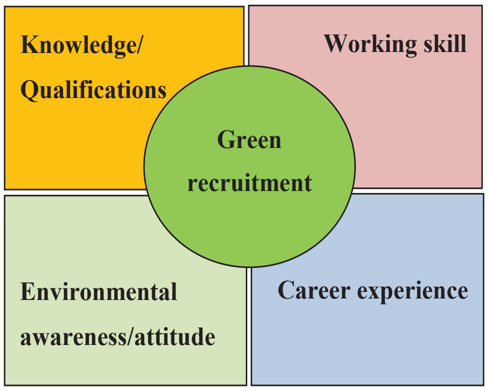


Fig. 1. Criteria framework for green recruitment. Source: Author's compilation.

In general, green recruitment is considered an effective method of attracting potential candidates to apply for organisational vacancies, helping manufacturing companies easily hire employees with the necessary awareness of environmental conservation, sufficient knowledge to approach basic issues of environmental sustainability, and the skills for activities related to recycling, reusing, and minimising emissions.

2.2.The role of green recruitment

In the context of globalisation and sustainable development, organisations are increasingly interested in recruiting environmentally conscious personnel. Green recruitment plays a significant role in green human resource management [6]. An emerging trend in recruitment is that organisations are looking for candidates with an environmentally friendly mindset [7]. Besides the increasing demand for green products and services, businesses are increasingly invested in sustainable development and developing green human resources policies. Green recruitment helps select candidates who are conscious of environmental and social protection, thereby helping organisations improve environmental emissions, use energy effectively, reduce waste, and raise environmental awareness within the organisation [8]. For example, JSW Group, one of India's largest multinational corporations with strong commitments to sustainable development, has built a green production, green business, and green office strategy to create an environmentally friendly working environment. JSW Group recently applied a subsidy policy for employees to buy electric vehicles to encourage the use of electric vehicles, public transportation, recycling, and energy-saving in daily activities, a policy previously implemented by Google.

Green recruitment positively impacts business performance, supports sustainable economic growth, and reduces environmental impact [2]. Simultaneously, green recruitment helps organisations attract individuals with green behaviours [9]. Organisations that establish an environmentally sustainable human resource management assessment framework support green recruitment. Conversely, green candidates also choose organisations committed to sustainable environmental management [10]. There is a positive relationship between green recruitment, environmental sustainability, and social sustainability in manufacturing companies [11]. Green recruitment positively impacts employee performance [12]. Adopting green recruitment enhances employee flexibility within the organisation through adaptive capacity and sensitivity to environmental and social sustainability [13, 14].

Success depends on taking positive steps towards "making the world a better place". Both consumers and employees are increasingly looking to brands to take action on social and environmental change. Most candidates are increasingly concerned about the "green reputation" of businesses [14]. Previously, businesses focused heavily on financial potential, but now a green reputation is a bright spot that attracts potential candidates. From awareness and thinking to action, green recruitment impacts the candidate's green behavioural value system [15].

Green recruitment positively impacts the circular economy [16, 17]. Developing a circular economy is included in many countries' development goals to create positive value cycles by increasing resource use efficiency at each stage of the product life cycle, reducing environmental impact, and enhancing human well-being. Green recruitment promotes sustainable activities between businesses and candidates [5, 18, 19]. There is a strong correlation between an organisation's financial performance and implementing green hiring practices. Well-managed green recruitment efforts bring profits to businesses [18]. Typically, green recruitment and green training significantly impact employee performance [19]. From a management perspective, green recruitment improves organisational management performance and contributes to increased sustainability. A statistical report by Blackrock Global Investment on the financial performance of businesses during the pandemic indicates that organisations with better environmental, social, and governance (ESG) records outperform their contemporaries.

Positive economic change can be achieved at a national scale by encouraging businesses to apply green policies in recruitment [8, 19]. The ILO forecasts that green job growth will be insufficient to meet the growing labour force in emerging and developing countries. Recent Manpower statistics show that while nearly 8 out of 10 organisations have developed sustainable green strategies, 94% still lack the necessary skills to realise their goals. Joanna Bonnett, Head of Sustainability and Corporate Treasury at PageGroup and Founder of the Green Jobs Foundation, noted that from 2022 to 2023, the proportion of green hires in the workforce increased by 12.3%, while the proportion of hires requiring at least one green skill increased by 22.4%, indicating that demand will exceed supply by 2026.

Previously attractive fields such as information technology, finance, and banking now face competition from green jobs due to high salaries. Indeed's statistical report indicates that salaries for global green jobs range from USD 45,000 to 100,000 per year. According to Talent.com, the average salary in October 2023 for green personnel in Canada was USD 51,250 per year or USD 26.28 per hour. Entry-level positions have a starting salary of USD 37,781 per year, while most experienced workers earn up to USD 120,602 per year. Along with relatively high salaries, green employees enjoy many accompanying welfare policies. However, the demand for green recruitment is only available for certain occupations aimed at protecting the environment, such as renewable energy and green technology [19].

In Vietnam, Decision No. 687/QD-TTg on approving the circular economy development project clearly states the task of building mechanisms and policies to attract and use investment and develop human resources by 2030, vision 2050 [20]. To achieve this goal, strengthening green human resources based on criteria is extremely necessary.

Green recruitment development, in particular, and green human resource development, in general, are increasingly receiving attention and becoming a trend in most countries [21]. Green recruitment is the first approach and, in the long term, will be the foundation to support human resource development and green jobs. Additionally, individuals and organisations, especially managers, should consider establishing green recruitment processes and ensure that environmentally conscious employees are brought into the organisation. Green recruitment not only helps businesses attract talented candidates but also contributes to environmental and social sustainability. By recruiting environmentally and socially conscious employees, organisations can minimise their negative impact on the environment, building a healthy and sustainable social environment.

2.3. Theoretical framework

Green recruitment and selection practices are key components in the management and development of green human resources in any organization [22]. According to D. Sujata, et al. (2023) [23], green recruitment and selection have an impact on the sustainability of the organization. Additionally, numerous studies have shown that green recruitment and selection have a positive impact on an organization's environmental performance [24, 25].

On the other hand, green recruitment has a positive impact on business performance, supporting sustainable economic growth and reducing environmental impact [2, 6, 12]. Developing green recruitment is both a social need and a means of promoting sustainable economic development. Green recruitment helps raise awareness of environmental protection, contributing to forming a green society with sustainable development. Economically, green recruitment helps businesses improve operational performance, minimise environmental impact, and promote sustainable economic development. Green recruitment also helps businesses attract and recruit high-quality personnel who share the same values and vision as the business. However, some recent studies find that corporate social responsibility (CSR) towards the environment does not influence the link between tax avoidance and corporate sustainability performance [26, 27].

Green recruitment is an assessment trend that helps select candidates who meet the criteria of green personnel [15, 18]. Below is a proposed framework for a green recruitment process in candidate selection (Table 1).

Table 1. Green recruitment process in the organisation.

Process	Content details
Green resource planning	Select strategies to meet forecasted staffing needs (internal recruitment, transfers, or new recruitment). Make a forecast of the number and type of employees needed to recruit.
Green screening plan	Verify the candidate's background to check history related to environmental activities. Check the achievements and awards won to deduce the candidate's capacity and green potential. Check the candidate's statements about sustainable practices (if any). Use LinkedIn and online job portals as external sources to identify candidates and use applicant tracking systems to organize resumes and determine the best fit for the organization.
Green job descriptions	Green recruitment criteria: - Knowledge: Choose candidates with basic knowledge about green jobs. - Skills: Priority is given to candidates who have participated in green activities and careers. - Awareness/Attitude: Looking for candidates with a personal commitment to environmental sustainability. - Experience: Select candidates with environmental knowledge who have participated in green initiatives and related green jobs before. Consider candidates' environmental concerns and interests as selection criteria. Require applicants to be environmentally responsible in preparing application documents.
Green interview plan	Include questions related to environmental aspects in the interview process to evaluate whether the candidate is suitable for the business or not? During the selection process, employers incorporate reflection on environmental issues raised during the interview to verify the candidate's sensitivity and fit with the company's perspective.
Green probation plan	Confirm acquired green competencies and qualities such as environmental knowledge and green attitude during the probationary process.
Green assessment plan	Observe candidate behaviour during the assessment process to determine the candidate's environmentally friendly attitudes and values. Make environmental responsibilities and qualifications part of the job role.
Green selection plan	The process of hiring candidates who have green consciousness, conscientiousness, and agreeableness.

Source: Author's compilation.

Recognising the gap in existing research, the author aimed to conduct a study to clarify the impact of green recruitment on environmental and social sustainability in the Vietnamese context.

2.4. Hypothesis development

The impact of green recruitment on environmental sustainability

Besides enhancing employee performance, green recruitment has a positive influence on perceptions of environmental sustainability [28]. Environmental sustainability is a conscious effort and responsive interaction with the environment to conserve natural resources through the development of alternative energy sources, reducing pollution or any negative impacts that may erode environmental quality.

Green recruitment is not only a way to attract and recruit talent but also a means to demonstrate a business's commitment to the environment [18, 28]. In green recruitment, organisations use technology to reduce paperwork, which is an environmentally friendly action and solution. Green recruitment is a critical concern in discussions about environmental sustainability. A healthy and sustainable working environment will encourage and create conditions for employees to engage in environmental protection activities [29].

Green recruitment helps raise awareness of candidates and the community about the importance of sustainable environmental development [3, 6, 29]. When candidates know that businesses care about sustainable environmental commitments, they will tend to pay more attention and actively contribute to the development of the corporate environment. Recruitment trends of organisations will increasingly look for candidates who are conscious of environmental protection. In addition to the concern of individuals in the community, environmental protection is recognised as an important strategy in green recruitment, especially in large corporations such as McDonald's, General Electric, Google, and Microsoft.

Hypothesis 1: Green recruitment has a positive impact on environmental sustainability.

The impact of green recruitment on social sustainability:

Green recruitment has implications for social sustainability [30]. Social sustainability is an essential component of economic growth and poverty reduction. It is seen as a fundamental and core principle that must be achieved before addressing environmental sustainability concerns.

Green employee behaviour and CSR have facilitated improved corporate sustainability performance [20]. Implementing green projects and transparently disclosing information about emissions reduction activities not only makes businesses more attractive to employees, investors and customers, but also improves their employer brand, attracting more potential candidates. Based on survey results from the British Carbon Trust, more than 75% of employees expressed a desire to work with organisations that have strong carbon emission reduction strategies.

Nowadays, businesses do not simply provide a quality product or service but need to look further. The relationship between CSR and corporate sustainability performance is moderated by green capabilities. In addition to creating a positive image for the business in the eyes of partners and customers, green recruitment is also meaningful in attracting talented people who are highly conscious and responsible for the environment [31]. Many studies show that employees tend to stay long-term with businesses that have good environmental protection policies. Additionally, green recruitment will help businesses increase employee retention and bring higher profits. From the recruitment and training process of human resources, when green recruitment is done well, it creates favourable conditions for subsequent stages in the organisation, including green training and development, towards the participation of green personnel.

Green recruitment positively impacts the social sustainability of manufacturing organisations. Green recruitment activities are aligned with the CSR goals of businesses. Corporate sustainability is the transformation of CSR and corporate citizenship to define fair and ethical corporate practices [32]. To transition to green production and business activities, organisations require the recruitment of green staff who are aware of social sustainability, especially for older employees [33].

Recruitment activities in green human resource management impact social sustainability through green innovation, green culture, and green employee behaviour [34]. Green recruitment helps organisations attract and recruit employees who share common values with sustainable social development. These employees will actively contribute to building a sustainable working environment, including minimising environmental impact, protecting the health and well-being of workers, and promoting equality and inclusion.

Hypothesis 2: Green recruitment has a positive impact on social sustainability.

3. Research model and hypothesis

3.1. Research model

Based on previous studies by B.L. Don, et al. (2021) [11], and T.M. Fapohunda, et al. (2022) [14], the author designed a research model. Specifically, the research model is shown in Fig. 2.

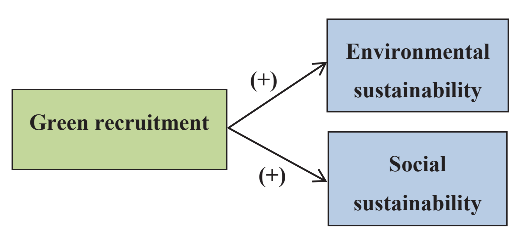


Fig. 2. Research model. Source: Author's research model.

First of all, it is necessary to define that green recruitment is different from green selection. The similarity between green recruitment and selection are both activities to look for candidates with green thinking makes it easier for companies to hire professionals who are knowledgeable about sustainable processes, familiar with basics like recycling, conservation and creating a more equitable world. However, there are fundamental differences between green recruitment and green selection. While green selection is the process of selecting people with green systems behaviors, knowledge, and skills within an organization, green recruitment involves selecting and hiring individuals with knowledge, abilities, skills, and attitudes that are compatible with a particular organization's environmental management system [18]. In this study, the author only focuses on evaluating the impact of green recruitment on environmental and social sustainability.

In addition, there are two forms of employment that organisations often choose to recruit employees, including: permanent recruitment and temporary jobs [35]. According to N. Goetz, et al. (2022) [35], permanent recruitment is a form of recruitment in which the organization seeks candidates to become official employees of the organization, work long-term and have a stable position in the organization. In terms of labor welfare, green recruits are signed with long-term labor contracts, with indefinite or long-term terms. In addition, employees enjoy all the benefits prescribed by the organization. Unlike permanent recruitment, temporary jobs are a form of recruitment in which the organization seeks candidates to work for a certain period of time, which can be a few weeks, a few months and usually less than a year. Temporary jobs serve the purpose of meeting the organization's short-term human resource needs, such as special projects, replacing employees on leave,... In some cases, temporary jobs are used for trial work before deciding to officially recruit. The green recruitment process in this study is understood as permanent recruitment.

3.2. Research hypothesis

Through the research model and arguments about the impacts of green recruitment related to environmental and social sustainability, the study proposes two research hypotheses as follows:

H_0: Green recruitment has a positive impact on environmental sustainability.

H_1: Green recruitment has a positive impact on social sustainability.

4. Research methods

4.1. Research data

Data used in the study were collected through survey questionnaires conducted at 10 enterprises with green recruitment policies in Vietnam, including: Vietnam Dairy Products Joint Stock Company (Vinamilk), Nestlé Vietnam Ltd., C.P. Vietnam Livestock Corporation, Coca-Cola Beverages Vietnam Ltd., TNG Investment And Trading JSC, Dau Tieng Rubber Corporation (DRC), Phu Nhuan Jewellery Joint Stock Company (PNJ), Imexpharm Corporation (IMP), Vietnam Joint Stock Commercial Bank for Industry and Trade (Vietinbank), and Saigon Thuong Tin Commercial Joint Stock Bank (Sacombank). According to preliminary assessment, these are enterprises that have had green human resource development policies in the last 3 years in Vietnam. Therefore, the author decided to choose these enterprises to represent research data.

For example, Vinamilk, a leading enterprise in Vietnam in the food and beverage industry, has made a long-term and challenging commitment: "Net Zero 2050 - Net Zero Emissions". By 2050, sustainability will no longer be a choice but a necessity for businesses. Accordingly, Vinamilk determined that the fastest and best way to transform green is to raise the awareness of the entire staff. When all employees proactively practice green transformation, Vinamilk's sustainable development goals will be quickly achieved. To select good personnel for the business, Vinamilk has focused on two key activities: recruitment and training and development. In terms of recruitment, Vinamilk's human resources management team has organised a strict recruitment process, prioritising factors related to environmental awareness/attitude, and is committed to aligning with the business's sustainable development goals. In terms of training and development, Vinamilk has continuously developed internal training courses since 2012 with a commitment to building and developing a "Brand attached to the community". Specifically, in Vinamilk's 2023 sustainable development report "We care we do Net Zero 2050", Vinamilk recorded ten annual training classes for workers to raise awareness of animal welfare, with 100% of workers in all farms participating in periodic training classes (Table 2). Currently, Vinamilk has three farms that meet EU Organic standards certification, three green farms following the ecological farm model, and 100% of farms strictly comply with GlobalGAP standards [36].

Table 2. Vinamilk's training and development indicators.

Training	2021	2022	2023
Number of training courses organised	585	584	523
Number of participants in training courses	25,267	28,101	30,221
Average training hours			
Management	26.5	24.1	31.1
Staff	41.1	40.3	49.1
Male	42.1	41.1	50.5
Female	33.5	32.4	39.0

Source: Vinamilk's 2023 sustainable development report.

4.2. Design a survey table

Referring to the questionnaire content in previous research by B.L. Don, et al. (2021) [11], the author set up a survey for the study on an adjusted basis, specifically as follows (Table 3):

Table 3. Survey questionnaire.

Factor	Observed variables	Original content	Edited content
Green recruitment	GR1	This company aids an environmentally harm-free exercise in the conduct of its recruitment/selection practices.	The organisation supports environmentally sound practices in conducting its recruitment activities.
	GR2	This company attracts and hires candidates with knowledge, skills, and behaviours that conform to environmental management.	The organisation attracts and recruits candidates with knowledge, skills, and behaviours appropriate to environmental management.
	GR3	Selecting applicants who are sufficiently aware of greening to fill job vacancies.	The organisation selects candidates with enough awareness about greening to fill job vacancies.
Environmental sustainability	ES1	The organisation possesses environmental policies tied to its strategic planning, management, and processes.	The organisation has environmental policies embedded in its strategic planning, management, and processes.
	ES2	The organisation seeks environmental quality throughout its productive.	The organisation seeks environmental quality throughout the production process.
	ES3	Environmentally harm-free practices are encouraged throughout the production process to sustain sustainability.	Environmentally friendly practices are encouraged throughout the production process to maintain sustainability.
Social sustainability	SS1	My organisation considered the basic values of equity, namely: education, quality of life, social capital, and sense of place within and outside the organisation.	The organisation considers the fundamental values of equity oriented towards education, quality of life, social capital, and sense of place within and outside the organization.
	SS2	My organisation provides basic needs which focus on physical aspects of society and human life, such as health, housing and food.	The organisation provides basic needs that focus on the material aspects of society and human life such as health, services, housing, and food.
	SS3	We give the highest priority and support to social homogeneity and access to goods within the host communities.	The organisation gives the highest priority and support to social uniformity and access to goods and services in the community.

Source: Author's survey table.

4.3. Analytical methods

The research method employed a combination of qualitative and quantitative methods as follows:

Qualitative method: The study applies a Likert scale with five levels of assessment (1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree). The subjects selected for the qualitative research survey are middle-level managers at businesses.

Quantitative method: The study uses a quantitative analysis method, including Cronbach's Alpha analysis to test the scale, and EFA exploratory factor analysis to group and eliminate variables. A regression function is used to evaluate the impact between the independent variable and the dependent variable.

4.4. Research sample

Research data were collected from survey forms. Specifically, out of a total of 500 surveys sent in March 2024, 477 surveys were returned. Twenty-seven surveys were removed for various reasons, such as unclear markings, continuous identical answers, incomplete answers, or no responses. The final result was 450 valid responses for research data analysis.

When applying EFA exploratory factor analysis, according to J.F. Hair, et al. (2009) [37], the minimum sample size must be 100 or more. Additionally, the number of observed variables, also known as sample size, in determining sample size for regular EFA factor analysis must be at least five times the number of variables in factor analysis. On the other hand, according to S.B. Green (2016) [38], the sample size for performing linear regression and evaluating the general model through R2 and F-test needs to be at least 50 + 8*m, where m is the number of independent variables.

The number of valid survey samples after screening, used as data for the study, is 450. The survey model in this study includes two independent factors and nine observed variables, indicating that the necessary number of samples according to J.F. Hair, et al. (2009) [37] and S.B. Green (2016) [38] is 100 or more to run regression data. Overall, the 450 samples in this study are appropriate and ensure the reliability of the research sample. Details of the survey data are shown in Table 4.

Table 4. Survey rates at 10 Vietnamese enterprises.

Company's Name	Field of operations	Number	Percentage (%)
Vietnam Dairy Products Joint Stock Company (Vinamilk)	Food and Beverage industry	43	9.56
Nestlé Vietnam Ltd.	Food and Beverage industry	41	9.11
C.P. Vietnam Livestock Corporation	Industrial Food Animal Production	36	8
Coca-Cola Beverages Vietnam Ltd.	Food and Beverage industry	50	11.11
TNG Investment and Trading JSC	Garment industry	48	10.67
Dau Tieng Rubber Corporation (DRC)	Rubber industry	37	8.22
Phu Nhuan Jewellery Joint Stock Company (PNJ)	Jewellery retail industry	50	11.11
Imexpharm Corporation (IMP)	Pharmaceutical industry	45	10
Vietnam Joint Stock Commercial Bank for Industry and Trade (Vietinbank)	Banking industry	50	11.11
Saigon Thuong Tin Commercial Joint Stock Bank (Sacombank)	Banking industry	50	11.11

Source: Data collected by the author.

5. Research analysis

5.1. Cronbach's alpha

Before entering into exploratory factor analysis, the study tested the scale using the Cronbach's alpha tool in SPSS software to assess the reliability of the component scales in the research model. After processing the scales and testing Cronbach's alpha, the results are as follows (Table 5):

Table 5. Cronbach's alpha test.

"Green recruitment" scale. Cronbach's alpha: 0.888				
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
GR1	18.59	9.518	0.693	0.871
GR2	18.57	9.536	0.699	0.870
GR3	18.57	9.294	0.694	0.871
"Environmental sustainability" scale. Cronbach's alpha: 0.818				
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
ES1	8.19	1.889	0.687	0.736
ES2	8.17	1.831	0.673	0.748
ES3	8.24	1.781	0.657	0.767
"Social sustainability" scale. Cronbach's alpha: 0.761				
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
SS1	8.26	1.710	0.623	0.654
SS2	8.25	1.570	0.592	0.680
SS3	8.43	1.521	0.571	0.709

Source: Data analysed via SPSS 22.

In general, the variables in the research model are all reliable scales, with Cronbach's alpha values greater than 0.6. Additionally, based on the results of EFA exploratory factor analysis, the average grouping of variables command is used to group variables that meet the requirements with factor loading coefficients (factor loading >0.5) into three factors: GR, ES, and SS.

5.2. Regression analysis

Test hypothesis 1:

H_0: Green recruitment has a positive impact on environmental sustainability.

The result in Table 6 shows that the value of the Durbin-Watson coefficient is 1.319, which is in the acceptable range from 1 to 3, indicating no correlation between the residuals [39]. Thus, the assumption of no correlation between residuals is not violated. Results from the ANOVA analysis of variance table with sig.=0.000 (<0.05) show that the built multiple linear regression model is suitable for the data set and can be used.

Table 6. Durbin-Watson test and ANOVA analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
1	0.028[a]	0.037	0.026	0.10302	1.319	10.184	0.000
2	0.177[a]	0.031	0.025	0.62716	2.239	3.613	0.001

Source: Data analyzed via SPSS 22.

Table 7. Regression results.

Model	Dependent variable	Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	*Std. Error*	*Beta*		
1	ES	0.010	0.022	0.009	0.475	0.000
2	SS	0.017	0.017	0.013	0.994	0.001

Source: Data analyzed via SPSS 22.

The regression results in Table 7 show that the Sig. value of the ES variable is less than 0.05. Therefore, with a significance level of 5%, it can be concluded that the independent variable GR (Green Recruitment) influences the dependent variable ES (Environmental Sustainability).

Test hypothesis 2:

H_1: Green recruitment has a positive impact on social sustainability.

The result in Table 6 shows that the value of the Durbin-Watson coefficient is 2.239, which is in the acceptable range from 1 to 3, indicating no correlation between the residuals [34]. Thus, the assumption of no correlation between residuals is not violated. Results from the ANOVA analysis of variance table with value sig.=0.001 (<0.05) show that the built multiple linear regression model is suitable for the data set and can be used.

The regression results in Table 7 show that the Sig. value of the SS variable is less than 0.05. Therefore, with a significance level of 5%, it can be concluded that the independent variable GR (Green Recruitment) influences the dependent variable SS (Social Sustainability). The Variance Inflation Factor (VIF) coefficient of independent variables (common limit 1/VIF), tolerance value is 0.10, equivalent to a VIF value of 10. This value must be less than 10; if greater, the risk of multicollinearity is high. According to the multiple regression results, there is no multicollinearity phenomenon [40].

5.3. Results and discussion

Through the regression results, we have the following hypothesis testing results (Table 8):

Table 8. Results of testing research hypotheses.

Symbolise	Hypothesis	Result
H_0	Green recruitment has a positive impact on environmental sustainability.	Accept
H_1	Green recruitment has a positive impact on social sustainability.	Accept

Source: Statistics from research results.

The study found answers to two research questions. First, the impact of green recruitment is statistically significant on environmental and social sustainability. Second, green recruitment has a positive impact on environmental sustainability and social sustainability. Although there are differences in research space and time, the research results align with previous studies by B.L. Don, et al. (2021) [11] and T.M. Fapohunda, et al. (2022) [14]. Despite differences in research contexts, studies consistently show significant and positive impacts of green recruitment on environmental and social sustainability.

Moreover, this research contributes significantly to the literature. The novelty of the research lies in the fact that there are not many studies on green recruitment in Vietnam, especially quantitative research. The results provide evidence about the impact of green recruitment on social and environmental responsibility in Vietnam and suggest solutions to develop green recruitment in the context of deep global economic integration. The significance of the research results increases awareness of the benefits of green recruitment concerning corporate responsibility, in both social and environmental aspects. Overall, the research results will impact business practices and policy development in Vietnam in the future.

6. Conclusions and policy implications

Research indicates that green recruitment positively impacts environmental and social sustainability. Green recruitment is an important solution contributing to the sustainable development of society. Organisations interested in green recruitment will orient production and business development towards environmental and social sustainability.

The uniqueness of the research lies in exploring the impact of green recruitment on the goal of sustainable business development, a very new research topic in Vietnam. Except for some large-scale and/or listed businesses, most businesses in Vietnam have not approached green recruitment. Small and medium enterprises often do not pay enough attention to sustainable development, particularly environmental and social sustainability issues. Many business managers are not clearly aware of the long-term value that green recruitment brings, and related policies for green development from state agencies are not particularly attractive. The research results are important empirical evidence for state agencies and organisations to proactively implement green recruitment in businesses, contributing to promoting the development of the national green economy.

First, most organisations and businesses need to prepare for tasks related to green recruitment development. Regarding state agencies, the government and relevant sectors need to focus on building development policies for green recruitment. In the national green growth action plan for the period 2021-2030, developing human resources and green jobs is one of the important tasks outlined in Decision No. 882/QD-TTg [41]. Organisations and businesses should develop green job descriptions and establish specific criteria for green candidates. Such descriptions will actively support the search and selection of candidates with an awareness of green knowledge, skills, and attitudes. Businesses need to clearly state their commitments to environmental protection during the recruitment process, specifically through recruitment newsletters that highlight environmental protection knowledge. This demonstrates the desire to find candidates with abilities and qualities suitable for green recruitment needs. Besides green recruitment criteria, businesses also need to establish green training standards. For example, analysing training needs to identify environmentally friendly training types, encouraging employees to create green, safe, energy-saving workspaces. Individuals should proactively equip themselves with green knowledge and skills suitable for their jobs, with the most important aspect being awareness of environmental protection to become truly green personnel.

Second, organisations need to change from awareness, thinking to action through lifestyle activities and daily work organization to create a "transformation" in green recruitment policies in those organisations. In terms of awareness, leaders and management teams of organisations and businesses need to understand the importance of green recruitment for sustainable development. Green recruitment helps organisations organisations attract and recruit high-quality personnel, contributing to building a healthy working environment and promoting environmental protection activities within businesses and the community. In terms of thinking, organisations and businesses. Therefore, organisations must change their mindset about green recruitment from focusing only on candidates' professional qualifications to paying more attention to environmental factors such as candidates' views, attitudes and actions towards protecting the environment in general.

Third, in addition to changing mindsets, organisations must also implement appropriate and effective operational policies when implementing green recruitment. First of all, organisations determine green recruitment criteria that are consistent with the business's sustainable development goals and strategies, building. Accordingly, build a green recruitment process with steps such as green source planning, green screening plan, green job description, green interview plan, green probation plan, green assessment plan, and green employee orientation plan (if the employee is selected). Furthermore, promoting awareness of green recruitment among employees and candidates is essential. Businesses should also develop and implement green welfare policies and incentives for green activities among employees. These measures will help businesses attract and select candidates with high awareness and responsibility for environmental protection, contributing to sustainable development.

The study still has limitations. First, research on green recruitment is quite new in Vietnam, with few published studies related to green recruitment, especially concerning its impact on social and environmental responsibility. Therefore, the theoretical basis for evaluating businesses in Vietnam is limited. Second, the research data were collected from 10 businesses in Vietnam. A broader or more in-depth sample size across different industries or regions in Vietnam could provide a more comprehensive view of the impact of green recruitment on environmental and social sustainability. Future studies could focus on specific industries. Third, the research only focuses on the impact of green recruitment on two aspects: environmental sustainability and social sustainability. In reality, green recruitment can impact many other areas such as local culture and economic cooperation. Lastly, different businesses may face unique challenges or advantages in implementing green recruitment. Subsequent research should consider these differences to analyse, compare, and identify the impacts on each business.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] A.N. Khattak, M.M. Khalid (2022), "Employee green behavior and the role of a green sustainable recruitment and selection plan: A call for action", *Webology*, **19(2)**, pp.5093-5105.

[2] V.V. Begum, M. Kavitha, T.E. Premkumar (2023), "The role of green recruitment and selection on employee performance", *European Chemical Bulletin*, **12(9)**, pp.2015-2021, DOI: 10.48047/ecb/2023.12.9.186

[3] J.M. Martins, H. Aftab, M.N. Mata, et al. (2021), "Assessing the impact of green hiring on sustainable performance: Mediating role of green performance management and compensation", *International Journal of Environmental Research and Public Health*, **18(11)**, DOI: 10.3390/ijerph18115654.

[4] Human Resource Management Institute (2024), *Green HRM*, https://hrmi.org/green-hrm/, accessed 5 March 2024.

[5] B.B. Saeed, B. Afsar, S. Hafeez, et al. (2019), "Promoting employee's proenvironmental behaviour through green human resource management practices", *Corporate Social Responsibility and Environmental Management*, **26(2)**, pp.424-438, DOI: 10.1002/csr.1694.

[6] D.D.T. Pham, P. Paillé (2019), "Green recruitment and selection: An insight into green patterns", *International Journal of Manpower*, **41(3)**, pp.258-272, DOI: 10.1108/IJM-05-2018-0155.

[7] G. Gupta, G. Ashutosh (2013), "Green recruiting", *International Journal of Management & Information Technology*, **3(3)**, pp.32-36, DOI: 10.24297/ijmit.v3i3.1749.

[8] D. Parul (2015), "Green HRM: An organizational strategy of greening people", *International Journal of Applied Research*, **1(13)**, pp.176-181.

[9] S. Tsymbaliuk, A. Vasylyk, K. Stoliaruk (2023), "Green recruitment and adaptation practices in GHRM", *IOP Conference Series: Earth and Environmental Science*, DOI: 10.1088/1755-1315/1126/1/012029.

[10] P.A. Bamfo, B. Bempong, J. Osei, et al. (2020), "Green candidate selection for organizational environmental management", *International Journal of Manpower*, **41(7)**, pp.1081-1096, DOI: 10.1108/IJM-10-2019-0480.

[11] B.L. Don, T.V. Diri (2021), "Green recruitment/selection and corporate sustainability of oil and gas producing companies in rivers state", *International Journal of Innovative Social Sciences & Humanities Research*, **9(2)**, pp.105-117.

[12] S.A. Sinaga, L.C. Nawangsari (2019), "The effect of green recruitment, green training on employee performance in pt tru using organization citizenship for environment as mediation variable", *Dinasti International Journal of Management Science*, **1(2)**, pp.204-216, DOI: 10.31933/dijms.v1i2.57.

[13] A.M. Akpobolokami (2023), "Green recruitment and selection and organizational agility of multinational oil and gas companies in Nigeria", *The Strategic Journal of Business & Change Management*, **10(1)**, pp.326-341, DOI: 10.61426/sjbcm.v10i1.2541.

[14] T.M. Fapohunda, K.I. Genty, L.O. Olanipekun (2022), "The effect of green recruitment and selection practices on organizational sustainability among selected manufacturing firms in Ogun State, Nigeria", *Texas Journal of Multidisciplinary Studies*, **4**, pp.174-186.

[15] T.H. Ajadi, S.A. Adewumi, B. Ntshangase (2022), "Green recruitment practices and employees' green behaviour in the eThekwini Municipality of South Africa", *International Journal of Social Science Research and Review*, **5(6)**, pp.290-304, DOI: 10.47814/ijssrr.v5i6.322.

[16] L. Marrucci, T. Daddi, F. Iraldo (2021), "The contribution of green human resource management to the circular economy and performance of environmental certified organisations", *Journal of Cleaner Production,* **319**, DOI: 10.1016/j.jclepro.2021.128859.

[17] S.M. Obeidat, S. Abdalla, A.A.K.A. Bakri (2023), "Integrating green human resource management and circular economy to enhance sustainable performance: An empirical study from the Qatari service sector", *Employee Relations*, **45(2)**, pp.535-563, DOI: 10.1108/ER-01-2022-0041.

[18] S. Jamil, S.I. Zaman, Y. Kayikci, et al. (2023), "The role of green recruitment on organizational sustainability performance: A study within the context of green human resource management", *Sustainability*, **15(21)**, DOI: 10.3390/su152115567.

[19] M. Guerci, F. Montanari, A. Scapolan, et al. (2016), "Green and nongreen recruitment practices for attracting job applicants: Exploring independent and interactive effects", *The International Journal of Human Resource Management,* **27(2)**, pp.129-150, DOI: 10.1080/09585192.2015.1062040.

[20] Vietnam Government (2022a), *Decision No. 687/QD-TTg Issued on June 7, 2022 Approving The Scheme on Development of Circular Economy in Vietnam* (in Vietnamese).

[21] P. Benevene, I. Buonomo (2020), "Green human resource management: An evidence-based systematic literature review", *Sustainability*, **12(15)**, DOI: 10.3390/su12155974.

[22] M.M. Kelvin, M.K. Stella (2018), "The role of green recruitment and selection on performance of processing industries in Tanzania: A case of Tanzania tobacco processors limited (TTPL)", *International Journal of Human Resource Studies*, **8(4)**, pp.35-46, DOI:10.5296/ijhrs.v8i4.13356.

[23] D. Sujata, D. Dash (2023), "Green recruitment and selection: An innovative approach towards organizational development and environmental sustainability", *International Journal of Advances in Social Sciences,* **11(2)**, pp.61-69, DOI: 10.52711/2454-2679.2023.00010.

[24] M.N.K. Alqudah, Y. Yusof (2024), "Improving environmental performance through innovative academic citizenship behaviour: Green training and development, green recruitment and selection as antecedents in Jordanian Government University", *Economics-Innovative and Economics Research Journal*, **1**, pp.101-129.

[25] A. Saputra, M. Apriyan, S. Subarjo (2025), "The effect of green recruitment and selection, green training, and green intellectual capital on employee performance in Indonesia", *Management Science Letters*, **15(1)**, pp.1-10, DOI: 10.5267/j.msl.2024.4.003

[26] S.A.R. Khan, A.A. Sheikh, M.S. Tahir (2024), "Corporate social responsibility-an antidote for sustainable business performance: Interconnecting role of digital technologies, employee eco-behavior, and tax avoidance", *Environmental Science and Pollution Research*, **31**, pp.4365-4383, DOI: 10.1007/s11356-023-31377-9.

[27] S.A.R. Khan, A.A. Sheikh, Z. Ahmad (2023), "Developing the interconnection between green employee behavior, tax avoidance, green capability, and sustainable performance of SMEs through corporate social responsibility", *Journal of Cleaner Production*, **419**, DOI: 10.1016/j.jclepro.2023.138236.

[28] P.K. Muisyo, S. Qin (2021), "Enhancing the FIRM'S green performance through green HRM: The moderating role of green innovation culture", *Journal of Cleaner Production*, **289**, DOI: 10.1016/j.jclepro.2020.125720.

[29] S.Y. Malik, M.Y. Hayat, T. Azam, et al. (2021), "Corporate social responsibility, green human resources management, and sustainable performance: Is organizational citizenship behavior towards environment the missing link?", *Sustainability*, **13(3)**, DOI: 10.3390/su13031044.

[30] V.N. Amrutha, S.N. Geetha (2020), "A systematic review on green human resource management: Implications for social sustainability", *Journal of Cleaner Production*, **247**, DOI: 10.1016/j.jclepro.2019.119131.

[31] J.Y. Yong, M.Y. Yusliza, T. Ramayah, et al. (2019), "Pathways towards sustainability in manufacturing organisations: Empirical evidence on the role of green human resource management", *Business Strategy and The Environment*, **29(1)**, pp.212-228, DOI: 10.1002/bse.2359.

[32] T. Jamal, M. Zahid, J.M. Martins, et al. (2021), "Perceived green human resource management practices and corporate sustainability: Multigroup analysis and major industries perspectives", *Sustainability*, **13(6)**, DOI: 10.3390/su13063045.

[33] H.M. Jerónimo, P.L. Henriques, T.C. Lacerda, et al. (2020), "Going green and sustainable: The influence of green HR practices on the organizational rationale for sustainability", *Journal of Business Research*, **112**, pp.413-421, DOI: 10.1016/j.jbusres.2019.11.036.

[34] M.A. Shahzad, D. Jianguo, M. Junaid (2023), "Impact of green HRM practices on sustainable performance: mediating role of green innovation, green culture, and green employees' behavior", *Environmental Science and Pollution Research*, **30**, pp.88524-88547, DOI: 10.1007/s11356-023-28498-6.

[35] N. Goetz, A. Wald (2022), "Similar but different? The influence of job satisfaction, organizational commitment and person-job fit on individual performance in the continuum between permanent and temporary organisations", *International Journal of Project Management,* **40(3)**, pp.251-261, DOI: 10.1016/j.ijproman.2022.03.001.

[36] Vietnam Dairy Products Joint Stock Company (2023), "We care we do Net Zero 2050", *Sustainable Development Report 2023*, https://www.vinamilk.com.vn/static/uploads/article/1713856139-0d209c698f1b78671211b2ae0adee1a8b5af07e44573a12b6fb520d0b8d146d7.pdf, accessed 5 March 2024.

[37] J.F. Hair, W.C. Black, B.J. Babin, et al. (2009), *Multivariate Data Analysis (7th edition),* Publisher: Pearson, New York, 816pp.

[38] S.B. Green (2016), *Using SPSS for Windows and Macintosh (8th Edition)*, Publisher: Pearson, New York, 352pp.

[39] H.D. Vinod (1973), "Generalization of the Durbin-Watson statistic for higher order autoregressive processes", *Communications in Statistics*, **2(2)**, pp.115-144, DOI: 10.1080/03610927308827060.

[40] J.I. Daoud (2017), "Multicollinearity and regression analysis", *Journal of Physics: Conference Series*, **949**, DOI: 10.1088/1742-6596/949/1/012009.

[41] Vietnam Government (2022b), *Decision No. 882/QD-TTg Issued on July 22, 2022 on The National Action Plan on Green Growth for The 2021-2030 Period* (in Vietnamese).

 DOI: 10.31276/VMOSTJOSSH.2023.0038

How the authenticity cues provided on product packaging can influence Vietnamese consumers' perception of Korean cosmetics

Thi Minh Ly Pham[1], Tan Lac Thien Vo[1*], Minh Tuan Phung[1], Dieu Ha Le[2]

[1]Faculty of Business Administration, Ton Duc Thang University, 19 Nguyen Huu Tho Street, Tan Phong Ward, District 7, Ho Chi Minh City, Vietnam

[2]Faculty of Business, RMIT University, 702 Nguyen Van Linh Street, Tan Hung Ward, District 7, Ho Chi Minh City, Vietnam

Received 9 June 2023; revised 17 August 2023; accepted 8 January 2024

Abstract:

The advent of technology has escalated the issue of authenticity, especially with the proliferation of counterfeit products. Moreover, it is widely acknowledged that product packaging significantly influences a product's overall performance; this impact is particularly pronounced in the cosmetics industry. Consequently, this study aims to investigate whether the information on Korean cosmetics' packaging effectively communicates their authenticity to Vietnamese consumers and whether it contributes to their understanding of perceived values, product attitudes, and purchase intentions. The principal findings suggest that to enhance consumers' favourable attitudes and purchase intentions towards Korean cosmetics using indexical signals, managers should prioritise the development and communication of the products' historical and heritage qualities. Additionally, a heightened desire for existential genuineness, especially among younger consumers, has been noted to strengthen the relationship between perceived emotional value and attitudes towards Korean cosmetics. Therefore, emphasising a deeper emotional connection in the use of Korean cosmetics will not only boost consumers' interest and willingness to purchase based on iconic cues but will also be effective for both younger consumers and those culturally inclined towards authentic cosmetics.

Keywords: **attitude toward the product, authenticity, existential, iconic, indexical, Korean cosmetics, perceived value, purchase intention.**

Classification numbers: **2.2, 4.1**

1. Introduction

In recent years, Vietnamese consumers have shown an increasing preference for premium and luxury cosmetic products. From 2013 to 2022, there was a notable 8% surge in luxury cosmetic sales [1]. Research and Markets (2019) reported that the South Korean beauty industry was valued at approximately $9.3 billion USD in 2018, escalating to $10.3 billion USD by 2021, with projections exceeding $21.8 billion USD by 2026 [2]. Vietnam ranks as the fifth-largest importer of South Korean beauty products, with a market value of 138.98 million USD [1]. Moreover, a 2022 survey of 917 Vietnamese adults aged 18 and over revealed that over 70% held favourable views of South Korean culture [3]. In 2021, South Korea held the largest share of Vietnamese consumers for imported skincare products, with 38% of males and 64% of females [1]. Hence, the interplay between Vietnamese preferences for South Korean cosmetics and the sustained growth of South Korea's beauty sector forms a vital link in this study's context.

The technological era has intensified concerns over product authenticity due to an increase in counterfeit goods [4]. Notably, Nielsen's market research in Vietnam found that 47% of beauty products sold in Hanoi were counterfeit [5]. However, more than half of the Vietnamese Gen Z exhibit reluctance to purchase counterfeit goods, with 74% considering it essential

*Corresponding author: Email: lacthienvotan2303@gmail.com

to buy genuine products [4]. Educated Vietnamese consumers are increasingly choosing authentically traditional products and rejecting low-quality or fake ones. For instance, Innisfree from AmorePacific Corporation, known for its authentic ingredients, is highly favoured among Vietnamese consumers [3]. This trend demonstrates that enhanced communication of product authenticity can offer a competitive advantage in a challenging market. Additionally, consumers' first impressions of a product are invariably influenced by its packaging, a factor that is particularly pivotal in the cosmetics industry [6]. A study by T.A. Le, et al. (2020) [7], focusing on Da Nang city, identified that 63.95% of the influencing factors on Vietnamese consumers' decisions to buy cosmetics, including packaging design, were deemed significant. Thus, this study aims to investigate whether Korean cosmetics' packaging effectively communicates their authenticity to Vietnamese consumers and whether it influences their understanding of perceived values, product attitudes, and purchase intentions. Furthermore, a survey revealed that Vietnamese women aged 18 to 32 spend the most on beauty care, averaging 700,000 VND monthly, compared to 610,000 VND and 590,000 VND for the age groups 33-39 and over 40, respectively [3]. Consequently, this study will focus on young, income-earning customers such as students and office staff, ensuring their interest and financial capacity to purchase Korean cosmetics.

Previous research by S. Charters, et al. (2006) [8] demonstrated that the level of involvement in a product category (like wine) affects perceptions of quality. This finding underpins the exploration of the moderating role of existential authenticity in the core research model elements. Additionally, since the 1990s, the significant influence of South Korean popular culture, known as the Hallyu wave, has grown extensively among young Vietnamese through idols, television dramas, and music [9]. This trend suggests the potential moderating role of age in perceived value, product attitude, and purchase intention in this study.

2. Literature review

2.1. Theoretical frameworks

2.1.1. The theory of consumption value (TCV)

The theory of consumption value (TCV), which emphasises both the utilitarian and hedonic senses of perceived value through multi-dimensional approaches, is a pivotal perspective in consumer value analysis [10]. J.N. Sheth, et al. (1991) [10] specifically addressed why consumers choose to buy or not buy a particular product, select one type over another, and prefer one brand over another. In the TCV framework, five consumption values are identified: quality value, conditional value, emotional value, social value, and epistemic value. However, this study will exclude conditional and epistemic values, considering them as specific instances of other value types and less relevant for durable goods like Korean cosmetics [11].

2.1.2. The theory of planned behaviour (TPB)

The theory of planned behaviour (TPB), introduced in 1985, is a widely accepted social-psychological model for explaining and predicting human behaviour [12]. The TPB posits that attitude, subjective norms, and perceived behavioural control are three antecedents that influence intention, leading to behaviour [12]. This research adopts a modified TPB model, incorporating perceived value, to investigate its applicability in the context of Korean cosmetics in the Vietnamese market [13].

2.2. Key concepts

2.2.1. Authenticity

F. Morhart, et al. (2015) [14] identified three perspectives on authenticity: objectivist (indexical), constructivist, and existentialist. Indexical authenticity refers to tangible qualities like origin or certification, while constructivist authenticity focuses on subjective experiences or beliefs. Existential authenticity emphasises personal engagement and meaningful experiences [15, 16].

2.2.2. The indexical-iconic approach to authenticity

The application of indexical and iconic authenticity in product packaging provides 2 key cues for consumers [17]. Indexical cues communicate verifiable product attributes such as provenance, certifications, and the use of traditional production processes, helping to reinforce historical or geographic links [14, 17]. In contrast, iconic cues evoke tradition and heritage through representations of artisanal practices or natural ingredients but do not rely on specific factual claims

[17]. In the context of Korean cosmetics, indexical packaging communicates clear historical lineage, while iconic packaging evokes tradition and heritage in a more flexible, emotionally resonant manner [18].

2.2.3. Perceived value

Current conceptual research on consumer-perceived value can be classified into three distinct areas: the analysis of gains and losses, perceptions, and the identification of key value elements [15]. This study initially delves into the concept of social value, which pertains to the meaning or significance of a product or item within society and entails a degree of subjectivity [19]. Social value also takes into account the reciprocal relationships between consumers, nature, and other individuals. Secondly, R.P. Chen, et al. (2017) [20] observed a growing trend in which consumers purchase brands to satisfy interpersonal needs, referred to as "emotional value." In this context, emotional value denotes the positive sentiments that consumers associate with a particular brand, resulting in increased brand loyalty [21]. Thirdly, perceived quality represents consumers' evaluation of a product's overall level of excellence relative to their expectations [22]. A comprehensive analysis and measurement of perceived quality necessitates attention to several determining factors, including dependability, service quality, aesthetic appeal, performance capability, and durability [22].

2.2.4. Attitude toward the product

Attitudes have been defined as a "learned proclivity to respond to a circumstance favourably or unfavourably" [23]. Furthermore, research can also shape attitudes, as consumers may disseminate and discuss product reviews with others based on acquired data. Monitoring users' attitudes is crucial for marketers and retailers, given that they are considered strongly correlated with behavioural intentions, an important predictor of actual behaviour [18].

2.2.5. Purchase intention

Following the accrual of specific data points, consumers start to examine, contemplate, and compare options, culminating in purchasing behaviour. Consumer reviews sway purchase intentions and aid decision-making regarding actual product selection [24]. Additionally, this behavioural dimension underscores consumers' preferences and objections, favouring their propensity to acquire goods.

2.2.6. Existential authenticity

The existential aspect of authenticity pertains to visitors' perceptions, emotions, and feelings, including their sense of connection to human history and culture as well as the uniqueness of their spiritual experiences [25]. Customers have been observed purchasing goods aimed at savour consuming authentic products [26]. Thus, it can be posited that the desire to participate in symbolic significance underlies the use of genuinely packaged cosmetic items [18]. To feel linked to Korean culture and notions of beauty, consumers may be encouraged to use authentically packaged cosmetic products [18].

2.3. Hypothesis development

2.3.1. The effect of perceived value on attitude toward the cosmetic product

Research has shown that heightened consumer perceptions of a product's value positively influence attitudes regarding such products [27]. Moreover, a study by Y. Wu, et al. (2023) [28] lent further evidence to the proposal that the assessment of value foremost impacts one's attitudes toward an item. Due to these discussions, it is hypothesised that:

H1. A stronger perception of (a) the cosmetic product's social value, (b) emotional value, and (c) quality will result in a more positive attitude toward the cosmetic product.

2.3.2. The effect of perceived value on purchase intention

An investigation of payment behaviour led Y. Chang, et al. (2022) [29] to find that perceived value can directly affect the intended purchase. It follows that when considering involvement with a product, an increased perception of value during acquisition correlates to a stronger likelihood of engaging therein [30]. In light of this, the following theories are put forth:

H2. A heightened perception of (a) the cosmetic product's social value, (b) emotional value, and (c) quality will result in an increased intention to purchase the cosmetic product.

2.3.3. The effect of attitude toward the product on purchase intention

As stated by D. Jaiswal, et al. (2018) [31], predictive power is greatest for intention through attitude affiliated with an object, which demonstrates consequential correspondence with buying purpose. C.L. Hsu, et al. (2017) [32] uncovered the outlook on obtaining impacts on planned procurement quantities, such as cosmetics. Additionally, the online purchase attitude of consumers is viewed as radically affecting planned participation [33]. Given the foregoing, the third hypothesis can be formulated as follows:

H3. A more positive attitude toward the cosmetic product will lead to an increased intention to purchase the product.

2.3.4. Moderating role of the need for existential authenticity

G.M. Rose, et al. (2016) [34] demonstrated the potential importance of consumer prime attraction in influencing authenticity perception. On the other hand, highly involved people have greater knowledge about a product line and could be more dubious of an abundance of authenticity claims [14]. It is hypothesised, based on the preceding discussion:

H4. A greater need for existential authenticity will positively influence the relationships in the research model, particularly in both authenticity conditions.

2.3.5. Moderating role of age

On one side, Korea's cultural boom (Hallyu), embarking in Vietnam from the 1990s onward, enticed younger Vietnamese through projections of Korea, owing to involvement with Korean entertainment and personalities gaining status [9]. Findings revealed the notable impact of Korean music and drama popularity coupled with celebrity legitimacy on youth decisions vis-à-vis Korean food selection. These more youthful crowds potentially esteem authentic Korean cosmetics beyond older demographics [18]. Correspondingly, it is hypothesised:

H5. Age will play a role as a moderator of the relationships in the research model, particularly in both authenticity conditions (Fig. 1).

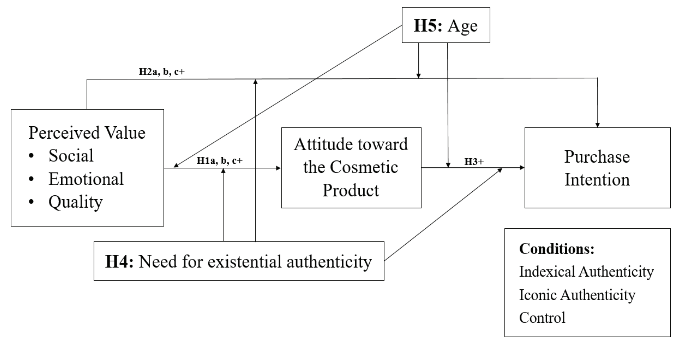


Fig. 1. The research model [24].

3. Methodology

3.1. Research design

The foundation of this research lies in the examination of theories and concepts related to perceived values, attitudes towards Korean cosmetics, and the likelihood of purchase under two authenticity scenarios - indexical and iconic. Study inquiries were developed to construct a theoretical framework and design questionnaires. The research employed experimental methods to predict how participants might perceive or act in specific situations and to observe potential connections between different factors. Specifically, the study utilised an independent group design (IGD), an experimental approach where participants were randomly allocated to various experimental conditions. Separate groups of individuals were exposed to different experimental scenarios, including indexical, iconic, and control conditions.

3.2. Statistical techniques

The collected data were analysed using statistical software such as SPSS 20 and AMOS 22. Initially, a manipulation check was conducted using a one-way ANOVA in SPSS 20. Following this, the experimental research involving three independent groups (indexical, iconic, and control) was examined using various statistical methods, including frequency statistics, descriptive statistics, Cronbach's alpha, and exploratory factor analysis (EFA) in SPSS 20. Subsequently, confirmatory factor analysis (CFA) and structural equation modelling (SEM) in AMOS 22 were employed to test the research hypotheses and evaluate the degree of impact.

3.3. Sampling method

J.F. Hair, et al. (2010) [35] established specific sample size requirements for various analyses: Cronbach's alpha necessitates a minimum of 100 observations, EFA requires at least 200 observations, and SEM mandates a minimum of 150 observations for accurate data analysis. Based on these benchmarks, this study determined that each experimental condition (indexical, iconic, and control) should involve 200 participants, resulting in a total sample size of 600 for the comprehensive model. This quantitative study employed non-probability convenience sampling, targeting individuals in Ho Chi Minh city, Vietnam, who express interest in authentic Korean cosmetics but have not yet used Korean red ginseng moisturisers.

3.4. Stimuli development

The foundation of the Sulwhasoo brand is rooted in over 50 years of innovation and business expertise, with its origins dating back to the 1960s. Amorepacific introduced the "ABC ginseng cream", the first cosmetic incorporating ginseng, in 1966, serving as a precursor to Sulwhasoo. After conducting extensive research on ginseng treatments, the company began developing "Sulwhasoo" in 1997, focusing on Korean herbal elements. The histories of Sulwhasoo and Korean cosmetics are closely intertwined. For this reason, Korean red ginseng moisturisers were selected for three distinct packaging styles designed for each condition. To maintain consistency and avoid complicating factors, design elements such as colour, logos, and graphics remained constant. To convey either indexical authenticity (specially formulated with rare Korean red ginseng based on a traditional herbal skincare formula dating back to the Goryeo dynasty 918-1392) or iconic authenticity (specially formulated with rare Korean red ginseng based on modern cosmetic technology and inspired by a traditional herbal skincare formula), a statement regarding the product's authenticity was created for each scenario [18]. Additionally, the neutral condition presented an unbiased indicator of authenticity with the statement: Specially formulated with rare Korean red ginseng [18].

3.5. Instrument development

The questionnaire utilised in the research model assessed various constructs, employing measures derived from reliable scales that were adapted to suit the study's context (Table 1).

Table 1. Measurement items of the survey.

Items	Description	Sources
	Demographic	
GEN	Gender	
AGE	Age	
MAR	Marital status	[18]
OCC	Occupation	
EDU	Education	
INC	Income	
	Perceived social value (PSV)	
PSV1	Would give its owner social approval	
PSV2	Would make a good impression on other people	
PSV3	Would help me to feel acceptable	
	Perceived emotional value (PEV)	
PEV1	Would give me pleasure	[11]
PEV2	Is one that I would enjoy	
PEV3	Would make me want to use it	
	Perceived quality value (PQV)	
PQV1	Has consistent quality	
PQV2	Has an acceptable standard of quality	
PQV3	Is well-made	
	Attitude toward the product (ATT)	
ATT1	Insignificant - Significant	
ATT2	Unnoticeable - Noticeable	
ATT3	Unachievable - Achievable	[36]
ATT4	If used properly, the Korean red ginseng moisturiser could be responsible for a significant improvement	
	Purchase Intention (PIN)	
PIN1	My willingness to buy this Korean red ginseng moisturiser would be high if I were shopping for a Korean red ginseng moisturiser	
PIN2	If I were shopping for a Korean red ginseng moisturiser, the likelihood I would purchase this brand	[37]
PIN3	If I were going to purchase a Korean red ginseng moisturiser, I would consider buying this brand	
	Need for existential authenticity (NEA)	
NEA1	Experience the local culture	
NEA2	Have a spiritual experience	[25]
NEA3	Feel connected with history	

This included fifteen items for perceived value [11], four items for product attitude [36], three items for purchase intention [37], and an additional three items from the existential authenticity scale [25]. A seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), was employed to assess perceived value, product attitude, purchase intention, and the need for existential authenticity. The inclusion of the existential authenticity scale distinguishes Korean product enthusiasts from mainstream consumers. Participants evaluated their inclination to deeply engage with Korean culture based on a modified version of T. Kolar, et al. (2010) [25] existential authenticity scale. The subsequent phase involved dividing participants into high and low categories based on their level of demand for existential authenticity using a median split. To explore the moderating impacts within the study model, age groups were divided into two categories: young (34 years and below) and mature (35 years and above).

3.6. Pre-test

To assess the effectiveness of the three stimuli used in the one-way ANOVA, a pre-test was conducted involving 150 participants from the general Vietnamese population. Each stimulus was rated on a six-item indexical and iconic authenticity scale, ranging from 1 (indicating high indexical authenticity) to 7 (representing high iconic authenticity) (Table 2), to determine the type of authenticity evoked by each stimulus, based on H. Castéran, et al. (2013) [38].

Table 2. The six-item indexical and iconic authenticity scale [38].

1	High Indexical	This product is definitely original
2	Indexical	This product is relatively original, not a copy
3	Low indexical	This product is not an imitation
4	Neutral	This product is neutral
5	Low iconic	Product ingredients or recipes are not all original
6	Iconic	This product can include artificial/ technological factors
7	High iconic	This product is completely affected by artificial/ technological factors

Following T.S. Donaldson's approach (1966) [39], this analysis was divided into two parts. Firstly, it was confirmed that the variances of the group's values were equal, indicated by Sig Levene=0.198, which is greater than 0.05. Therefore, the ANOVA table in SPSS was used instead of the Robust tests of the Equality of Means table (SPSS). The results indicated that there were statistically significant differences observed for all three stimuli, as the Sig between groups was less than 0.05. Descriptively, the iconic condition yielded the highest score (mean=6.24, Standard deviation=0.591) in the SPSS descriptive table, followed by the control condition (mean=4.04, Standard deviation=0.605), and the indexical condition scored the lowest (mean=1.62, Standard deviation=0.530). These findings suggest that the stimuli elicited the expected perceived authenticity reactions.

Additionally, two practical marketing experts (an aesthetic manager from Shiseido cosmetics and a vice general director from Glory of New York cosmetics) and nearly 20 people in Ho Chi Minh city were interviewed to verify the suitability of the questionnaire. To avoid suggesting biased replies, any concepts linked to "authenticity" terminology were not explained until they had completed the survey. The results showed that 5/19 items in the questionnaire needed to be redesigned before conducting the official survey.

4. Results and discussion

4.1. Respondent demographics

To ensure unbiased results devoid of familiarity and prior knowledge influence, it was a prerequisite that respondents met the criterion of "not having previously used Korean red ginseng moisturiser". This ensured 100% validity in the responses. The distribution between male (49.7%) and female (50.3%) respondents was nearly equal. The majority of respondents (66.5%) fell within the age range of 20 to 34, followed by those between 35 and 44 (21.3%). Most participants were married (30%) or single (56.8%). The primary occupations of the interviewees were predominantly students (49.8%) and office workers (44.7%). A significant portion of Vietnamese respondents had incomes ranging from 3,360,000 VND to 6,730,000 VND (41.8%), and those with incomes surpassing 13,460,000 VND (31.2%) were within these ranges. These statistics remained consistent across the three experimental conditions, suggesting homogeneity among the three samples. For a detailed breakdown of demographic features specific to each experimental condition, refer to Table 3.

Table 3. Respondent demographics.

N=600		Frequency	Percent
Gender	Male	298	49.7%
	Female	302	50.3%
Age	Under 20 years	7	1.2%
	20-34 years	399	66.5%
	35-44 years	128	21.3%
	45-54 years	55	9.2%
	55-65 years	8	1.3%
	Above 65 years	3	0.5%
Marital status	Single	341	56.8%
	In a relationship	74	12.3%
	Married	180	30.0%
	Divorced	5	0.8%
Occupation	Office staff	268	44.7%
	Student	299	49.8%
	Retired	5	0.8%
	Other	28	4.7%
Education	Before college	11	1.8%
	Undergraduate	289	48.2%
	Graduate	300	50.0%
Income per month (VND)	Under 3,360,000	29	4.8%
	3,360,000- 6,730,000	251	41.8%
	Above 6,730,000-10,090,000	61	10.2%
	Above 10,090,000-13,460,000	72	12.0%
	Above 13,460,000	187	31.2%

4.2. Cronbach's alpha

As per J. Nunnally, et al. (1994) [40], the criterion for scale selection was a Cronbach's alpha coefficient of 0.6 or higher. The Cronbach's alpha values for latent variables in the complete model (with 600 observations) are as follows: PSV (0.814), PEV (0.827), PQV (0.871), ATT (0.857), PIN (0.823), and NEA (0.839). Additionally, the Cronbach's alpha index for three smaller samples also met the criteria, as indicated in Table 4.

Table 4. Cronbach's alpha.

Cronbach's alpha	Indexical (N=200)	Iconic (N=200)	Control (N=200)	Pooled (N=600)
PSV	0.806	0.837	0.800	0.814
PEV	0.833	0.815	0.832	0.827
PQV	0.847	0.887	0.879	0.871
ATT	0.849	0.886	0.859	0.857
PIN	0.762	0.847	0.851	0.823
NEA	0.825	0.834	0.847	0.839

4.3. Exploratory factor analysis (EFA)

As indicated by C.M. Fuller, et al. (2016) [41], Harman's single-factor test serves as a sensitive method to detect the presence of a problem if common technique bias significantly influences study outcomes. This test involves an EFA utilising all indicators within the model to ascertain if a single factor emerges [41]. The result revealed that the total variance amounted to 28.748%, which is less than the 50% threshold, indicating the absence of common method bias [41].

Initially, the Bartlett test's significance was determined based on the Kaiser-Meyer-Olkin (KMO) measure being equal to or above 0.5, indicating suitability for factor analysis [42]. The KMO serves as an indicator to evaluate the suitability of the EFA, demonstrating a correlation among observed variables if the Sig is less than 0.05. Eigenvalue serves as a critical criterion to determine the number of factors in EFA, retaining only those with eigenvalues greater than or equal to 1. Moreover, the requirement for total variance explained to be equal to or higher than 50% aligns with J.C. Anderson, et al. 's criteria (1988) [43], demonstrating the percentage of variation in the dataset explained by the extracted factors. Furthermore, it is essential that the maximum factor loading of each item be 0.5 or above, signifying good quality of the observed variable. Additionally, for each item, the disparity between the largest factor loading and any other factor loading should be 0.3 or greater. The four models presented in Table 5 (indexical, iconic, control, and pooled) have met the required standards, demonstrating statistical significance for EFA and are deemed ready for further CFA.

Table 5. Exploratory factor analysis results.

EFA conditions	Indexical (N=200)	Iconic (N=200)	Control (N=200)	Pooled (N=600)
KMO≥0.5	0.801	0.804	0.819	0.821
Sig Bartlett's test < 0.05	0.000	0.000	0.000	0.000
Eigenvalue ≥ 1	1.045	1.156	1.011	1.074
Total variance explained ≥50%	61.331%	66.410%	65.048%	63.711%
Every factor loading is higher than 0.5				
5 factors (PSV, PEV, PQV, ATT and PIN) were extracted from the corresponding observed variables as the initial hypothesis.				

Table 6. Results of multicollinearity test.

Collinearity statistics								
Variables	*Indexical (N=200)*		*Iconic (N=200)*		*Control (N=200)*		*Pooled (N=600)*	
	Tolerance	*VIF*	*Tolerance*	*VIF*	*Tolerance*	*VIF*	*Tolerance*	*VIF*
PSV	0.993	1.007	0.991	1.009	0.982	1.018	0.989	1.011
PEV	0.965	1.036	0.992	1.008	0.991	1.009	0.985	1.015
PQV	0.959	1.042	0.983	1.017	0.975	1.026	0.975	1.026

Table 7. Confirmatory factor analysis model fit.

Model fit	Indexical (N=200)	Iconic (N=200)	Control (N=200)	Pooled (N=600)
Chi-square/df	1.776	1.765	1.947	4.117
RMSEA	0.062	0.062	0.069	0.072
CFI	0.947	0.955	0.944	0.937
TLI	0.932	0.943	0.929	0.920
GFI	0.907	0.907	0.904	0.927

4.4. Multicollinearity test

When the independent variables are correlated, the variance of the estimated regression coefficient is inflated, which is determined by the variance inflation factor (VIF). The VIF's calculated results are shown in Table 6. There is no multicollinearity between the independent variables in the model because each pair's VIF value is less than 2.

4.5. Confirmatory factor analysis

4.5.1. Model fit

The assessment of the model's fit with the data will occur upon the completion of constructing the CFA diagram. The suitability of an index will be determined based on specific criteria, as outlined by J.F. Hair, et al. (2010) [35], which are presented in Table 7. These criteria include Chi-square/df (Chi-square divided by degrees of freedom) ≤3.0, although Chi-square/df ≤ 5 is also considered acceptable. Additionally, the model should meet the following thresholds: RMSEA (root mean square error of approximation) ≤ 0.08; CFI (comparative fit index) ≥0.90; TLI (Tucker-Lewis Index) ≥0.90; GFI (goodness of fit index) ≥0.90 [44, 24].

4.5.2. Quality of observed variables (Reliability)

The validity of the four models (indexical, iconic, control, and pooled) was confirmed as all observed variables within each model demonstrated characteristics of latent variables with a p-value <0.05 (regression weights) [35]. Furthermore, the estimated values of all observable variables in the standardised regression weights section were at least 0.5, indicating a positive influence on the respective latent variables within the indexical, iconic, control, and pooled models [35].

4.5.3. Convergent validity and discriminant validity

According to J.F. Hair, et al. (2010) [35], the composite reliability (CR) calculated from CFA parameter estimates ranged from 0.769 to 0.891, surpassing the threshold of CR≥0.7. The average variance extracted (AVE) scores, ranging from 0.528 to 0.733, also exceeded the benchmark of AVE ≥0.5, demonstrating strong convergent validity across all four models [44]. Additionally, the test for discriminant validity across all four models indicated that the maximum shared variance (MSV), ranging from 0.116 to 0.403, was lower than all AVE indices, which ranged from 0.528 to 0.733 [44]. Moreover, the square root of AVE for each variable was greater than that variable's correlation with other variables in the model, fulfilling the criteria for discriminant validity [44]. Consequently, all four models (indexical, iconic, control, and pooled) met the requirements for convergent and discriminant validity in the context of CFA (Table 8).

Table 8. Convergent validity and discriminant validity (pooled sample).

Pooled	CR	AVE	MSV	ASV	PSV	ATT	PQV	PEV	PIN
PSV	0.818	0.601	0.144	0.065	0.775				
ATT	0.858	0.602	0.312	0.185	0.332	0.776			
PQV	0.873	0.697	0.222	0.102	0.090	0.401	0.835		
PEV	0.827	0.615	0.158	0.076	-0.004	0.398	0.137	0.784	
PIN	0.827	0.615	0.312	0.201	0.379	0.559	0.471	0.355	0.784

4.6. Structural equation modelling

4.6.1. Testing the structural models

The research initially delved into the impact of perceived value aspects on attitudes toward the product. In all samples (indexical, iconic, control, and pooled) the perceived social worth significantly and positively influenced attitudes toward the product (β ranging from 0.286 to 0.316; $p<0.05$), supporting H1a. Additionally, the perceived emotional value had a substantial positive impact on attitudes toward the product (β ranging from 0.334 to 0.372; $p<0.05$), supporting H1b. Similarly, perceived quality value exhibited a strong and positive effect on attitudes toward the product (β ranging from 0.282 to 0.355; $p<0.05$), thereby supporting H1c (Table 9).

Table 9. SEM standardised regression weights.

Estimate	Indexical (N=200)	Iconic (N=200)	Control (N=200)	Pooled (N=200)
ATT←PSV	0.306***	0.286***	0.316***	0.304***
ATT←PEV	0.334***	0.345***	0.372***	0.355***
ATT←PQV	0.355***	0.282***	0.329***	0.325***
PIN←PEV	0.237**	0.183*	0.224**	0.208***
PIN←PQV	0.310***	0.335***	0.304***	0.313***
PIN←PSV	0.290***	0.246***	0.270***	0.264***
PIN←ATT	0.227*	0.243**	0.317***	0.263***

Note: * p≤0.05; ** p≤0.01; *** p≤0.001.

Subsequently, the study examined the influence of perceived value components on purchase intention. The perceived social value (β ranging from 0.246 to 0.290; $p<0.05$), perceived emotional value (β ranging from 0.183 to 0.237; $p<0.05$), and perceived quality value (β ranging from 0.264 to 0.329; $p<0.05$) all exhibited significant and positive relationships with purchase intention across the indexical, iconic, control, and pooled samples, supporting H2a, H2b, and H2c, respectively (Table 9).

Finally, the study explored the influence of attitude toward the product on the intention to buy. The results indicated that the attitude toward the product significantly affected purchase intention across all groups - indexical, iconic, control, and pooled (β ranging from 0.227 to 0.317; $p<0.05$) - thus supporting H3 (Table 9).

4.6.2. Testing the moderation effects of the need for existential authenticity

In the standardised regression weights table for the pooled sample (Table 10), only one direct relationship is evident. The group with a high need for existential authenticity (β=0.459, $p\leq0.001$) appears to have a stronger relationship than the low-need group (β=0.197, $p\leq0.01$) concerning the perceived emotional value of the product and attitude. When the connection between perceived emotional value and attitude toward the product was limited, a notable chi-square difference ($p=0.013\leq0.05$) emerged, signalling evidence of moderation. This suggests that consumers might attribute higher emotional value to products with genuine packaging due to a greater demand for existential authenticity in the present context, contrasting with Vietnamese consumers with a lesser interest in existential authenticity. This moderation evidence partly supports H4.

4.6.3. Testing the moderation effects of age

As depicted in Table 11, the multigroup analysis revealed that age has a moderating impact on the relationship between perceived emotional value and attitude toward the product for both "young" (β=0.406, $p\leq0.001$) and "mature" (β=0.259, $p\leq0.001$) individuals in the combined sample. Restricting the connection between perceived emotional value and attitude toward the product resulted in a significant chi-square difference ($p=0.042\leq0.05$), demonstrating moderation. Therefore, it can be suggested that younger consumers generally experience higher emotional satisfaction when using products with authentic packaging compared to mature consumers. Thus, H5 received partial support.

Table 10. The moderation effects of the need for existential authenticity.

	Indexical			Iconic			Control			Pooled		
	High (N=140)	*Low (N=60)*	*P-value*	*High (N=141)*	*Low (N=59)*	*P-value*	*High (N=110)*	*Low (N=90)*	*P-value*	*High (N=391)*	*Low (N=209)*	*P-value*
H1a	0.351***	0.258	0.551	0.338***	0.223	0.624	0.255*	0.405***	0.404	0.324***	0.302***	0.857
H1b	0.479***	0.092	0.131	0.374***	0.242	0.457	0.471***	0.234*	0.056	**0.459***	**0.197**	**0.013**
H1c	0.244**	0.487***	0.137	0.258**	0.395**	0.278	0.322***	0.302**	0.858	0.283***	0.394***	0.123
H2a	0.407***	0.144	0.305	0.347***	0.154	0.660	0.345***	0.159	0.264	0.370***	0.140	0.084
H2b	0.198	0.246	0.343	0.212*	0.082	0.652	0.250*	0.187	0.609	0.238***	0.206**	0.745
H2c	0.334***	0.363*	0.589	0.359***	0.388**	0.277	0.418***	0.201	0.330	0.370***	0.258***	0.795
H3	0.214	0.179	0.971	0.232*	0.225	0.730	0.311*	0.355**	0.716	0.242***	0.286***	0.419

Table 11. The moderation effects of age.

	Indexical			Iconic			Control			Pooled		
	High (N=140)	*Low (N=60)*	*P-value*	*High (N=141)*	*Low (N=59)*	*P-value*	*High (N=110)*	*Low (N=90)*	*P-value*	*High (N=391)*	*Low (N=209)*	*P-value*
H1a	0.351***	0.258	0.551	0.338***	0.223	0.624	0.255*	0.405***	0.404	0.324***	0.302***	0.857
H1b	0.479***	0.092	0.131	0.374***	0.242	0.457	0.471***	0.234*	0.056	**0.459***	**0.197**	**0.013**
H1c	0.244**	0.487***	0.137	0.258**	0.395**	0.278	0.322***	0.302**	0.858	0.283***	0.394***	0.123
H2a	0.407***	0.144	0.305	0.347***	0.154	0.660	0.345***	0.159	0.264	0.370***	0.140	0.084
H2b	0.198	0.246	0.343	0.212*	0.082	0.652	0.250*	0.187	0.609	0.238***	0.206**	0.745
H2c	0.334***	0.363*	0.589	0.359***	0.388**	0.277	0.418***	0.201	0.330	0.370***	0.258***	0.795
H3	0.214	0.179	0.971	0.232*	0.225	0.730	0.311*	0.355**	0.716	0.242***	0.286***	0.419

4.7. Discussion

This study aimed to explore: (1) the influence of indexical, iconic, and control authenticity on perceived value, attitude toward the product, and purchase intention; (2) the potential impact of varied levels of existential authenticity and different age groups on potential interactions in the research model. The findings of this study corroborate previous research, demonstrating strong and positive associations between attitudes toward the product and perceived value [28, 18], between perceived value and purchase intention [30, 19, 18, 45], and between attitudes toward the product and purchase intention [18]. Furthermore, it was revealed that the link between perceived emotional value and attitude toward the product was influenced by both the need for existential authenticity and the participants' age. An outline of the hypothesis testing can be found in Table 12.

Our research expands the existing body of knowledge on how different aspects of perceived value impact consumer perceptions of authentic Asian cosmetic products. Each facet of perceived value significantly influences positive attitudes towards items featuring packaging that conveys one of three authenticity requirements. It also provides insights into how consumers evaluate the value of these diverse categories of authentic products. Specifically, Vietnamese consumers respond favourably to indexical cues (related to cultural heritage and production methods), prioritising higher quality (top priority: $\beta=0.355$, $p\leq0.05$), the promise of enriching experiences with cultural ingredients ($\beta=0.334$, $p\leq0.05$), and social benefits ($\beta=0.306$, $p\leq0.05$). Conversely, they favour pursuing pleasant emotional experiences in response to iconic signals (associated with innovation while preserving the original legacy) (highest priority: $\beta=0.345$, $p\leq0.05$), followed by social benefits ($\beta=0.286$, $p\leq0.05$), and product quality ($\beta=0.282$, $p\leq0.05$).

Additionally, our current results shed light on how perceived value impacts purchase intention. In contrast to previous studies, our research shows that across three authenticity levels and a combined sample, all aspects of perceived value positively influence consumers' purchase intentions for Korean cosmetic products. These findings, building upon the

Table 12. Summary of hypothesis testing.

Hypotheses	Result
H1. A stronger perception of (a) the cosmetic product's social value, (b) emotional value, and (c) quality will result in a more positive attitude toward the cosmetic product	
H1a: Perceived social value → Attitude toward the product	Supported
H1b: Perceived emotional value → Attitude toward the product	Supported
H1c: Perceived quality value → Attitude toward the product	Supported
H2. A heightened perception of (a) the cosmetic product's social value, (b) emotional value, and (c) quality will result in an increased intention to purchase the product	
H2a: Perceived social value → Purchase intention	Supported
H2b: Perceived emotional value → Purchase intention	Supported
H2c: Perceived quality value → Purchase intention	Supported
H3. A more positive attitude toward the cosmetic product will lead to an increased intention to purchase the product	Supported
H4. A greater need for existential authenticity will positively influence the relationships in the research model, particularly in both authenticity conditions	Partially supported
H5. Age will play a role as a moderator of the relationships in the research model, particularly in both authenticity conditions	Partially supported

findings on consumer attitudes, reveal that diverse perspectives on perceived value offer deeper insights and aid in predicting consumer satisfaction and behavioural intention. E. Choi, et al.'s study (2019) [45] indicated that although American consumers value social benefits, it does not affect their willingness to purchase. However, in the Vietnamese market context, higher perceived social value across the three distinct authenticity criteria and the combined sample could lead to increased purchase intention.

Our study further enriches the authenticity literature [25, 14] by examining how consumers' perceptions of Korean products with three distinct packaging authenticity levels are influenced by age and existential authenticity. Existential authenticity has played a significant role in the favourable responses to genuine tourism destinations [46]. Lee, et al.'s research in 2019 revealed that existential authenticity did not enhance the impact of authenticity or perceived value on international consumers' views and purchase intentions due to the cultural gap [18]. However, our study found that a greater need for existential authenticity ($\beta=0.459$, $p\leq0.05$) might amplify the positive influence of perceived emotional value and attitude toward cosmetic products in the combined sample compared to less needy respondents ($\beta=0.197$, $p\leq0.05$), moderated by existential authenticity. This outcome supports Park and Moon's findings from 2003 [47], indicating that highly interested consumers often struggle to recognise their lack of specific knowledge about the characteristics of a hedonic product. Thus, emotional benefits can be more appealing than the utilitarian attributes of product quality.

Furthermore, our results confirm the moderating effect of age, with younger consumers in the combined sample showing a stronger inclination toward Korean cosmetic products due to their emotional appeal compared to older consumers. It suggests that younger consumers are more inclined than older individuals to seek genuine cultural products, influenced significantly by the Hallyu wave (South Korean culture) on Vietnamese consumer perspectives [9]. To enhance consumer brand loyalty, luxury companies should focus on establishing "emotional connections" with consumers rather than solely emphasising practical benefits, supporting the notion that managers need to recognise the importance of younger consumers.

5. Conclusions

5.1. Theoretical implications

This study contributes to the literature by demonstrating that perceived value is a multidimensional construct [10]. It highlights that consumer reactions to authentic Korean cosmetics are differentially influenced by social, emotional, and quality values. S. Lee, et al. (2019) [18] found that hedonic rather than utilitarian worth drives favourable attitudes and purchase intentions among American consumers.

Secondly, this research clarifies the distinction between iconic and indexical authenticity [38]. As S. Lee, et al. (2019) [18] noted, consumers consider indexical authenticity indicative of emotional and quality value, whereas iconic authenticity signals emotional and social value. Our findings support these claims, showing that quality value is most strongly linked to indexical cues, whereas emotional factors are closely related to iconic cues. This aligns with T. Lubberts (2018) [17] and C.W. Park, et al. (2003) [47], who argued that indexical authenticity meets functional needs, while iconic authenticity triggers emotional evaluations.

Thirdly, perceived quality benefits were found to dominate consumer intentions across all models, followed by social and emotional values [48]. As demonstrated by J. Lee, et al. (2018) [49], authenticity is crucial in evaluating tourism goods and experiences. Our results suggest that Vietnamese consumers prioritise product quality and the appropriateness of cosmetics, alongside emotional value and social influences.

Finally, this study detected a favourable signal from the existential authenticity perspective versus the investigation by S. Lee, et al. (2019) [18]. Results here supported existentialist theory suggesting higher existential authenticity needs will strengthen the relationship between perceived emotional value and product attitude [16]. Individuals feel much freer to authentically express themselves during unusual, unconstrained activities than in daily life, not because toured items are deemed authentic, but because partaking in unusual experiences [16]. Consequently, this research also showed younger consumers select overall authenticity due to its perceived emotional worth.

5.2. Managerial implications

Firstly, to enhance consumer attitudes towards Korean cosmetics driven by indexical cues, managers should emphasise the heritage of quality and incorporate hedonic and social values. For example, Beauty of Joseon Traditional Korean Cosmetics Beauty of Joseon Traditional Korean Cosmetics leverages ginseng (renowned as a “godly herb”) from the Joseon Dynasty, showcasing its historical significance [50].

Secondly, strengthening promotions that arouse intense emotion during the consumption of Korean cosmetics will heighten consumer interest from an iconic perspective. For instance, L. Lee (2022) [50] illustrates this through Beauty of Joseon’s blend of traditional herbal ingredients with modern elements, appealing to both nostalgia and quality. Moreover, Asian medicine components have historically offered nutrition through both food and remedies, making them well-suited today for quality skincare as demonstrated in these traditionally-inspired goods.

Thirdly, insights from three collected stimuli samples of Sulwhasoo staff revealed Vietnamese customers’ strong interest in ingredient information, uses, and features relating to the direct bodily application of cosmetics. Thus, alongside refining authenticity values, emphasising authentic ingredient details could boost purchase intentions.

Finally, since demand for existential authenticity and younger consumers positively influence attitudes towards Korean cosmetics, marketers should design labels that convey emotional authenticity and hedonic experiences, resonating with youthful or culturally connected audiences. The aesthetic could draw from Joseon Dynasty artistic sensibilities, fostering emotional connections similar to endorsements like Rosé from Blackpink, who shared how Sulwhasoo evokes memories of her mother [50].

5.3. Limitations and future research

This study’s design limitations, particularly the independent group design, restrict a comprehensive assessment among 600 participants regarding which authenticity type is more favourable. The current research delineates relationships within individual models (indexical, iconic, or control) but does not allow for direct comparisons of authenticity types due to the independent group design. Future studies should adopt a repeated measures design to facilitate more effective comparisons among different authenticity conditions [14].

Categorising participants into high and low-need existential authenticity groups based on a median may lead to inaccuracies; for example, a participant scoring 3.9 would be classified as low need, while one scoring 4.1 would be deemed high need. Future research should aim for a larger sample size, ideally with at least 600 observations for each authenticity condition, and categorise participants into three groups (low, medium, and high) for greater precision.

Brand managers and advertisers face challenges in understanding how consumers at different levels of product engagement perceive authentic products [7]. This study does not provide adequate strategies for addressing the needs of consumers with low existential authenticity or older demographics. Future research should investigate various brands and products to better assess perceptions among these groups.

CRediT author statement

Thi Minh Ly Pham, Minh Tuan Phung: Conceptualisation, Methodology, Supervision, Validation, Resources, Funding acquisition, Structuring, Writing - Reviewing and Editing; Tan Lac Thien Vo, Dieu Ha Le: Software, Data curation, Writing - Original draft preparation, Visualisation, Investigation, Project administration, Literature review, Revision, Formal analysis, Formatting.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] Statista (2023), *Cosmetics Market in Vietnam*, https://www.statista.com/study/64336/cosmetics-market-in-vietnam/, accessed 8 June 2023.

[2] Market Data Forecast (2022), *K-Beauty Products Market |Size, Trends, Forecast|2021-2026*, https://www.marketdataforecast.com/market-reports/global-k-beauty-products-market, accessed 15 March 2023.

[3] Q&Me (2022), *Vietnam Cosmetic Usage Analysis*, https://qandme.net/vi/baibaocao/bao-cao-phan-tich-viec-su-dung-mi-pham-o-vietnam-2022.html#, accessed 18 February 2023 (in Vietnamese).

[4] T. Nguyen, T. Li (2022), "The analysis of counterfeits and their impact on countries' development", *VMOST Journal of Social Sciences and Humanities*, **64(3)**, pp.55-64, DOI: 10.31276/VMOSTJOSSH.64(3).55-64.

[5] G. Huynh, J.A.J. Wilson (2014), "Vietnamese attitudes and behavioral patterns towards counterfeit brands", *ASEAN Marketing Journal*, **6(2)**, pp.89-104, DOI: 10.21002/amj.v6i2.4217.

[6] P. Srivastava, D. Ramakanth, K. Akhila, et al. (2022), "Package design as a branding tool in the cosmetic industry: Consumers' perception vs. reality", *SN Business & Economics*, **2**, DOI: 10.1007/s43546-022-00222-5.

[7] T.A. Le, N.Q.T. Mai, N.V. Vo, et al. (2020), "Factors affecting the choice of buying Korean cosmetics", *Management Science Letters*, **10**, pp.3097-3106, DOI: 10.5267/j.msl.2020.5.013.

[8] S. Charters, S. Pettigrew (2006), "Product involvement and the evaluation of wine quality", *Qualitative Market Research: An International Journal*, **9(2)**, pp.181-193, DOI: 10.1108/13522750610658810.

[9] T.N.K. Nguyen, T.T.H. Tran (2019), "Hallyu and the impact on young consumers' preference for Korean restaurants in Vietnam", *Proceedings of The 1st International Conference on Economics, Business, and Tourism*, International University - Vietnam National University - Ho Chi Minh City, pp.1-22.

[10] J.N. Sheth, B.I. Newman, B.L. Gross (1991), "Why we buy what we buy: A theory of consumption values", *Journal of Business Research*, **22(2)**, pp.159-170, DOI: 10.1016/0148-2963(91)90050-8.

[11] J.C. Sweeney, G.N. Soutar (2001), "Consumer perceived value: The development of a multiple item scale", *Journal of Retailing*, **77(2)**, pp.203-220, DOI: 10.1016/S0022-4359(01)00041-0.

[12] I. Ajzen (2015), "Consumer attitudes and behavior: The theory of planned behavior applied to food consumption decisions", *Italian Review of Agricultural Economics*, **70(2)**, pp.121-138.

[13] S.S. Alam, M. Ahmad, Y.H. Ho, et al. (2020), "Applying an extended theory of planned behavior to sustainable food consumption", *Sustainability*, **12(20)**, pp.83-94, DOI: 10.3390/su12208394.

[14] F. Morhart, L. Malar, A. Guèvremont, et al. (2015), "Brand authenticity: An integrative framework and measurement scale", *Journal of Consumer Psychology*, **25(2)**, pp.200-218, DOI: 10.1016/j.jcps.2014.11.006.

[15] T.W. Leigh, C. Peters, J. Shelton (2006), "The consumer quest for authenticity: The multiplicity of meanings within the MG subculture of consumption", *Journal of The Academy of Marketing Science*, **34(4)**, pp.481-493, DOI: 10.1177/0092070306288403.

[16] N. Wang (1999), "Rethinking authenticity in tourism experience", *Annals of Tourism Research*, **26(2)**, pp.349-370, DOI: 10.1016/s0160-7383(98)00103-0

[17] T. Lubberts (2018), *The Impact of Product Cue Manipulation and Consumer Product Involvement on Product Authenticity Evaluations*, Master Thesis, Wageningen University, Netherlands.

[18] S. Lee, B. Sung, I. Phau, et al. (2019), "Communicating authenticity in the packaging of Korean cosmetics", *Journal of Retailing and Consumer Services*, **48**, pp.202-214, DOI: 10.1016/j.jretconser.2019.02.011.

[19] Y. Song, S. Guo, M. Zhang (2019), "Assessing customers' perceived value of the anti-haze cosmetics under haze pollution", *Science of The Total Environment,* **685**, pp.753-762, DOI: 10.1016/j.scitotenv.2019.06.254.

[20] R.P. Chen, E.W. Wan, E. Levy (2017), "The effect of social exclusion on consumer preference for anthropomorphized brands", *Journal of Consumer Psychology*, **27(1)**, pp.23-34, DOI: 10.1016/j.jcps.2016.05.004.

[21] C. Papadopoulou, M. Vardarsuyu, P. Oghazi (2023), "Examining the relationships between brand authenticity, perceived value, and brand forgiveness: The role of cross-cultural happiness", *Journal of Business Research*, **167**, pp.114-154, DOI: 10.1016/j.jbusres.2023.114154.

[22] E.I. Khairunnisa, G. Genoveva (2019), "The influence of brand equity towards purchase decision (Case study of Korean cosmetics Innisfree in Jabodetabek)", *Manajemen Bisnis Kompetensi*, **14(1)**, pp.45-60.

[23] J.H. Huang, B.C. Lee, S.H. Ho (2004), "Consumer attitude toward gray market goods", *International Marketing Review,* **21(6)**, pp.598-614, DOI: 10.1108/02651330410568033.

[24] T. Chen, P. Samaranayake, X. Cen, et al. (2022), "The impact of online reviews on consumers' purchasing decisions: Evidence from an eye-tracking study", *Frontiers in Psychology*, **13**, DOI: 10.3389/fpsyg.2022.865702.

[25] T. Kolar, V. Zabkar (2010), "A consumer-based model of authenticity: An oxymoron or the foundation of cultural heritage marketing?", *Tourism Management*, **31(5)**, pp.652-664, DOI: 10.1016/j.tourman.2009.07.010.

[26] A. Buchmann, K. Moore, D. Fisher (2010), "Experiencing film tourism: Authenticity & fellowship", *Annals of Tourism Research*, **37(1)**, pp.229-248, DOI: 10.1016/j.annals.2009.09.005.

[27] S. Misra, K. Pedada, A. Sinha (2022), "A theory of marketing's contribution to customer's perceived value", *Journal of Creating Value*, **8(2)**, pp.219-240, DOI: 10.1177/23949643221118152.

[28] Y. Wu, H. Huang (2023), "Influence of perceived value on consumer's continuous purchase intention in live-streaming e-commerce-mediated by consumer trust", *Sustainability*, **15(5)**, DOI: 10.3390/su15054432.

[29] Y. Chang, L. Geng (2022), "Planned or unplanned purchases? The effects of perceived values on omnichannel continuance intention", *International Journal of Retail & Distribution Management*, **50(12)**, pp.1535-1551, DOI: 10.1108/IJRDM-01-2021-0012.

[30] L. Peng, W. Zhang, X. Wang, et al. (2019), "Moderating effects of time pressure on the relationship between perceived value and purchase intention in social E-commerce sales promotion: Considering the impact of product involvement", *Information & Management*, **56(2)**, pp.317-328, DOI: 10.1016/j.im.2018.11.007.

[31] D. Jaiswal, R. Kant (2018), "Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers", *Journal of Retailing and Consumer Services,* **41***,* pp.60-69, DOI: 10.1016/j.jretconser.2017.11.008.

[32] C.L. Hsu, C.Y. Chang, C. Yansritakul (2017), "Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity", *Journal of Retailing and Consumer Services*, **34**, pp.145-152, DOI: 10.1016/j.jretconser.2016.10.006.

[33] V.C. Nguyen, T.H. Ao (2022), "Factors affecting consumer behavior to use e-wallets: An empirical study from Vietnam context", *VMOST Journal of Social Sciences and Humanities*, **64(1)**, pp.10-24, DOI: 10.31276/VMOSTJOSSH.64(1).10-24.

[34] G.M. Rose, A. Merchant, U.R. Orth, et al. (2016), "Emphasizing brand heritage: Does it work? And how?," *Journal of Business Research*, **69(2)**, pp.936-943, DOI: 10.1016/j.jbusres.2015.06.021.

[35] J.F. Hair, R.E. Anderson, B.J. Babin, et al. (2010), *Multivariate Data Analysis: A Global Perspective, vol. 7 Pearson Education*, Upper Saddle River, New Jersey: Prentice Hall.

[36] A.B. Bower (2001), "Highly attractive models in advertising and the women who loathe them: The implications of negative affect for spokesperson effectiveness", *Journal of Advertising*, **30(3)**, pp.51-63, DOI: 10.1080/00913367.2001.10673645.

[37] Q. Bian, S. Forsythe (2012), "Purchase intention for luxury brands: A cross cultural comparison", *Journal of Business Research*, **65(10)**, pp.1443-1451, DOI: 10.1016/j.jbusres.2011.10.010.

[38] H. Castéran, C. Roederer (2013), "Does authenticity really affect behavior? The case of the Strasbourg Christmas Market", *Tourism Management*, **36**, pp.153-163, DOI: 10.1016/j.tourman.2012.11.012.

[39] T.S. Donaldson (1966), *Power of The F-test for Nonnormal Distributions and Unequal Error Variances,* Santa Monica, California: RAND Corporation.

[40] J. Nunnally, I. Bernstein (1994), *Psychometric Theory 3rd Edition,* New York: McGraw-Hill, 752pp.

[41] C.M. Fuller, M.J. Simmering, G. Atinc, et al. (2016), "Common methods variance detection in business research", *Journal of Business Research*, **69(8)**, pp.3192-3198, DOI: 10.1016/j.jbusres.2015.12.008.

[42] H.F. Kaiser, J. Rice (1974), "Little jiffy, mark IV", *Educational and Psychological Measurement*, **34(1)**, pp.111-117, DOI: 10.1177/001316447403400115.

[43] J.C. Anderson, D.W. Gerbing (1988), "Structural equation modeling in practice: A review and recommended two-step approach", *Psychological Bulletin*, **103(3)**, DOI: 10.1037//0033-2909.103.3.411.

[44] J.F. Hair, G.T.M. Hul, C.M. Ringle, et al. (2021), *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A workbook.*, Switzerland: Springer Nature Switzerland, 805pp.

[45] E. Choi, K.C. Lee (2019), "Effect of trust in domain-specific information of safety, brand loyalty, and perceived value for cosmetics on purchase intentions in mobile e-commerce context", *Sustainability*, **11(22)**, DOI: 10.3390/su11226257.

[46] M. Atzeni, G. Del Chiappa, J. Mei Pung (2022), "Enhancing visit intention in heritage tourism: The role of object-based and existential authenticity in non-immersive virtual reality heritage experiences", *International Journal of Tourism Research*, **24(2)**, pp.240-255, DOI: 10.1002/jtr.2497.

[47] C.W. Park, B.J. Moon (2003), "The relationship between product involvement and product knowledge: Moderating roles of product type and product knowledge type", *Psychology & Marketing*, **20(11)**, pp.977-997, DOI: 10.1002/mar.10105.

[48] A. Akhoondnejad (2016), "Tourist loyalty to a local cultural event: The case of Turkmen handicrafts festival", *Tourism Management*, **52**, pp.468-477, DOI: 10.1016/j.tourman.2015.06.027.

[49] J. Lee, J.E. Whaley (2018), "Determinants of dining satisfaction", *Journal of Hospitality Marketing & Management*, **28(1)**, pp.1-28, DOI: 10.1080/19368623.2019.1523031.

[50] L. Lee (2022), "Beauty of Joseon story", https://beautyofjoseon.com/blogs/news/beauty-of-joseon-story, accessed 12 March 2023.

Assessing municipal solid waste collection service quality in a developing country context: A case study of Nha Trang, Vietnam

Bao Ngoc Nguyen*

Faculty of Construction Economics and Management, Hanoi University of Civil Engineering,

55 Giai Phong Street, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam

Received 10 November 2023; revised 3 January 2024; accepted 11 June 2024

Abstract:

Municipal solid waste management in developing countries, particularly in Nha Trang, Vietnam, faces significant challenges due to rapid urbanization and limited resources. This study evaluates service quality in waste collection using the SERVPERF model, based on a survey of 242 respondents analysed with Statistical Package for the Social Sciences (SPSS). Reliability was confirmed through Cronbach's alpha, while exploratory factor analysis identified two main factors influencing service quality: professionalism and a serving-people spirit. However, the linear regression model explained only a small portion of the variance in perceptions of service quality. The findings underscore the importance of professionalism and community-oriented service in shaping public satisfaction. While the study's explanatory power is limited, it provides insights for policymakers aiming to improve waste management practices. Future research should involve larger, more diverse samples and refined measurement models, as well as comparative analyses across different customer segments to enhance understanding and support improvements in waste collection services in Vietnamese urban areas.

Keywords: **municipal solid waste collection, public satisfaction, service quality assessment, Vietnam.**

Classification numbers: **2.2, 7**

1. Introduction

Municipal solid waste management (MSWM) in urban areas of developing countries faces several challenges due to the rapid increase in both the quantity and hazardous level of waste generated [1, 2]. Industrial over-production, population growth, and intense urbanisation are considered the leading causes of this situation [3, 4]. The growing urban population in Vietnam has led to significant environmental issues, particularly in the realm of waste management. Despite the collection of 83-85% of generated waste in urban areas, the remaining 15-17% is discharged into the environment, causing persistent pollution. Landfilling remains the predominant method of treating urban domestic solid waste, with approximately 34% of municipal solid waste (MSW) being directly buried in urban areas [5, 6]. These negative indicators underscore the urgent need to reassess and improve the urban domestic solid waste management system in Vietnam.

Nha Trang, a coastal city in Khanh Hoa province, Vietnam, faces specific challenges in managing its growing MSW. The city's rapid urbanisation, tourism growth, and limited resources have put a strain on its waste collection and management infrastructure. Measuring service quality is a crucial step for authorities and contractors to gather and analyse information about citizens' needs, perceptions, and satisfaction regarding MSW collection services. By understanding the determinants of service quality,

*Email: ngocnb@huce.edu.vn

policymakers can develop targeted interventions to enhance the efficiency and sustainability of waste management practices in Nha Trang.

This study aims to assess the quality of MSW collection services in Nha Trang by applying the SERVPERF model, a widely used service quality measurement tool. The specific objectives are to: i) Identify the key aspects that reflect the quality of MSW collection service by adapting the SERVPERF model to the local context; ii) Measure participants' assessment of service quality and determine the most essential aspects influencing their perceptions; iii) Develop a regression model to explain the variance in MSW collection service quality based on the identified aspects.

Evaluating service quality is essential for proposing solutions to operate and improve the urban domestic solid waste management system sustainably. The findings of this study will contribute to the growing body of literature on MSWM in developing countries and provide valuable insights for policymakers and service providers in Nha Trang and other Vietnamese cities facing similar challenges. By identifying the determinants of MSW collection service quality and their relative importance, this research will support evidence-based decision-making and the development of targeted interventions to enhance public satisfaction and promote sustainable waste management practices.

The following sections of this paper will provide a background on service quality measurement models, describe the methods and materials used in the study, present the results of the statistical analyses, and discuss the implications of the findings for policy and practice. The conclusion will summarise the key findings and outline directions for future studies in this critical area of urban environmental management.

2. Background to the study

Service quality has been recognised as a crucial factor in the production and service provision of all organisations. The concept of service quality has evolved since the 1930s, with early pioneers such as W.E. Deming, J.M. Juran, and K. Ishikawa emphasising its importance in the manufacturing sector [7]. In the context of waste management, measuring service quality is essential for authorities and contractors to gather and analyse information about citizens' needs, perceptions, and satisfaction regarding MSW collection services. By understanding the determinants of service quality, policymakers can develop targeted interventions to enhance the efficiency and sustainability of waste management practices. To search for a scientific way to measure service metrics, A.P. Parasuraman, et al. (1988) [8] propose an unambiguous definition of service quality. The quality of service that A.P. Parasuraman and colleagues refer to is the quality perceived by the customer or the customer's assessment of the excellence or superiority of a service business [9]. Service quality has many different definitions depending on the research object and the research environment to determine the organisation's service quality. Therefore, defining service quality is vital in setting development goals and orienting the service supplier to best promote its strengths.

Various methods have been proposed to assess service quality, each with its advantages and limitations (Table 1). Gummesson argues that since service is intangible, quality is not directly observable, and evaluating service quality based on user perceptions is considered a reasonable approach. This theory is based on studies of the satisfaction that service users perceive through the service gaps expected and received. U. Lehtinen (1982) [10] suggests that service quality must be assessed on two aspects: (1) the service delivery process and (2) the results of the service. C. Grönroos (1984) [11] also proposes two components of service quality: (1) technical quality, referring to what the customer receives, and (2) functional quality, referring to the interpretation of the service provided.

Nevertheless, it would be a significant shortcoming if not to mention the outstanding contribution of A.P. Parasuraman, et al. (1988, 1991) [8, 12]. They developed the SERVQUAL model, which is considered a typical scale of service quality, value, and reliability,

Table 1. Methods for assessing service quality.

Method	Advantage	Disadvantage
Grönroos' model	It is the first attempt to measure service quality. It is capable of linking service quality assessment with service users through their perceptions of technical and functional quality.	There are no specific evaluation criteria for measuring technical quality and functional quality yet.
SERVQUAL	It is widely applied in many different service areas.	There is difficulty in measuring customer expectations.
	It is capable of connecting the assessment of library service quality with service users.	It is complicated for respondents to differentiate between expected and perceived quality.
	It is capable of identifying gaps between variables that affect the quality of services provided.	Its measurement procedure is quite time-consuming.
SERVPERF	Its measurement is unambiguous and straightforward.	It is incapable of reflecting the relationship between user expectation and the quality of service provided.

and can be applied to all types of services. The SERVQUAL model measures both perceived quality and expectation across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. However, the SERVQUAL scale has limitations in distinguishing between customer satisfaction and attitudes.

To address these limitations, J.J. Cronin Jr., et al. (1992) [13] introduced the SERVPERF model, which focuses on measuring perceived quality without considering the five components' expected quality or weighted rating. The SERVPERF model is derived from the SERVQUAL scale and shares the same observed components and variables. By measuring only perceived quality, the SERVPERF model reduces the complexity of the measurement process and has been widely adopted in various service sectors.

In the context of MSW management, several studies have investigated the measurement of MSW collection quality using various approaches. N.O. Opareh, et al. (2002) [14] and G. Bel, et al. (2003) [15] conducted early work on revealing the MSW collection service mechanism and the determinants of its quality. M.E. Kaseva, et al. (2005) [16] appraised solid waste collection following private sector involvement in Dar es Salaam, Tanzania. More recent studies have proposed sets of indexes to characterise the technological and economic aspects of waste collection systems in several cities [17-19]. These studies highlight the importance of sustainable and cooperative practices in MSW collection services and urban environment management.

Despite the growing body of literature on MSW collection service quality, there is still considerable ambiguity regarding the determinants of service quality in this context. The existing research on municipal solid waste (MSW) collection service quality in Vietnam highlights the need for a comprehensive understanding of service quality determinants. Studies in Hanoi [5] and Long An province [6] have identified user satisfaction, operational efficiency, and economic factors as key influences on service quality perceptions, aligning with the SERVPERF model's focus on performance measurement. One question that arises is whether the SERVPERF model is suitable for measuring MSW collection service quality. Additionally, there is a lack of significant research on measuring MSW collection service quality in Vietnamese municipalities. This study aims to address these gaps by assessing the suitability of the SERVPERF method for measuring MSW collection service quality in Nha Trang, Vietnam. The specific objectives are to identify the aspects that reflect the quality of MSW collection service by applying the SERVPERF model, measure participants' assessment of service quality, and determine the most essential aspects influencing their perceptions.

Evaluating service quality is crucial for proposing solutions to operate and improve the urban domestic solid waste management system sustainably. The findings of this study will contribute to the growing body of literature on MSW management in developing countries and provide valuable insights for policymakers and service providers in Nha Trang and other Vietnamese cities facing similar challenges. By identifying the determinants of MSW collection service quality and their relative importance, this research will support evidence-based decision-making and the development of targeted interventions to enhance public satisfaction and promote sustainable waste management practices.

3. Methods and materials

3.1. Research methods

This study employed a quantitative research approach to assess the quality of municipal solid waste (MSW) collection services in Nha Trang, Vietnam. The research process involved adapting the SERVPERF model to the context of waste collection services, developing a questionnaire survey, collecting data from local residents, and conducting statistical analyses to identify the determinants of service quality.

3.2. Questionnaire development and data collection

A structured questionnaire was developed based on the SERVPERF model, which measures service quality across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The original 22 variables of the SERVPERF model were adapted to suit the specific context of MSW collection services in Nha Trang. Through a thorough literature review and expert consultation, a set of 10 variables was selected to represent the five dimensions of service quality (Table 2).

Table 2. Dimensions and indicators used in data collection.

Dimension	Indicator	Description	Variable code
Tangibles	Vehicles	Waste collection vehicle and equipment are in good condition	TA1
	Facilities	Temporary garbage storage facilities are in good condition	TA2
	Convenient distance	Waste collection and temporary storage places are located in convenient locations	TA3
Reliability	Promised service	Waste collection is carried out consistently	LI1
	Maintenance	Waste collection is carried out meticulously	LI2
Responsiveness	Promptness	Waste collection is always carried out on time as planned	SP1
	Helpfulness	Waste collection in places that arise unexpectedly is always carried out in a timely manner	SP2
	Waiting time	Processing time for unexpected requests is reasonable	SP3
Assurance	Respect	The service provider always offers a variety of means to listen to citizens' opinions	AS1
Empathy	Caring	The service provider always cares and understands citizens' expectations	EM1
Perceived quality	Customer satisfaction	The citizens are satisfied with the waste collection services	PQ1

The questionnaire was distributed to 250 respondents, including both temporary and permanent residents of Nha Trang, using a convenient sampling method. The sample size was determined based on the statistical significance and available resources for the study. Considering the statistical significance, a sample size of 250 is considered adequate for EFA and linear regression, as it satisfies the common rule of thumb of having at least 10 observations per variable [20, 21]. In this study, with 10 observed variables, a sample size of 250 exceeds the minimum requirement for statistical power. However, because a convenience sample was used instead of random sampling, the findings may not be generalisable to the broader population, as this approach can introduce bias and limit the external validity of the results.

Data collection was conducted over a period of two weeks in July 2023. A survey team of 12 members was assigned to collect samples in specific wards to avoid overlapping and ensure representative coverage. Each questionnaire included the respondent's personal information and telephone number, allowing the team leader to verify the accuracy and quality of the collected data. Given the available resources for data collection, including the survey team of 12 members and the two-week data collection period, a sample size of 250 was deemed manageable and achievable. However, due to 8 responses missing certain fields of information, they were excluded, resulting in 242 samples being included in the analysis. This sample size allows for a representative coverage of the target population in Nha Trang, while also considering the practical constraints of the study.

Ethical considerations were taken into account during the data collection process. Respondents were informed about the purpose of the study, assured of confidentiality, and provided with the option to withdraw at any time. The study was approved by the Institute of Investment and Construction Management Review Board prior to data collection.

3.3. Statistical analysis

The collected data were processed using SPSS version 20.0. The internal consistency of the measurement scale was assessed using Cronbach's alpha coefficient, with a threshold of 0.6 or higher indicating acceptable reliability for a new concept under study.

EFA was conducted to identify the underlying constructs among the measured variables. The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Factors were extracted using the principal component method, with significant factors having at least three items with coefficients higher than 0.350, eigenvalues greater than 1.41, and accounting for a minimum of 50% of the variance [22]. Promax rotation was applied to allow for correlated factors.

Linear regression analysis was performed to examine the relationship between the identified factors (independent variables) and the overall service quality (dependent variable). The regression model's explanatory power was assessed using the adjusted R-squared value, and the significance of the regression coefficients was tested at the 95% confidence level.

The results of the statistical analyses were interpreted in the context of the research objectives and existing literature on MSW collection service quality. The findings were compared with previous studies to identify similarities, differences, and potential contributions to the field.

4. Results and discussion

4.1. Reliability analysis of dimensions

The reliability of the measurement scale was assessed using Cronbach's alpha coefficient. Variables with item-total correlation less than 0.4 were disqualified. A scale with Cronbach's alpha coefficient of 0.6 or higher is considered acceptable for a new concept under study [23].

In this case, the Cronbach's alpha of 0.858 indicates sound measurement, and all observed variables have item-total correlation coefficients greater than 0.4 (Table 3). No variables were rejected that could make Cronbach's alpha greater than 0.858. This finding suggests a close relationship and uniformity among the items in each dimension, confirming that the scale used to measure service quality has relatively good internal reliability.

Table 3. The result of Cronbach's alpha coefficient test.

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
TA1	30.78	69.825	.592	.843
TA2	31.05	70.993	.486	.851
TA3	31.04	69.382	.581	.843
LI1	30.58	73.164	.483	.851
LI2	30.76	70.723	.525	.848
SP1	30.78	70.020	.592	.843
SP2	30.85	70.711	.511	.849
SP3	31.27	65.009	.660	.836
AS1	31.40	64.157	.625	.839
EM1	31.52	63.516	.614	.841

The data in the table was extracted from SPSS analysis output window.

The Pearson item-total corrected correlations are presented in Table 4. All correlations are significant at the 0.01 level, as indicated by the double asterisks (**). Although there appears to be a correlation between the dependent and independent variables, the degrees of correlation are quite low.

Table 4. The Pearson item-total corrected correlations.

	PQ1
TA1	.423**
TA2	.224**
TA3	.344**
LI1	.445**
LI2	.372**
SP1	.350**
SP2	.257**
SP3	.440**
AS1	.319**
EM1	.298**

The data in the table was extracted from SPSS analysis output window.

Table 5. The Kaiser-Meyer-Olkin and Bartlett's test.

Kaiser-Meyer-Olkin measure of sampling adequacy		.859
Bartlett's Test of Sphericity	Approx. Chi-Square	904.075
	df	45
	Sig.	.000

The data in the table was extracted from SPSS analysis output window.

4.2. Exploratory factor analysis

EFA was conducted to reduce the number of observed variables and discover the fundamental factors in which groups of variables are interrelated. The sample size of 242 observations was more than twice the number of observed variables, meeting the theoretical requirements for factor analysis.

KMO measure of sampling adequacy was 0.859, indicating that the use of factor analysis techniques for this study is appropriate and reliable (Table 5). Bartlett's test of sphericity showed a significant correlation between the observed variables ($p<0.001$), further confirming the suitability of factor analysis.

The total variance explained by the extracted factors was 57.42%, satisfying the minimum requirement of 50% (Table 6). Two factors were extracted based on the Kaiser criterion (eigenvalues>1) and the scree plot.

The rotated component matrix (Table 7) revealed two distinct factors affecting waste collection service quality: professionalism (PRO) and diligent and serving-people spirit (DSP). Variables with factor loadings above 0.5 were considered significant contributors to their respective factors.

Table 6. Total variance explained.

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	*% of variance*	*Cumulative %*	*Total*	*% of variance*	*Cumulative %*	*Total*	*% of variance*	*Cumulative %*
1	4.363	43.629	43.629	4.363	43.629	43.629	3.312	33.122	33.122
2	1.379	13.791	57.420	1.379	13.791	57.420	2.430	24.298	57.420
3	.883	8.829	66.249						
4	.769	7.689	73.938						
5	.614	6.137	80.075						
6	.510	5.096	85.171						
7	.454	4.537	89.708						
8	.429	4.293	94.000						
9	.340	3.401	97.402						
10	.260	2.598	100.000						
Extraction method: Principal component analysis.									

The data in the table was extracted from SPSS analysis output window.

Table 7. Rotated component matrix.

	Component	
	1	*2*
TA1	.749	
SP1	.745	
TA3	.727	
SP2	.704	
LI2	.599	
LI1	.578	
TA2	.562	
EM1		.892
AS1		.851
SP3		.810

The data in the table was extracted from SPSS analysis output window.

Table 8. Model summary[b].

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	.522[a]	.272	.266	1.088	1.944
a. Predictors: (constant), professionalism, spirit					
b. Dependent variable: PQ1					

The data in the table was extracted from SPSS analysis output window.

4.3. Linear regression

Linear regression analysis was performed to examine the relationship between the identified factors (independent variables) and the overall service quality (dependent variable, PQ1). The regression model is defined as follows:

PQ1 = β1*PRO + β2*DSP + β0

The regression results (Table 8) showed that the model explained 26.6% of the variance in the dependent variable (adjusted R^2=0.266). While this explanatory power is relatively low, it is not uncommon in exploratory studies of complex social phenomena like service quality perceptions.

The ANOVA results (Table 9) confirmed the statistical significance of the regression model (F(2, 239)=44.523, p<0.001). The regression coefficients for both professionalism (β1=0.57, p<0.001) and diligent and serving-people spirit (β2=0.173, p<0.01) were significant predictors of overall service quality. The final regression equation can be written as:

PQ1 = 0.57*PRO + 0.173*DSP + 0.915

These findings suggest that professionalism has a stronger influence on service quality compared to diligent and serving-people spirit. However, it is important to acknowledge that the model only explains a portion of the variance in service quality perceptions, indicating the presence of other factors not captured in this study.

Table 9. ANOVA[a] and coefficients[c].

Model		Sum of squares	df	Mean square	F	Sig.	
1	Regression	105.746	2	52.873	44.692	.000[b]	
	Residual	282.750	239	1.183			
	Total	388.496	241				
[a]. Dependent variable: PQ1							
[b]. Predictors: (constant), professionalism, spirit							
Model		**Unstandardised coefficients**		**Standardised coefficients**	**t**	**Sig.**	**Collinearity statistics**	
		B	*Std. Error*	*Beta*			*Tolerance*	*VIF*
1	(Constant)	.915	.296		3.088	.002		
	spirit	.173	.056	.198	3.115	.002	.751	1.331
	professionalism	.570	.092	.394	6.184	.000	.751	1.331
[c]. Dependent variable: PQ1								

4.4. Discussion

The results of this study provide valuable insights into the determinants of municipal solid waste collection service quality in Nha Trang, Vietnam. The adapted SERVPERF model, with its five dimensions (tangibles, reliability, responsiveness, assurance, and empathy), proved to be a reliable and valid tool for assessing service quality in this context. The high Cronbach's alpha coefficient and significant factor loadings support the internal consistency and convergent validity of the measurement scale.

The identification of professionalism and diligent and serving-people spirit as key factors influencing service quality perceptions aligns with previous research highlighting the importance of technical competence and customer-oriented attitudes in service delivery. The stronger impact of professionalism on overall service quality suggests that citizens place greater value on the tangible aspects of waste collection, such as the condition of vehicles and facilities, timeliness, and consistency of service. This finding underscores the need for waste management authorities and service providers to prioritise investments in infrastructure, equipment maintenance, and staff training to enhance service quality.

While diligent and serving-people spirit had a smaller effect on service quality perceptions, its significance should not be overlooked. This factor encompasses the empathy and responsiveness dimensions of the SERVPERF model, highlighting the importance of understanding and addressing citizens' needs and concerns. Waste management authorities should foster a customer-centric culture among service providers, encouraging proactive communication, prompt issue resolution, and a caring attitude towards the community.

The relatively low explanatory power of the regression model suggests that other factors not included in this study may influence citizens' perceptions of waste collection service quality. Future research could explore additional variables, such as environmental awareness, public participation, and socio-demographic characteristics, to develop a more comprehensive understanding of service quality determinants. Qualitative methods, such as interviews and focus groups, could provide deeper insights into citizens' experiences and expectations regarding waste collection services.

The findings of this study have important implications for policymakers and waste management practitioners in Nha Trang and other Vietnamese cities facing similar challenges. By identifying the key factors driving service quality perceptions, authorities can allocate resources more effectively and design targeted interventions to enhance public satisfaction. For example, investing in modern waste collection equipment, optimising collection routes, and providing regular training for service personnel could significantly improve professionalism and, consequently, overall service quality. However, it is important to exercise caution with this proposal, as the study's small sample size may not yet be representative of the broader population in Nha Trang. Further research with a larger and more diverse sample is necessary to ensure that the findings are applicable and to inform effective policy decisions.

Moreover, the adapted SERVPERF model used in this study can serve as a valuable tool for continuous monitoring and evaluation of waste collection service quality. Regular assessments using this model can help authorities track progress, identify areas for improvement, and benchmark performance against other cities or service providers. This data-driven approach to service quality management can contribute to the development of more sustainable and responsive waste management systems in Vietnam.

To sum up, this study contributes to the growing body of literature on MSWM in developing countries by providing empirical evidence on the determinants of service quality in the context of Nha Trang, Vietnam. The findings highlight the importance of professionalism, diligent, and serving-people spirit in shaping citizens' perceptions of waste collection service quality. While the explanatory power of the model is limited, it offers evidence for future research and provides actionable insights for policymakers and practitioners seeking to enhance public satisfaction and promote sustainable waste management practices.

5. Conclusions

This research sought to evaluate the effectiveness of municipal solid waste collection services in Nha Trang, Vietnam, by employing the SERVPERF model. The findings provide valuable insights into the determinants of service quality and the applicability of the SERVPERF model in this context. The adapted SERVPERF scale, with its five dimensions (tangibles, reliability, responsiveness, assurance, and empathy), demonstrated good internal reliability, as confirmed by the Cronbach's alpha coefficient test. Exploratory factor analysis revealed two key factors influencing waste collection service quality: professionalism and diligent and serving-people spirit. The regression results showed that professionalism had a stronger impact on overall service quality compared to diligent and serving-people spirit. However, the regression model only explained a small portion of the variance in service quality perceptions, indicating the presence of other factors not captured in this study. The study contributes to the growing body of literature on MSWM in developing countries by providing empirical evidence on the determinants of service quality in the context of Nha Trang, Vietnam. The adapted SERVPERF model can serve as a starting point for future research and a tool for continuous monitoring and evaluation of waste collection services.

However, the study has several limitations that should be acknowledged. The sample size of 242 respondents may not be large enough to capture diverse perspectives, and the focus on a single city limits the generalisability of the findings. Additionally, the set of observational variables used in the SERVPERF model may need refinement to better fit the context of waste collection services. Future research should address these limitations by utilising larger, more diverse samples across multiple Vietnamese cities and incorporating qualitative methods to gain a richer understanding of service quality determinants. Developing enhanced measurement models tailored specifically to waste collection services could also improve explanatory power. Comparative analyses between different customer segments, service providers, and longitudinal studies would provide valuable insights.

The findings of this study have important implications for policymakers and waste management practitioners in Nha Trang and other Vietnamese cities. By identifying the key factors driving service quality perceptions, authorities can allocate resources more effectively and design targeted interventions to enhance public satisfaction. The adapted SERVPERF model can be used for continuous monitoring and evaluation of waste collection services, supporting evidence-based decision-making and driving progress toward sustainable waste management practices. In conclusion, this study represents an important step toward understanding the determinants of municipal solid waste collection service quality in Vietnam. While the explanatory power of the current model is limited, it provides evidence for future research and highlights the need for more comprehensive and context-specific measurement tools. By addressing the identified limitations and research gaps, policymakers and practitioners can work towards developing superior, sustainable waste collection systems that maximise public satisfaction and contribute to the overall well-being of Vietnamese urban areas.

ACKNOWLEDGEMENTS

The author extends sincere appreciation to the Institute of Investment and Construction Management at Hanoi University of Civil Engineering for generously providing the essential data that underpinned this research.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] C. Ezeah, C.L. Roberts (2012), "Analysis of barriers and success factors affecting the adoption of sustainable management of municipal solid waste in Nigeria", *Journal of Environmental Management*, **103**, pp.9-14, DOI: 10.1016/j.jenvman.2012.02.027.

[2] M. Ikhlayel (2018), "Development of management systems for sustainable municipal solid waste in developing countries: A systematic life cycle thinking approach", *Journal of Cleaner Production*, **180**, pp.571-586, DOI: 10.1016/j.jclepro.2018.01.057.

[3] A. Coban, I.F. Ertis, N.A. Cavdaroglu (2018), "Municipal solid waste management via multi-criteria decision making methods: A case study in Istanbul, Turkey", *Journal of Cleaner Production*, **180**, pp.159-167, DOI: 10.1016/j.jclepro.2018.01.130.

[4] T. Ramachandra, H. Bharath, G. Kulkarni, et al. (2018), "Municipal solid waste: Generation, composition and GHG emissions in Bangalore, India", *Renewable and Sustainable Energy Reviews*, **82**, pp.1122-1136, DOI: 10.1016/j.rser.2017.09.085.

[5] N.T. Mai (2018), *Community-Based Urban Solid Waste Management: Case Study in Hanoi*, Doctoral Thesis in Economics, National Economic University (in Vietnamese).

[6] T.L. Huynh, T.K.O. Le, Y.J. Wong, et al. (2023), "Towards sustainable composting of source-separated biodegradable municipal solid waste - Insights from Long An province, Vietnam", *Sustainability*, **15(17)**, DOI: 10.3390/su151713243.

[7] E. Langeard, P. Eiglier (1994), "Relation de service et marketing", *Décisions Marketing*, **2**, pp.13-21 (in French).

[8] A.P. Parasuraman, V. Zeithaml, L. Berry (1988), "SERVQUAL: A multiple- item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, **64(1)**, pp.12-40.

[9] V.A. Zeithaml (1988), "Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence", *Journal of Marketing*, **52(3)**, pp.2-22, DOI: 10.2307/1251446.

[10] U. Lehtinen (1982), *Service Quality: A Study of Quality Dimensions*, Service Management Institute.

[11] C. Grönroos (1984), "A service quality model and its marketing implications", *European Journal of Marketing*, **18(4)**, pp.36-44, DOI: 10.1108/EUM0000000004784.

[12] A.P. Parasuraman, L.L. Berry, V.A. Zeithaml (1991), "Understanding customer expectations of service", *Sloan Management Review*, **32(3)**, pp.39-48.

[13] J.J. Cronin Jr., S.A. Taylor (1992), "Measuring service quality: A reexamination and extension", *Journal of Marketing*, **56(3)**, pp.55-68, DOI: 10.2307/1252296.

[14] N.O. Opareh, J. Post (2002), "Quality assessment of public and private modes of solid waste collection in Accra, Ghana", *Habitat International*, **26(1)**, pp.95-112, DOI: 10.1016/S0197-3975(01)00035-2.

[15] G. Bel, A. Miralles (2003), "Factors influencing the privatisation of urban solid waste collection in Spain", *Urban Studies*, **40(7)**, pp.1323-1334, DOI: 10.1080/0042098032000084622.

[16] M.E. Kaseva, S.E. Mbuligwe (2005), "Appraisal of solid waste collection following private sector involvement in Dar es Salaam city, Tanzania", *Habitat International*, **29(2)**, pp.353-366, DOI: 10.1016/j.habitatint.2003.12.003.

[17] S. Rodrigues, G. Martinho, A. Pires (2016), "Waste collection systems. Part B: Benchmarking indicators. Benchmarking of the great Lisbon area, Portugal", *Journal of Cleaner Production*, **139**, pp.230-241, DOI: 10.1016/j.jclepro.2016.07.146.

[18] A. Guerrini, P. Carvalho, G. Romano, et al. (2017), "Assessing efficiency drivers in municipal solid waste collection services through a non-parametric method", *Journal of Cleaner Production*, **147**, pp.431-441, DOI: 10.1016/j.jclepro.2017.01.079.

[19] G. Bertanza, E. Ziliani, L. Menoni (2018), "Techno-economic performance indicators of municipal solid waste collection strategies", *Waste Management*, **74**, pp.86-97, DOI: 10.1016/j.wasman.2018.01.009.

[20] B.S. Everitt (1975), "Multivariate analysis: The need for data, and other problems", *British Journal of Psychiatry*, **126(3)**, pp.237-240, DOI: 10.1192/bjp.126.3.237.

[21] J.W. Osborne, A.B. Costello (2004), "Sample size and subject to item ratio in principal components analysis", *Practical Assessment, Research, and Evaluation*, **9(1)**, DOI: 10.7275/ktzq-jq66.

[22] S.S. Stevens (1946), "On the theory of scales of measurement", *Science*, **103(2684)**, pp.677-680.

[23] R.A. Peterson (1994), "A meta-analysis of Cronbach's coefficient alpha", *Journal of Consumer Research*, **21(2)**, pp.381-391.

Impacts of digital transformation on high school student learning in Nha Trang city, Khanh Hoa province, Vietnam

Van Tu Nguyen[1], Nam Phuong Nguyen[1*], Vu Phuong-Nha Nguyen[2], Nguyen Phuong Khanh Pham[3]

[1]*Hanoi National University of Education, 136 Xuan Thuy Street, Dich Vong Hau Ward, Cau Giay District, Hanoi, Vietnam*
[2]*Thai Nguyen Junior High School, 3 Dinh Tien Hoang Street, Loc Tho Ward, Nha Trang City, Khanh Hoa Province, Vietnam*
[3]*Ly Tu Trong High School, 7 Ly Tu Trong Street, Loc Tho Ward, Nha Trang City, Khanh Hoa Province, Vietnam*

Received 3 December 2023; revised 24 December 2023; accepted 27 March 2024

Abstract:

This article gave an overview of digital transformation, and its impacts on education and training in general, high school students' learning in particular. For more details, the authors clarified the issue of impacts of digital transformation in five aspects: (1) student's mindset of learning, (2) communication in learning, (3) learning motivation, (4) compassion in learning, and (5) high school student's self-regulated learning. A survey was conducted on 390 high school students in Nha Trang city, Khanh Hoa city in the school year 2023-2024 to show critically these five aspects of digital transformation on student learning. Specifically, digital transformation has the biggest impact on student mindset of learning ($\overline{x}$=4.33), meanwhile, it has the least impact on student compassion in learning ($\overline{x}$=3.34). The two main reasons given are: the teaching methods in online learning now are not efficient and not properly learned by teachers and school students; the multimedia lectures have not been optimally applied. From these findings, the authors proposed main solutions to address this situation including developing a contract to use electronic devices in the classroom; raising student awareness and developing learning conditions for students to use software applications in classrooms; and their parents' coordination with the implementation outside of the classroom.

Keywords: **digital transformation, high school students, impacts, student learning, Vietnam.**

Classification numbers: **3.2, 3.3**

1. Introduction

In the present era, digital transformation is not only a trend but also a driving force for the Fourth Industrial Revolution. To date in Vietnam, digital transformation has taken place across various aspects and sectors. The government's Decree No. 42/2022/ND-CP [1] categorises online public services into two levels: comprehensive online public services and partial online public services. According to Report No. 91/BC-BTTTT dated June 30, 2022 [2], from the Ministry of Information and Communications (MIC), the rate of online public services meeting the level 4 criteria was 97.3%, constituting 53.56% of the total administrative procedures. This impressive progress aligns with Vietnam's broader digital transformation goals, which include expanding digital infrastructure and increasing the use of digital services across government and public sectors. Vietnam's digital economy also saw strong growth, with total sector revenue reaching VND 3.74 quadrillion in 2023. The government continues to strengthen its legislative framework, including the passage of key laws like the Electronic Transactions Law and Telecommunications Law, further facilitating the growth of digital services

*Corresponding author: Email: phuongnn@hnue.edu.vn

and ensuring the safety and efficiency of online transactions [3]. In the healthcare sector, statistics from the Information Technology Department of the Ministry of Health indicated that 100% of hospitals nationwide have implemented hospital information management systems, with a 99.5% connectivity rate to the health insurance payment assessment system, including some hospitals that fully utilise electronic medical records [4]. Additionally, the Ministry of Education and Training has recently issued criteria for evaluating the application of information technology and digital transformation in general and continuous education institutions (specifically, which document and decree number - specific citation to be included in the reference list) with the goal of promoting digital transformation activities within educational institutions to align with educational objectives and missions [5].

It is clear that in today's era, the process of digital transformation is not merely a technical issue, but also a significant turning point in reshaping societal activities, including educational endeavors [6]. The transformation in education involves not only technological infrastructure innovations but also the application of advanced teaching methods and changes in educational management and related services [6, 7]. This creates a new context where the learning process is not only about imparting knowledge but also involves close interaction between teachers and students [7, 8], thereby helping students develop the necessary competencies and skills [9].

Confronted with new challenges, the education system needs to rely on adaptability and transformation to create a flexible learning environment that aligns with the expectations and characteristics of today's high school students [6]. The interplay of these factors significantly affects students' learning activities, including cognitive factors and motivational aspects of students' learning interests. Furthermore, with the requirement to develop competencies, skills and qualities for high school students, the organisation and teaching processes also impact students' self-learning abilities and communication skills in the learning environment [6, 10, 11].

The purpose of this analysis is to accurately assess the impact of the digital transformation on high school students' learning activities, enabling teachers and education managers to better understand the situational influence on student academic performance within school. Simultaneously, this presented an opportunity to encourage innovation and development in the field of education at both local and national levels.

2. Review of the literature

Currently, the definition of the concept of digital transformation is still being clarified by scholars. However, the fundamental differences among the three concepts of digitisation, digitisation and digitised applications, and digital transformation, as presented by T.M. Siebel (2019) [10], can be outlined as follows: Firstly, digitisation involves the conversion of real-world information into digital form. Secondly, digitisation is the utilisation and application of digital data to perform tasks quickly and efficiently. Lastly, digital transformation involves applying and using digital technology on the basis of digital data to create new structured operational models that enhance social activities [6]. Therefore, digital transformation in education goes beyond digitising real-world information about students (teaching and learning activities, grades, etc.), or using such data to address existing school issues. It necessitates the establishment of a digital teaching and learning system, wherein the school organises data connectivity and its services. Digital transformation in teaching, learning, examination, and assessment involves digitising educational materials (e-books, e-lectures, e-learning lecture repositories, quiz banks), digital libraries, virtual laboratories, and the implementation of online training systems [3, 9]. It also encompasses a complete transformation of teaching methods, classroom management techniques, and interaction with learners into the digital space, leveraging information technology to successfully organise teaching.

The process of digital transformation in education yields various benefits, as highlighted in previous studies [7, 10, 11]. These scholars conclude that digital transformation has significantly altered students' learning experiences, generating substantial value and minimising the limitations of traditional face-to-face teaching, such as spatial constraints, time limitations, and fostering creativity in both educators and learners. According to H. Pillay, et al. (2007) [12], learners are influenced by various factors, resulting in transformations in their perceptions of the learning processes and learning methods. Researchers assert in their studies on learning motivation that changes in external factors lead to internal motivational changes [13, 14]. Therefore, with changes in the learning environment, students' learning motivation will also undergo adjustments, making it crucial to adapt in order to promote students' learning motivation. Given these factors, if positive changes are made, and teaching activities are tailored to students' needs, students will become more interested in learning [15].

Currently, developing students' competencies is considered essential, emphasising a lifelong learning perspective. Forming self-directed learning capabilities for students is a highly important issue. Scholars and researchers define self-directed learning from various perspectives [16-19]. Nevertheless, the self-directed learning of students can be characterised by the following: firstly, students have clearly defined goals and requirements in their learning. Secondly, students have the ability to manage their own learning (according to learning requirements). Lastly, students can independently and through various tools and assistance control and evaluate their learning.

However, these factors are still influenced by the communication factor between teachers and students. According to M. Alawamleh, et al. (2020) [20], the process of digital transformation has impacted communication activities in both directions. On the one hand, students have more interaction channels; on the other hand, it requires ensuring effectiveness and timeliness to maintain the motivational factors and interests of students.

3. Methodology

This study utilised a qualitative research design, grounded in both literature reviews and empirical interviews, to explore the impacts of digital transformation on student learning. To assess these factors, a detailed review of global literature on digital transformation, specifically in relation to education and student learning culturally. Specifically, we compiled a large number of documents on characteristics of student learning, literature reviews of impacts of digital transformation on student learning and school settings, along with lists, comparisons, and analyses of (1) student's mindset of learning, (2) communication in learning, (3) learning motivation, (4) compassion in learning, and (5) high school student's self-regulated learning. Our interview participants must be junior high school students, their parents and the teachers. Also classroom observation was combined as one of the additional research methods.

The survey was conducted on 390 randomly selected students from various high schools in the city of Nha Trang (Ly Tu Trong High School, Le Thanh Ton High School, Ha Huy Tap High School, Pham Van Dong High School, Nguyen Thien Thuat High School, Nguyen Van Troi High School, etc.), and the characteristics of the participants are described in Table 1.

Table. 1. Description of the survey sample.

Student characteristics	N (%)
Gender	
Male	153 (39.23)
Female	237 (60.77)
Grade	
10	76 (19.49)
11	140 (35.90)
12	174 (44.61)
Academic performance	
Excellent	35 (8.97)
Good	148 (37.94)
Fair	176 (45.13)
Average	31 (7.96)
Poor	0
Online learning platforms	
Google Meet	78 (20)
Zoom	100 (25.64)
Microsoft Teams	168 (43.98)
Other	44 (10.38)
Devices for learning	
Smartphone	304 (77.95)
Computer	289 (74.10)
TV	17 (4.36)
Tablet	87 (22.31)
Other	11 (2.82)

Source: Authors'calculation.

Although online teaching and learning systems are considered temporary, the majority of students have achieved good academic results. Only 7.96% of the surveyed students achieved average academic performance.

The survey on the impacts of digital transformation on high school student learning in Nha Trang city was implemented with five aspects: (1) student's mindset of learning, (2) communication in learning, (3) learning motivation, (4) compassion in learning and (5) high school student's self-regulated learning.

The survey results depicting the current state of the impact of digital transformation on the learning activities of high school students in Nha Trang are presented in Fig. 1. These factors will be assessed on a 5-level scale, with the distance values calculated using the formula Distance value = (Max-Min): n = (5-1):5=0.8.

Level 1: Not applicable, not influenced, $1 \le \bar{x} < 1.8$

Level 2: Rarely used, very little influence, seldom occurs; $1.61 \le \bar{x} < 2.6$

Level 3: Used in specific situations, some influence, not frequent; $2.61 \le \bar{x} < 3.4$

Level 4: Used in most subjects, influential, occurs regularly; $3.41 \le \bar{x} < 4.2$

Level 5: Used in all subjects, highly influential, consistently present, enhances learning; $4.21 \le \bar{x} < 5$.

4. Results

The study on the impact of digital transformation on the learning activities of high school students in the city of Nha Trang was conducted across five aspects: (1) student's mindset of learning, (2) communication in learning, (3) learning motivation, (4) compassion in learning, and (5) high school student's self-regulated learning which are shown with statistics as mentioned in Fig. 1.

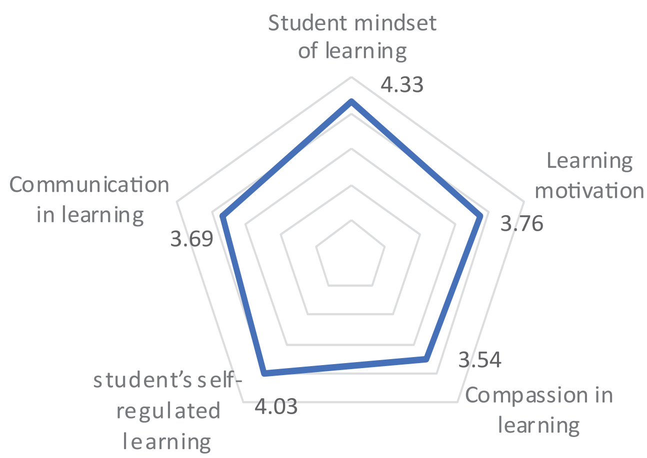


Fig. 1. Practice of the impact of digital transformation on high school students' learning activities in Nha Trang city.

In general, the current impact of digital transformation on the learning activities of high school students in Nha Trang city remains quite positive, with the most pronounced being the factor of learning mindset, scoring an average ($\overline{x}$) of 4.33 at level 5. This indicates a robust influence of digital transformation on the students' perspectives regarding learning. Specifically, the study delved into six aspects of the online learning mindset: (1) online learning can replace face-to-face learning; (2) online practical activities are more effective than in-person; (3) online interaction is more effective than face-to-face interaction; (4) using online learning materials is more effective than using physical materials; (5) online classes are more effective than in-person classes; and (6) online classes should be conducted more frequently.

The survey results revealed that the statement: "Online learning can replace face-to-face learning" received the highest score, with $\overline{x}$=4.4. After two years of online learning, students are gradually developing confidence in the efficacy of online education. However, the aspect "Online classes are more effective than in-person classes" ($\overline{x}$=3.68) suggests that high school students are not entirely convinced of the current effectiveness of online classes organised by their schools. Interviews with students indicate that online teaching at high schools lacks diversity, primarily relying on teacher presentations on online platforms or pre-recorded lectures. This has an impact on students' learning motivation, with this factor scoring $\overline{x}$=3.76.

The survey identified six fundamental causal factors, including: (1) diversification of the curriculum; (2) multimedia lectures; (3) diversification of learning materials; (4) positive teaching methods; (5) multiple forms of assessment; and (6) more positive interactions in learning. The results show that multimedia lectures scored $\overline{x}$=3.22 at level 3 (Influential, not frequent). The multimedia lectures provided by the schools are not diverse, and their designs are still relatively simple, contributing to the student's lack of trust in the online content taught at their schools. In contrast, participation in extracurricular programs outside of school has demonstrated the effectiveness of "More positive interaction in learning", scoring $\overline{x}$=4.86, reaching level 5 - the highest level. Easier interaction and connection also contribute to improving perceptions of online learning and become a crucial impact of digital transformation on high school students' learning.

5. Discussion

Although the Vietnam Ministry of Education and Training has issued numerous directives and guidelines on positive teaching methods, especially through the Comprehensive Education Program in 2018 [21], many educational institutions still face difficulties in terms of infrastructure and practical subjects [22, 23]. Therefore, while this is one of the factors strongly affecting students' learning motivation, its value has not reached a high level.

The factors of communication in learning and compassion in learning, as indicated by high school students in Nha Trang city, are at level 3, with means of 3.69 and 3.34, respectively. This suggests that the impact of digital transformation has not significantly improved communication in students' learning (including communication between students and teachers, students and students, and communication activities connecting students with experts). In terms of communication in learning, the survey introduces the statement "I do not feel hesitant to ask questions about the lesson" to gain a more specific understanding of communication in learning. However, our survey results align with those of V.T.N. Lan, et al. (2018) [24], indicating that students do feel very hesitant to ask questions about the lesson in crowded classes. They also do not discuss these questions with teachers outside of class hours. This highlights the need for schools to establish platforms with the purpose of resolving students' questions after class hours. Many studies indicate that creating an interest for learners begins with learning conditions (or external factors). However, one crucial point is that teachers need to be innovative and creative in methods and organise teaching by understanding the significance, importance, and practical application of the subjects they teach. In doing so, teachers can implement pedagogical interventions that impact students' learning processes, maintaining their interest in the subjects. While digital transformation enhances students' learning experiences and increases their interest in learning, sustaining that learning motivation requires active contributions from teachers in their lessons.

Solutions to enhance the positive impact of digital transformation on high school students' learning activities: On the school front, one of the significant limitations is the still ineffective online activities of the schools. The empirical survey reveals that some schools do not permit students to bring phones to school, or if allowed, the phones are often not utilised for academic activities. Circular No. 32/2020/TT-BGDDT also encourages schools to diversify assessment activities, incorporating both simultaneous and non-simultaneous online assessments. This approach aims to enhance students' learning interest and reduce undue pressure arising from examination hours. Furthermore, providing guidance and organising sessions for students on the proper use of smart electronic devices (computers, phones, tablets, etc.) for academic purposes contributes to developing creative skills for students. To achieve this, schools need a plan that allows students to use smart devices on the school premises. In the context of this article, we present an illustration of the process for establishing an agreement on phone usage during class hours in high schools as Fig. 2.

When students are allowed to bring electronic devices into the classroom and use them according to strict rules, it provides them with numerous opportunities for more diverse learning methods and assessments. This approach stimulates learning motivation and maximises the utilisation of the school's online learning system. Allowing students to participate in constructing such an agreement is crucial as it helps them develop self-regulation skills. Moreover, this plan serves as a foundation for school leaders, department heads, subject teachers, and parents to effectively manage students' use of smartphones.

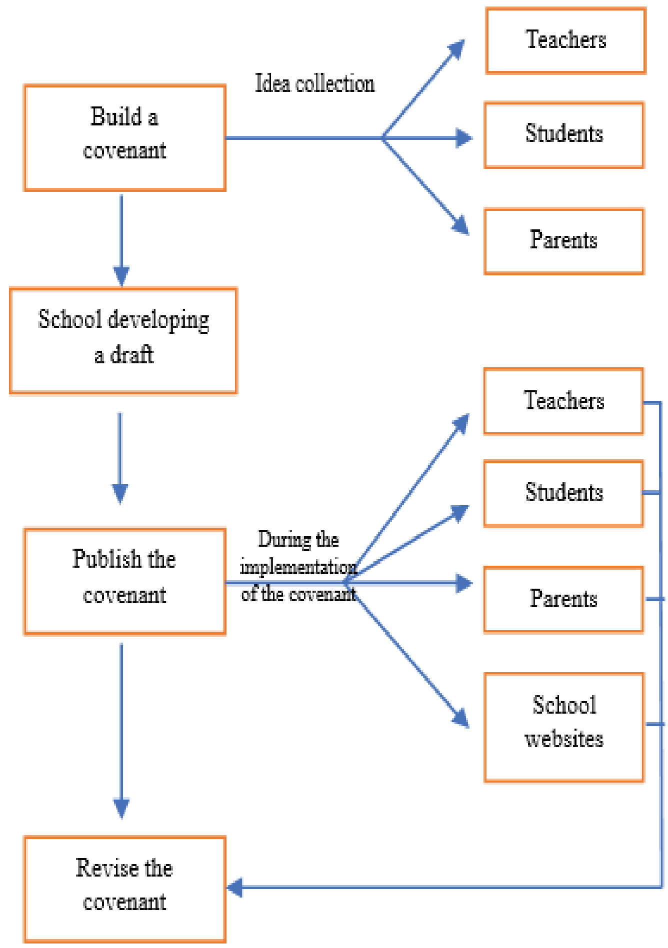


Fig. 2. Model of processing smart devices usage in classrooms at high schools.

The school directs subject departments and subject teachers to align their lesson plans with the curriculum, considering the knowledge and skills required for each lesson. The "commitment agreement on managing and using smartphones during class hours to serve teaching and learning activities" specifies the choice of lessons, the knowledge units that require smartphone usage, and the development of plans allowing students to bring phones to school. Teachers' plans must provide specific timetables and objectives for smartphone usage corresponding to each knowledge unit in each subject, extending beyond the textbook's content to include online resources. It should also detail the number of devices to be used in class and specify which software is to be installed on smartphones to serve educational purposes.

Furthermore, the institution needs to establish an electronic library system, which should serve as the foundation for the school's digital content development. Creating digitised learning content includes educational videos, online lectures, and e-books, allowing students to access various types of digitised content creatively aligned with the school curriculum.

Digital activities can be implemented through digitising books or utilising electronic book materials to ensure copyright compliance, reduce article waste, and enable learners to access materials at any time and place. Online lectures enable teachers to create and share presentations using tools such as Microsoft PowerPoint, Google Slides, Prezi, Canva, PowerPoint Online, and Keynote.

The need for consistency within the institutions and among educators is crucial. This implies that the school should utilise a shared citywide network, eventually expanding to a national level, to build a repository of educational resources. Through this platform, teachers can engage in mutual learning, sharing knowledge, and teaching methodologies, thereby enhancing the overall quality of education at the institutions.

On the part of students, based on certain realities, they still face challenges in navigating the school's online system and that of the Ministry of Education and Training. Particularly, issues arise regarding the use of learning software, time management, and information retrieval skills. Presently, surveys conducted in schools reveal the usage of up to four different software platforms. Therefore, students should not only test a single platform but also explore various platforms, being prepared to adapt. This necessitates students to develop information retrieval skills that are quick, efficient, and accurate from reputable sources.

In light of this, students should have a specific study plan that details academic activities, breaks, and supplementary activities. This helps students minimise factors that could affect concentration, such as electronic games and movies. Consequently, students can optimise the impact of digital technology and electronic devices solely for learning and research purposes.

Regarding families, parents need to collaborate closely with the school in implementing an agreement on the use of electronic devices in the classroom. Parents can encourage and support their children in constructing this agreement, ensuring supervision, and partnering with the school and students during the implementation of this agreement. Furthermore, parents can promote the positive effects of digital transformation on high school students' learning activities by setting an example and cultivating a healthy culture of electronic device use within the family.

6. Conclusions

The digital transformation has significantly impacted every aspect of human life, particularly for high school students who exhibit a strong desire for learning, a tendency to explore new things, and an eagerness to stay updated with modern applications. These students, still under the guardianship of their parents, primarily engage in educational activities within a school setting. Therefore, to ensure that digital transformation brings about positive and effective outcomes for high school students, alongside enhancing their awareness of digital transformation and proper use of electronic devices, there is a crucial need for close collaboration between the school and the family. This collaboration should involve the active participation and coordination of teachers, administrators, and relevant educational stakeholders, including parents of high school students.

CRediT author statement

Van Tu Nguyen: Conceptualisation, Methodology, Software; Nam Phuong Nguyen: Writing - Original draft preparation, Supervision, Reviewing and Editing; Vu Phuong-Nha Nguyen, Nguyen Phuong Khanh Pham: Data curation, Revision.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] The Government of Vietnam (2022), *Decree No.42/2022/ND-CP Dated on June 24, 2022 on Prescribing Provision of Online Information and Online Public Services by Regulatory Bodies* (in Vietnamese).

[2] Ministry of Information and Communications (2022), *Report No. 91/BC-BTTTT Dated 30 June 2022* (in Vietnamese).

[3] Ministry of Information and Communications (2024), https://english.mic.gov.vn/, accessed 4 September 2023.

[4] P. Thao (2021), "Promoting digitalization in the healthcare sector - An important task of the health industry", *Journal of The Central Propaganda Department*, https://tuyengiao.vn/day-manh-so-hoa-trong-linh-vuc-kham-chua-benh-nhiem-vu-quan-trong-cua-nganh-y-te-141517, accessed 8 August 2023 (in Vietnamese).

[5] Ministry of Education and Training (2023), "Promoting the application of information technology and digital transformation in the education sector", https://moet.gov.vn/tintuc/Pages/tin-tong-hop.aspx?ItemID=8814, accessed 20 November 2023 (in Vietnamese).

[6] A.P. Rodríguez, C.L. Cejudo, J.C. Almenara (2023), "Editorial: Educational digital transformation: New technological challenges for competence development", *Front. Educ.*, **8**, DOI: 10.3389/feduc.2023.1267939.

[7] L. Seres, V. Pavlicevic, P. Tumbas (2018), "Digital transformation of higher education: Competing on analytics", *12th International Technology, Education and Development Conference (INTED 2018)*, DOI: 10.21125/inted.2018.2348.

[8] K.L. Wilms, C. Meske, S. Stieglitz, et al. (2017), "Digital transformation in higher education - New cohorts, new requirements?", *Twenty-Third Americas Conference on Information Systems, Boston*, pp.1-10.

[9] United Nations Educational, Scientific and Cultural Organization (2023), "Digital learning and transformation of education", https://www.unesco.org/en/digital-education, accessed 4 September 2023.

[10] T.M. Siebel (2019), *Digital Transformation*, Ho Chi Minh City General Publishing House, 296pp (in Vietnamese).

[11] B. Bogdandy, J. Tamas, Z. Toth (2020), "Digital transformation in education during COVID-19: A case study", *11th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)*, pp.173-178, DOI: 10.1109/CogInfoCom50765.2020.9237840.

[12] H. Pillay, K. Irving, M. Tones (2007), "Validation of the diagnostic tool for assessing tertiary students' readiness for online learning", *Higher Education Research and Development*, **26(2)**, pp.217-234, DOI: 10.1080/07294360701310821.

[13] A. Chalak, Z. Kassaian (2010), "Motivation and attitudes of Iranian undergraduate EFL students towards learning English", *GEMA Online Journal of Language Studies*, **10(2)**, pp.37-56.

[14] D.T.K. Oanh (2013), "Some approaches in researching learning motivations", *Ho Chi Minh City University of Education*, *Journal of Science*, **48**, pp.138-148 (in Vietnamese).

[15] P.M. Hac, L.D. Phuc (2004), *Some Issues in Personality Research*, National Political Publishing House, 321pp (in Vietnamese).

[16] P. Benson (2001), *Teaching and Researching: Autonomy in Language Learning*, Longman, 260pp.

[17] L.P. Loc (2000), *The Theory of Teaching*, Can Tho University, 29pp (in Vietnamese).

[18] V. Chan (2001), "Readiness for learner autonomy: What do our learners tell us?", *Teaching in Higher Education*, **6(4)**, pp.505-518, DOI: 10.1080/13562510120078045.

[19] A. Vanijdee (2003), "Thai distance English learners and learner autonomy", *Open Learning: The Journal of Open, Distance and e-Learning*, **18(1)**, pp.75-84, DOI: 10.1080/0268051032000054130.

[20] M. Alawamleh, L.M.A. Twait, G.R.A. Saht (2020), "The effect of online learning on communication between instructors and students during the COVID-19 pandemic", *Asian Education and Development Studies*, **11(2)**, pp.380-400, DOI: 10.1108/aeds-06-2020-0131.

[21] Ministry of Education and Training (2018), *Comprehensive Program for General Education 2018*, 52pp (in Vietnamese).

[22] T.M. Khai, P.D. Van (2022), "The current status of practical teaching in biology to development qualities and competencies of high school students in Ho Chi Minh city", *TNU Journal of Science and Technology*, **227(13)**, pp.32-40, DOI: 10.34238/tnu-jst.6261 (in Vietnamese).

[23] L.C. Bang, D.V. Tan (2021), "The current status of teaching and learning biological experiments in high schools in Tra Vinh province", *Scientific Report on Research and Teaching of Biology in Vietnam*, *4th National Scientific Conference*, pp.1141-1148, DOI: 10.15625/vap.2020.000139 (in Vietnamese).

[24] V.T.N. Lan, L.T.P. Hoang (2018), "Self-learning activities of first-year students, Faculty of Electronics - Telecommunication, Saigon University", *Ho Chi Minh City University of Education*, *Journal of Science*, **15(4)**, pp.108-118, DOI: 10.54607/hcmue.js.15.4.130(2018) (in Vietnamese).

Factors affecting the knowledge-sharing activities of university students in Can Tho city

Thi Khanh Thanh Ho, Hoang Thanh Truc Nguyen*, Nguyen Tuyet Minh Ha

Nam Can Tho University, 168 Nguyen Van Cu Street, An Binh Ward, Ninh Kieu District, Can Tho City, Vietnam

Received 11 December 2023; revised 22 January 2024; accepted 12 April 2024

Abstract:

Knowledge-sharing plays a crucial role in the development of both individuals and organizations. In a university setting, this process is especially important, as it enhances students' learning and research efficiency. Actively and voluntarily sharing knowledge not only helps students acquire more information but also facilitates the application of what they have learned to real-world scenarios later in life. This article aims to explore the factors influencing knowledge-sharing activities among university students by surveying 455 students in Can Tho City. Cronbach's alpha coefficient was used to eliminate variables with low reliability, followed by exploratory factor analysis (EFA) to redefine the groups of variables in the research model. A regression analysis was then conducted to determine the factors impacting students' knowledge-sharing activities. The results indicate that factors such as Sociability, Trust, Information Technology, Instructor Support and Teamwork influence the knowledge-sharing activities of university students in Can Tho. Based on these findings, the study suggests several strategies to promote knowledge-sharing among university students.

Keywords: **knowledge, knowledge sharing, knowledge-sharing activities.**

Classification numbers: **3.2, 7**

1. Introduction

Knowledge not only plays an important role in organizations but is also one of the main resources that create an organization's competitive advantage. When a person leaves the organization without sharing their experiences and knowledge with other members, that results in great loss for the organization. Therefore, knowledge-sharing plays an important role in the sustainable development of individuals, organizations and society [1, 2]. In university environments, knowledge-sharing needs to be emphasized even more because this is where knowledge is created, acquired and distributed. Knowledge-sharing plays an important role in student development, ensuring that learning is effective and meaningful. Active and voluntary knowledge-sharing helps students gain more knowledge and also makes it easier for them to apply learned knowledge later in life, especially in a new world requiring more and more in-depth knowledge everyday. Along with the trend of globalization, the distance in time and space is gradually narrowing, the speed of information transmission is increasing, and the role of knowledge-sharing is becoming increasingly important.

*Corresponding author: Email: nhttruc@nctu.edu.vn

2. Theory and research model

2.1. Theoretical basis

According to K.M. Wiig (1994) [3], knowledge includes truths and beliefs, opinions and concepts, assessments and expectations, methods and know-how. T. Zheng (2017) [4] believes that knowledge is drawn from information and data to actively support improving work performance, problem-solving, decision-making, learning and teaching. T.H. Davenport (1997) [5] defines knowledge as a set of experiences, values, information and wisdom that can help evaluate and acquire new experiences and information. I. Nonaka (1998) [6] conceptualizes knowledge as the dynamic process of humans justifying personal beliefs as "truths".

Knowledge-sharing is defined as sharing knowledge and ideas with others related to the task being performed [7], or the exchange of experiences, thoughts, and understanding about any issue to others [8]. Knowledge-sharing includes the exchange of explicit and tacit knowledge at individual, group and organizational levels [9]. This requires cooperation and voluntary knowledge-sharing between individuals and groups within the organization for a common benefit [10]. Effective knowledge-sharing activities will reuse individual knowledge and enhance knowledge to a new level.

According to T. Bradberry (2007) [11], personality is the psychological difference between individuals, which makes an individual a unique individual with unique psychological characteristics. Personality includes an individual's range of emotions, thoughts, and behaviours [12]. Since the early 1990s, a number of personality studies have demonstrated that five personality traits are sufficient to describe an individual's entire personality. Among them, the Big Five model has emerged and has been expanded to describe prominent aspects of individual personality [13, 14]. The following Table 1 describes studies on individual personality.

Table 1. Studies on individual personality.

Author	Personality traits
W.T. Norman (1963) [15]	Extraversion, Sociability, Dedication, Emotional stability, Culture
M.D. Botwin, et al. (1989) [16]	Extraversion, Sociability, Dedication, Emotional stability, Culture
P.T. Costa Jr, et al. (1992) [17]	Extrovert, Sociable, Conscientious, Emotionally stable, Open to experience
S.V. Paunonen, et al. (1996) [18]	Extrovert, Sociable, Conscientious, Spiritual, Open to experience
B. Gupta (2008) [7]	Extraversion, Conscientiousness, Agreeableness, Emotional stability, Openness

According to the Big Five personality traits or Big Five-factor model of B. Gupta (2008) [7], the 5 factors include emotional stability, extroversion, conscientiousness, agreeableness, and openness.

C.W. Chong, et al. (2014) [19], and S. Wangpipatwong (2009) [20] pointed out the important role of personal factors such as extraversion, dedication, instructor support, level of competition, and information technology in the model. The Big five personalities have a positive impact on knowledge-sharing. At the same time, rewards that can be monetary or non-monetary are also factors that increase knowledge-sharing [21]. Sociable individuals are often more satisfied when working in groups and can increased knowledge-sharing among group members to achieve a common goal [22]. Besides, in an organization, when employees have trust in each other and work together, they will share knowledge and discuss together to find more effective methods of doing work. S.S. Alam, et al. (2009) [23]; M.S. Rahman, et al. (2014) [24] showed that trust is the most effective and least costly tool in motivating people to share information. Some domestic studies show that factors such as information technology, trust, rewards, lecturer support, and teamwork have a strong impact on students' knowledge sharing activities [25-27].

2.2. Research method and data

2.2.1. Research method

The study is carried out using qualitative and quantitative research methods.

Qualitative research: Based on the research objectives, the research builds a theoretical framework for knowledge-sharing activities. Using this framework, the authors identify factors that can impact students' knowledge-sharing activities and design a preliminary interview questionnaire. The next step is to directly interview students in some universities in Can Tho city, ask for expert opinions on the appropriateness of the factors in the model, and eliminate unnecessary factors, or add elements that have not been included in the research model. From there, an official questionnaire was formed to conduct a student survey.

Quantitative research: This study tested the reliability of the scale through Cronbach's alpha reliability coefficient to check the rigour and correlation between the observed variables, combined with EFA, and finally, linear regression analysis was applied to test the impact between the independent variable and the dependent variable in the model.

2.2.2. Research data

This study used the convenient sampling survey method, questionnaires were sent directly to students in Can Tho city. According to J.F. Hair (2009) [28], for EFA, the minimum sample size must be no less than 50 samples, preferably 100 samples, and the observed/measured variable ratio must be 5:1; this means that 1 measured variable needs at least 5 observed variables, preferably a ratio of 10:1 or more. According to D.T. Nguyen (2012) [29], the appropriate sample size for a multiple regression model is n ≥50 + 8 x p, where n is the minimum necessary sample size and p is the number of independent variables in the model.

Given that the model proposes 38 observed variables, the minimum sample size required for the study is 38×5=190. Therefore, the study's sample size of 455 meets the necessary criteria.

2.3. Research model

Based on the theoretical basis and overview of previous research works, the study builds a model of factors affecting the knowledge-sharing activities of university students in Can Tho city, including Extraversion, Sociability, Dedication, Teamwork, Trust, Instructor support, Level of Competition, Rewards, and Information technology (Fig. 1).

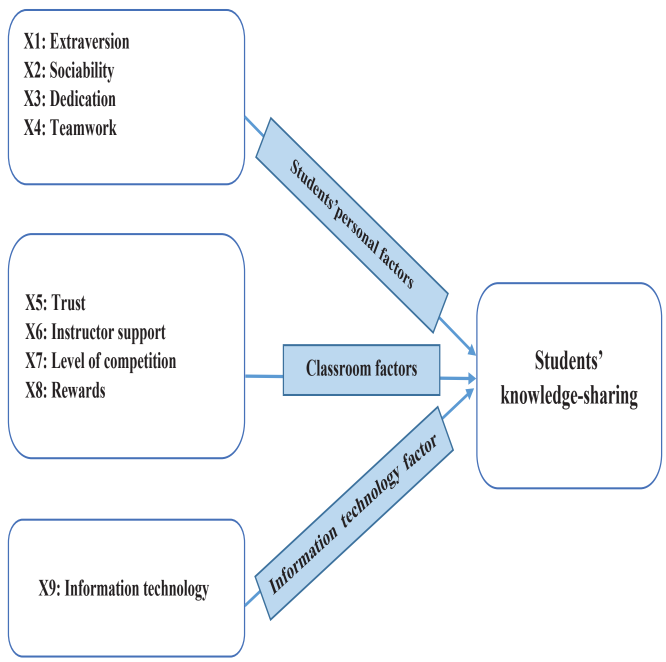


Fig. 1. Research model. Soure: Authors.

3. Results and discussion

3.1. Results

3.1.1. Descriptive statistics

A total of 455 students from universities in Can Tho City, including Can Tho University, Can Tho University of Engineering and Technology, Nam Can Tho University, and Tay Do University, were surveyed between April 2023 and June 2023. The survey was conducted online using Google Forms to analyse the students' knowledge-sharing activities. Information is collected according to a scale of factors affecting knowledge-sharing with a total of 38 observed variables corresponding to 10 factors: extraversion factor (5 observed variables), sociability factor (5 variables), dedication factor (5 observed variables), teamwork factor (3 observed variables), trust factor (3 observed variables), instructor support (3 observed variables), competition level factor (3 observed variables), reward factor (3 observed variables), information technology factor (3 observed variables), and knowledge-sharing factor (5 observed variables).

Regarding gender, 54.9% of students participating in the survey were male, and 45.1% of students participating in the survey were female. Regarding school year, 11.0% of surveyed students are first-year students, 15.4% of students are second-year students, 35.2% of students are third-year students, and 38.4% of students are fourth-year student. About the school, 26.3% of surveyed students are studying at Can Tho University, 21.7% of surveyed students are studying at Can Tho University of Engineering and Technology, 24.3% of students surveyed are studying at Tay Do University, 27.7% of surveyed students are studying at Nam Can Tho University.

3.1.2. Factors affecting the knowledge-sharing activities of university students in Can Tho city

From the results of the first Cronbach's alpha coefficient analysis, several variables with a total variable correlation coefficient less than 0.3 were eliminated: Sociability 2, Sociability 5, and Dedication 5. Second Cronbach's alpha results from Table 2 after eliminating variables from the first Cronbach's alpha, it shows that the second Cronbach's alpha reliability coefficient and total variable correlation coefficient both meet the requirements. All variables were accepted and used in the subsequent EFA.

After analysing Cronbach's alpha reliability coefficient, 3 observed variables: Sociability 2, Sociability 5, Dedication 5 were eliminated, so the total number of remaining observed variables is 35 variables, including 30 multiplicative observed variables, independent factors as well as 5 observed variables, dependent factors. Performing exploratory factor analysis with The Principal Component extraction method, combined with Varimax rotation for independent and dependent variables, the results are as follows (Table 3):

Table 2. Evaluate scale reliability.

Numerical order	The scale	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha (Total)
1	Extraversion (E)	0.610-0.894	0.849-0.892	0.836
2	Sociability (S)	0.622-0.781	0.658-0.822	0.827
3	Dedication (D)	0.856-0.887	0.885-0.889	0.889
4	Teamwork (TW)	0.887-0.897	0.800-0.894	0.897
5	Trust (T)	0.770-0.898	0.855-0.961	0.926
6	Instructor support (IS)	0.596-0.888	0.745-0.996	0.888
7	Level of Competition (C)	0.885-0.895	0.890-0.897	0.895
8	Rewards (R)	0.770-0.898	0.855-0.961	0.962
9	Information Technology (IT)	0.745-0.760	0.759-0.769	0.777
10	Knowledge-sharing (KS)	0.474-0.754	0.744-0.825	0.801

Source: Results of processing survey data using SPSS software.

Table 3. Factor analysis explores observed variables.

Factor name	Observed variables	Factor						
		1	2	3	4	5	6	7
Sociability	E1	0.902						
	E2	0.907						
	E3	0.911						
	E4	0.534						
	E5	0.707						
	S1	0.730						
	S3	0.814						
	S4	0.600						
Trust	T1		0.699					
	T2		0.892					
	T3		0.880					
	R1		0.698					
	R2		0.897					
	R3		0.886					
Dedication	D1			0.957				
	D2			0.945				
	D3			0.954				
	D4			0.963				
Information technology	IT1				0.863			
	IT2				0.880			
	IT3				0.854			
Teamwork	TW1					0.957		
	TW2					0.953		
	TW3					0.955		
Level of competition	C1						0.970	
	C2						0.968	
	C3						0.960	
Instructor support	IS1							0.821
	IS2							0.825
	IS3							0.583
KMO							**0.952**	
Total variance extracted							**69.267**	
Sig							**0.000**	

Source: Results of processing survey data using SPSS software.

From Table 3, the factor rotation matrix shows that the factor loading coefficients of the observed variables all have values greater than 0.5. Therefore, this scale of 30 observed variables is highly reliable.

In the original research model, nine factors influence students' knowledge-sharing actions: Sociability, Extroversion, Trust, Reward, Dedication, Teamwork, Instructor support, Information technology, and Competition. However, when analyzing EFA, it is grouped into seven factors. Based on the characteristics of each observed variable, the study named seven factors: Sociability, Trust, Dedication, Information Technology, Teamwork, Competition, and Instructor support.

The results of Table 4, show that the coefficient Sig=0.000, so the regression model is meaningful, meaning that the independent variables influence the dependent variable. R^2=84.2% means that 84.2% of the variation in students' knowledge-sharing activities is explained by factors included in the model, leaving 15.8% of sharing activities. Students' knowledge is influenced by other factors that have not been researched. The VIF variance magnification of the variables in the model is much smaller than 10, so the variables included in the model do not pose multicollinearity.

Table 4. Factors affecting the knowledge-sharing activities of university students.

Model	Unstandardized coefficients	Standardized coefficients	t	Sig.	VIF
(Constant)	0.228		2.116	0,036	
Sociability (S)	0.612	0.717	15.520	0.000***	2.139
Trust (T)	0.083	0.098	2.122	0.035**	2.145
Dedication (D)	0.029	0.330	0.937	0.350	1.226
Information technology (IT)	0.080	0.103	2.504	0.013**	1.702
Teamwork (TW)	0.003	0.004	0.112	0.011**	1.234
Competition (C)	0.035	0.056	1.635	0.104	1.162
Instructor support (IS)	0.058	0.077	1.739	0.084*	1.979
Number of observations (N) R^2 adjustment Sig		455 0.842 0.000			

Source: Results of processing survey data using SPSS software.
Note: *** Significance level 1%, ** Significance level 5%, * Significance level 10%.

From the results of Table 4, the regression equation estimates the factors affecting students' knowledge-sharing activities as follows:

KS = 0.228 + 0.612S + 0.083T + 0.080IT + 0.003TW + 0.058IS

3.2. Discussion

Based on Table 4, it is shown that the level of positive influence of the factors on students' knowledge-sharing activities ranked in descending order is Sociability, Trust, Information technology, Support and Teamwork. Among these 5 factors, 1 factor (Sociability) is statistically significant at a level of 1%, and 3 factors (Trust, Information technology, Teamwork) are statistically significant at a level of 5%, and 1 factor (Instructor support) is statistically significant at a level of 10%. This can be explained as follows: students who are more open and sociable easily share knowledge with other students; The more students trust each other, the more favourable conditions are created for sharing knowledge; Information technology helps students easily access new knowledge and easily exchange information with other students; The more actively students work together in groups, the easier it is to share knowledge with other students to complete assigned tasks; The more instructors encourage and facilitate information exchange, the easier it is for students to share knowledge with other students.

This result is consistent with previous studies by C.W. Chong, et al. (2014) [19], S. Wangpipatwong (2009) [20], N.A. Dinh (2017) [25], and H.X. Quan (2019) [26], which have shown that personal factors such as instructor support and information technology have a positive impact to knowledge-sharing. Besides, rewards {C.C. Wei, et al. (2012)] [21]; H.X. Quan (2019) [26]; L.N. Nguyen (2021) [27]}, sociability, teamwork [F.G. Agyemang, et al. (2016) [22], and trust {S.S. Alam, et al. (2009) [23]; M.S. Rahman, et al. (2014) [24]; N.A. Dinh (2017) [25]; L.N. Nguyen (2021) [27]} also play a significant role in motivating individuals to share knowledge.

4. Conclusions and suggestions

4.1. Conclusions

This research was conducted to identify factors affecting the knowledge-sharing activities of university students in Can Tho city. The research model is built and based on the models of authors: F.G. Agyemang, et al. (2016) [22], M.S. Rahman, et al. (2014) [24], and S. Wangpipatwong (2009) [20] with adjustments and additions to factors discovered based on data. The original research model was designed with 9 factors that affect students' knowledge-sharing actions: Sociability, Extraversion, Trust, Rewards, Dedication, Teamwork, Instructor support, Information technology, and Competition.

The study tested the reliability of the scale through Cronbach's alpha coefficient. The test results showed that 3 observed variables were eliminated: Sociability 2, Sociability 5, and Dedication 5 because the total variable correlation coefficient was less than 0.3.

Next, performing an exploratory factor analysis with the Principal Component extraction method combined with Varimax rotation, the results show that there is a grouping into 7 factors: Sociability, Trust, Dedication, Teamwork, Instructor support, Information technology and Competition.

The results of the linear regression analysis determined that 5 factors positively affected the knowledge-sharing activities of university students in Can Tho city: Sociability (β=0.612), Trust (β=0.083), Teamwork (β=0.003), Instructor support (β=0.058) and Information technology (β=0.080).

4.2. Suggestions

From the research results, the authors propose several suggestions to help improve students' knowledge-sharing activities:

First, improve student sociability. To improve students' sociability, it is necessary to encourage and create a learning and playing environment to help students understand the importance of sociability. Schools should regularly open short-term courses in the curriculum to educate and train students how to listen, how to respect, how to live positively, how to live tolerantly, with the spirit of generosity, and learning to practice non-stop. From there, students realize the importance of the collective meaning that sharing knowledge will also take place more smoothly.

Second, improve student confidence. To improve students' confidence, it is necessary to have support from schools and lecturers in standardizing knowledge and teaching methods to help students gain strong confidence in learning. Furthermore, encouraging group work activities (group presentations, group exercises, group essays) as well as sharing knowledge between groups through presentation and discussion activities. In addition, the school can organize debate competitions with the motto "Speak to persuade - Speak to succeed" to create a healthy playground for students to participate. Rhetoric truly has great power and is an indispensable tool in the luggage of successful people. According to employers' assessments, the majority of Vietnamese students today are still passive, and do not boldly express their ideas and opinions in front of a group. Meanwhile, training rhetoric skills for students at universities often stops at drawing experience from presentations. At the same time, there also needs to be additional reward regulations to encourage students' spirit of voluntarily sharing-knowledge, as well as create certain constraints for individual student cases.

Third, promote information technology factors. To promote information technology elements, in addition to investing in modern technological equipment for students to quickly grasp new information and trends, organizing an online library system, forums, and virtual online communities with the participation of business/organization representatives, scientists, researchers, lecturers, etc. are equally important in motivating students to boldly share and receive knowledge.

Fourth, increase lecturers' support during the teaching process. In the classroom environment, knowledge sharing occurs when instructors encourage and motivate students to exchange and share information. Besides, the way the lecturer organizes classroom activities also affects the way students behave with knowledge sharing. Lecturers need to come up with reward policies to further promote knowledge-sharing activities through points and praise to encourage students to voluntarily share knowledge through discussions and comments. At the same time, setting reward regulations with students' commitment to implementation will also promote knowledge sharing and trust between students.

Fifth, enhance teamwork skills. During the teaching process, lecturers should combine teaching methods to improve students' learning efficiency. Group work should be encouraged more and more because, through this form, students will voluntarily share knowledge as well as gain knowledge easily. Activities such as group presentations, group exercises, group essays, group discussions. These are activities that bring students together. At the same time, encourage students to improve openness to create a friendly exchange atmosphere, and instruct students how to contribute opinions and how to receive contributions positively.

CRediT author statement

Thi Khanh Thanh Ho: Conceptualisation, Methodology; Hoang Thanh Truc Nguyen: Data collection and Analysis; Nguyen Tuyet Minh Ha: Writing, Editing.

ACKNOWLEDGEMENTS

We are thankful to the reviewers of the paper, their comments helped to improve the manuscript.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] M. Osterloh, B.S. Frey (2000), "Motivation, knowledge transfer, and organizational forms", *Organization Science,* **11(5)**, pp.473-585, DOI: 10.1287/orsc.11.5.538.15204.

[2] G.W. Bock, R.W. Zmud, Y.G. Kim, et al. (2005), "Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate", *MIS Quarterly,* **29(1)**, pp.87-111, DOI: 10.2307/25148669.

[3] K.M. Wiig (1994), *Knowledge Management Foundations: Thinking about Thinking-How People and Organizations Represent, Create, and Use Knowledge*, Schema Press, Limited, 475pp.

[4] T. Zheng (2017), "A literature review on knowledge sharing", *Open Journal of Social Sciences*, **5(3)**, pp.51-58, DOI: 10.4236/jss.2017.53006.

[5] T.H. Davenport (1997), "Ten principles of knowledge management and four case studies", *Knowledge and Process Management*, **4(3)**, pp.187-208, DOI: 10.1002/(SICI)1099-1441(199709)4:3<187::AID-KPM99>3.0.CO;2-A.

[6] I. Nonaka (1998), "The knowledge-creating company", *The Economic Impact of Knowledge*, Routledge, 13pp.

[7] B. Gupta (2008), "Role of personality in knowledge sharing and knowledge acquisition behavior", *Journal of The Indian Academy of Applied Psychology*, **34(1)**, pp.143-149.

[8] J. Kim, J. King (2004), "Managing knowledge work: Specialization and collaboration of engineering problem-solving", *Journal of Knowledge Management*, **8(2)**, pp.53-63, DOI: 10.1108/13673270410529109.

[9] C.T. Small, A.P. Sage (2006), "Knowledge management and knowledge sharing: A review", *Information Knowledge Systems Management*, **5(3)**, pp.153-169.

[10] A.I.A.L. Alawi, N.Y.A.L. Marzooqi, Y.F. Mohammed (2007), "Organizational culture and knowledge sharing: Critical success factors", *Journal of Knowledge Management*, **11(2)**, pp.22-42, DOI: 10.1108/13673270710738898.

[11] T. Bradberry (2007), *The Personality Code: Unlock The Secret to Understanding Your Boss, Your Colleagues, Your Friends-And Yourself*, United States America, 33pp.

[12] J. Heinström (2003), "Five personality dimensions and their influence on information behaviour", *IR Information Research*, **9(1)**, 24pp.

[13] J.M. Digman (1990), "Personality structure: Emergence of the five-factor model", *Annual Review of Psychology*, **41**, pp.417-440, DOI: 10.1146/annurev.ps.41.020190.002221.

[14] L.R. Goldberg, R. Lewis. (1992), "The development of markers for the big-five factor structure", *Psychological Assessment*, **4(1)**, pp.26-42, DOI: 10.1037/1040-3590.4.1.26.

[15] W.T. Norman (1963), "Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings", *The Journal of Abnormal and Social Psychology*, **66**, pp.574-583, DOI: 10.1037/h0040291.

[16] M.D. Botwin, D.M. Buss (1989), "Structure of act-report data: Is the five-factor model of personality recaptured?", *Journal of Personality and Social Psychology*, **56(6)**, pp.988-1001, DOI: 10.1037//0022-3514.56.6.988.

[17] P.T. Costa Jr, R.R. McCrae (1992), "Four ways five factors are basic", *Personality and Individual Differences*, **13(6)**, pp.653-665, DOI: 10.1016/0191-8869(92)90236-I.

[18] S.V. Paunonen, D.N. Jackson (1996), "The Jackson personality inventory and the five-factor model of personality", *Journal of Research in Personality*, **30(1)**, pp.42-59, DOI: 10.1006/jrpe.1996.0003.

[19] C.W. Chong, P.L. The, B.C. Tan (2014), "Knowledge sharing among Malaysian universities' students: Do personality traits, class room and technological factors matter?", *Educational Studies*, **40(1)**, pp.1-25, DOI: 10.1080/03055698.2013.825577.

[20] S. Wangpipatwong (2009), "Factors influencing knowledge sharing among university students", *Proceedings of The 17th International Conference on Computers in Education*, pp.800-807.

[21] C.C. Wei, C.S. Choy, G.G. Chew, et al. (2012), "Knowledge sharing patterns of undergraduate students", *Library Review*, **61(5)**, pp.327-344, DOI: 10.1108/00242531211280469.

[22] F.G. Agyemang, M.D. Dzandu, H. Boateng (2016), "Knowledge sharing among teachers: The role of the big five personality traits", *VINE Journal of Information and Knowledge Management Systems*, **46(1)**, pp.64-84, DOI: 10.1108/VJIKMS-12-2014-0066.

[23] S.S. Alam, Z. Abdullah, N.A. Ishak, et al. (2009), "Assessing knowledge sharing behaviour among employees in SMEs: An empirical study", *International Business Research*, **2(2)**, pp.115-122, DOI: 10.5539/ibr.v2n2p115.

[24] M.S. Rahman, B. Hussain (2014), "The impact of trust, motivation and rewards on knowledge sharing attitudes among the secondary and higher secondary level students' evidence from Bangladesh", *Library Review*, **63(8/9)**, pp.637-652. DOI: 10.1108/LR-06-2013-0072.

[25] N.A. Dinh (2017), *Factors Affecting Knowledge Sharing Behavior of University Students - Research at Some Universities in Ho Chi Minh City*, Master's Thesis, Vietnam National University - Ho Chi Minh City (in Vietnamese).

[26] H.X. Quan (2019), "Solutions to promote knowledge sharing activities of students of Ho Chi Minh City University of Economics", *Industry and Trade Magazine,* **21**, pp.96-101 (in Vietnamese).

[27] L.N. Nguyen (2021), "Factors affecting knowledge sharing behavior of university students", https://tapchitaichinh.vn/nhan-to-anh-huong-den-hanh-vi-chia-se-tri-thuc-cua-sinh-vien-dai-hoc.html, accessed 11 October 2023 (in Vietnamese).

[28] J.F. Hair (2009), "Multivariate data analysis", https://digitalcommons.kennesaw.edu/facpubs/2925, accessed 9 November 2023.

[29] D.T. Nguyen (2012), *Scientific Research Methods in Business*, Labour and Social Publisher, 587pp (in Vietnamese).

Early marriage of the Co-tu people in Tay Giang district, Quang Nam province, Vietnam

Tran Thi Mai An*

University of Science and Education, The University of Danang, 459 Ton Duc Thang Street, Lien Chieu District, Danang City, Vietnam

Received 13 May 2024; revised 10 June 2024; accepted 26 June 2024

Abstract:

In Vietnam, early marriage remains a significant issue, particularly among ethnic minorities. In this article, the author examines the current status of early marriage within the Co-tu community. This ethnic group is ranked 26th in the List of Ethnic Groups in Vietnam. The ethnic group's distribution area includes the mountainous regions of Quang Nam province, Danang city, and Thua Thien Hue province. This article focuses on Dong Giang district, where the Co Tu population accounts for over 93.64% of the district's population. The ethnic group's main livelihood is slash-and-burn cultivation and other secondary activities such as hunting, gathering, afforestation, services, handicrafts, etc. The culture of the ethnic group still preserves many traditional cultural elements such as costumes, cuisine, marriage, family, funerals, weddings or festivals, etc. The study aims to explore the perceptions of insiders and related individuals regarding the relationship between love and marriage, identifying the causes leading to early marriage, and providing an overall view of the life of Co-tu couples. Life after marriage is perceived by insiders as "a game of fortune". The traditional sequence of loving, marrying, and having children becomes sensitive and complex when involving couples under 18. The ethnographic fieldwork was conducted during four trips from early 2017 to mid-2020. Qualitative methods were primarily employed to gather data on this sensitive topic, utilising three specific tools: unstructured in-depth interviews, semi-structured interviews, and group discussions.

Keywords: **culture, early marriage, ethnic minority, fieldwork, traditional, Vietnam.**

Classification numbers: **4.2, 4.3, 10**

1. Introduction

Early marriage is understood as marriage before the age of 18. This situation is gradually decreasing in many areas and localities in countries. Still, it does not mean that it has been completely ended. Contrary to the belief that early marriage is enforced or incited by adults, the adolescents in our ethnic and study area - Co tu people, Tay Giang district, Quảng Nam province - make their own marriage decisions. However, their choices are constrained by limited options and gender inequality. Life after marriage is perceived by insiders as "a fortune". The traditional aspects of loving, marrying, and having children become particularly sensitive and complex when couples marry under the age of 18.

"*Before I got married, I had thought I wouldn't have got married early. I had thought about studying further after I graduated from high school. But after I met my husband and fell in love, I had a different decision and thought. I want to get married. I don't know what getting married means, what my life will be like, but I still want to get married*" (Fieldwork in 2017).

*Email: maiansp@ued.udn.vn; maiansp@gmail.com

"*Getting married is more miserable than staying with parents. Living with my parents, I could go to school and go out for pleasure. After getting married, I had to work in the fields all day. My parents-in-law told me what I must do, and I can't argue with them. I have just done whatever they say. As for my husband, he is alcoholic, jealous, and I am even not allowed to beautify myself*" (Fieldwork in 2018).

"*We loved each other, so we got married. After the marriage, I still go to school, and my wife stays home to be a housewife, helping my parents with work in the fields. We are delighted*" (Fieldwork in 2018).

These are three of the many stories recorded during interviews with couples under 18 in the Co-tu community in Tay Giang district, Quang Nam province, Vietnam. The stories reflect the reality of early marriage, which is still happening in ethnic life.

Scientifically, early marriage is an issue in many countries and among various ethnic groups. Early marriage is defined as marriage before the legal age. Although marriage laws differ among countries, the standard legal threshold is 18 years old. Human rights discourse categorises "child marriage" as marriage involving a spouse under the age of 18 [1-3], implying that individuals under this age lack a mature understanding of their future.

Indeed, early marriage significantly affects an individual's quality of life. Studies from healthcare, reproductive, human rights, and legal perspectives have highlighted the consequences of this practice. The United Nations emphasises that marriage before the age of 18 can harm children's health and development, especially girls [4]. Child marriage leads to early pregnancy, increasing the risk of death and illness for both mother and baby [5]. Children (primarily girls) who marry before 18 attend school less frequently than their peers [6]. Individuals who marry early have a higher risk of living in poverty in adulthood compared to those who marry later [7]. Research, counselling, and providing support and intervention solutions are the approaches many countries and organisations (both domestic and international) are adopting to address child marriage. The UN's sustainable development goals, adopted in 2005, aim to eliminate child marriage by 2030, with annual reports tracking progress [8]. Despite these efforts, child marriage continues to occur globally.

In Vietnam, child marriage/early marriage remains a significant issue. In 2014, one out of ten women aged 20-24 were married or living with a partner before the age of 18 [9], with the situation being worse in ethnic minority areas. According to a survey conducted by the Committee for Ethnic Minorities and the General Statistics Office through the Second Socio-Economic Situation Survey of 53 Ethnic Minorities (2019), the rate of child marriage among ethnic minorities was still as high as 21.9%. This rate had decreased by more than 4.7% compared to 2017 but remained relatively high. On average, in the 53 ethnic minority communities in Vietnam, one out of every four marriages (26.6%) is a child marriage [10]. This article discusses the current state of early marriage in the Co-tu community, an ethnic minority group in the mountainous area of Tay Giang district, Quang Nam province, Vietnam. The study aims to explore the perceptions of insiders and related individuals on the relationship between love and marriage, thereby identifying the causes leading to early marriage while providing an overall view of the lives of Co-tu couples. The article results from intermittent ethnographic fieldwork conducted through four trips from early 2017 to mid-2020.

In Vietnam, the term child marriage (Tảo hôn) is a Sino-Vietnamese word (Sino word: 早婚, 早: "early", 婚: "marriage"), meaning early marriage. According to Vietnamese law, in section a, clause 1, article 8 of the 2014 Law on Marriage and Family, child marriage is defined as getting married when one or both parties are not old enough as prescribed. The age of marriage here is 20 years old or older for men and 18 years old or older for women. Additionally, point b, clause 2, article 5 of The 2014 Law on Marriage and Family prohibits child marriage. Thus, while marriage is a human right, child marriage violates the law on Marriage and Family in Vietnam. Existing literature and studies on child marriage in Vietnam often use the terms "early marriage" or "child marriage" interchangeably [5, 10, 11]. However, to remain consistent with the Sino-Vietnamese term familiar to Vietnamese people, this study will use the term "early marriage", referring to any marriage where one of the parties is under 18 years old.

2. Methodology

To understand the current situation of early marriage in the Co-tu community and the social factors or personal views influencing marriage decisions among individuals involved in early marriage, we conducted intermittent ethnographic fieldwork through four trips from early 2017 to mid-2020. There are three research questions: 1. What is the people's opinion on the issue of early marriage?, 2. What is the life of couples who get married early like?, 3. What are the causes and some solutions proposed to prevent early marriage in the research area? The data for this article were primarily collected through qualitative methods, using three specific tools: unstructured in-depth interviews, semi-structured interviews, and group discussions. Interviews were conducted mainly in Vietnamese and Co-tu, with female interpreters who shared the same socio-economic background as the interviewees and could explain hidden information in the interviews and descriptions.

Early marriage is a sensitive issue, requiring questions to be posed delicately, cautiously, and exceptionally friendly to create a comfortable atmosphere and avoid misunderstandings that might cause interviewees to feel guilty. We employed the method of third-party stimulation, avoiding direct inquiry into the causes of early marriage among those involved, instead encouraging them to discuss other cases they knew or had heard of. This ethically sensitive approach allowed participants to share community motivations and perceptions about early marriage without embarrassing insiders. In order to protect the informants' identities, all names of the interviewees are anonymised in this study. Interviews lasted one to two hours per person, with some cases involving all-day stays, cooking, and socialising together. These participatory observational experiences in ethnographic fieldwork are called "embodiment and trust-building".

The sampling for these interviews was purposive (Judgment Sampling) [12]. Subjects were divided into four main groups: teenagers married before the age of 18, parents of early-married couples, village patriarchs/elderly respected in the locality, and local officials. The collected data were analysed through careful review of the interviews, audio recordings, and other gathered information to identify the research story's critical topics.

In summary, we conducted nine semi-structured in-depth interviews with couples married before 18, eight unstructured interviews with parents of early-married couples, seven unstructured interviews with village patriarchs/elderly, and eight unstructured in-depth interviews with local officials (managers and teachers). Additionally, there were two group discussions with age groups 14-25 and 35-59. The selection of interviewees and multiple age groups allowed us to access diverse perspectives on social norms and cultural attitudes related to early marriage in the community.

3. Research area

Tay Giang district is a high mountainous area (one of 61 poor districts in Vietnam) located in the northwest of Quang Nam province, about 180 km from Tam Ky city and 125 km from Danang city. The district has a total natural area of 91,368 hectares. The agricultural production land covers 81,530 hectares, accounting for 89.23% of the district's total area. Most of the land is used for cultivation, mainly for short-term crops, perennial plants, and ancient forest trees. Unused land, which includes bare hills, rivers, and streams with no potential for exploitation, accounts for 8,291 hectares (9.07%).

Due to its location on the Annamite Range, the district's terrain is relatively complex and rugged, with high mountains, steep slopes, and numerous intertwined, fast-flowing rivers and streams. The entire district contains primaeval forests rich in diverse flora and fauna. The climate is divided into two distinct seasons: the dry season from March to August, and the rainy season from September to February. During the rainy season, flash floods often occur due to heavy rains from the headwaters of rivers and streams.

Tay Giang district comprises ten communes, including eight communes in the area bordering Laos, and one town: Axan, Ga Ri, Tr'hy, Ch'om, Bhalê, Lang, Avuong, Anong, Atieng, and Dang. According to a report by the People's Committee of Tay Giang district, in 2017, the district's average population was 18,520 people (including 9,446 males and 9,074 females).

The Co-tu people comprise 93.64% of the district's population, the Kinh people account for 6.17%, and the remaining are other ethnic minorities. According to old standards for evaluating poor households in Vietnam, by the end of 2020, the district's poverty rate was 34.55%. The average income per capita in Tay Giang district is 24.5 million VND per year. This study surveyed three communes: Bhalê, Anong, and Atieng. Historically and presently, the main livelihood of the people is shifting cultivation [13-16]. However, like most other ethnic minorities in Vietnam, their economic activities have diversified. Besides farming, they maintain other activities such as gathering, hunting, and fishing to enrich their daily meals. These supplementary activities are crucial for their self-sustaining livelihood. Breeding activities occur on a small scale with free-ranging livestock and poultry such as cows, goats, chickens, and ducks. Breeding practices are mainly based on experience and belief in divine blessings, with little investment in care. Most breeding products are used for sacrifices and rituals. Additionally, the people engage in forestry by contracting forest and producing forest land from the state to plant trees such as paper, cajuput, and rubber. They also partake in small businesses, exploit firewood and rattan, work as hired labourers, and perform jobs such as repairing electricity and motorbikes. Some Co-tu youth work in the districts' industrial parks, hydropower plants, cement factories, and eco-tourism areas. Traditional crafts such as knitting and weaving are typical, creating essential products for daily life with little commercial purpose. In trading relationships, they exchange products with residents of lowland areas, mainly trading forest resources like honey, incense, wild animals, and bamboo shoots.

A significant aspect of the community's physical and cultural life is the Guol house, located in the village centre. The Guol house is where rituals are performed and is seen as the heart of the community, providing both practical and spiritual protection. For transportation, due to the steep hills in the mountainous area, the people primarily walk along trails on mountainsides or rivers and streams, using small rafts and suspension bridges made from available materials [16, 17]. Like most ethnic groups in the Annamite Range and Highlands of Vietnam, the Co-tu people's costumes are divided into daily and festival attire. More popular, men wear short-sleeved shirts and long trousers and women wear short-sleeved shirts and knee-length skirts. The daily meals are simple, with basic spices like salt, fish sauce, and monosodium glutamate. Forest roots and leaves are often used to make drinking water. Alcohol, particularly Ta Vat (Arengga Palm) wine, is commonly consumed during agricultural production cycle festivals and life cycle events. The Co-tu's spiritual life is closely tied to festivals and rituals.

In Tay Giang district today, early marriage is still a story that is found in ethnic life. Compared to 15 years ago, and 20 years ago, this situation has tended to decline; however, the issue of early marriage being prevented and completely ended has yet to be answered. Because this is a complex issue, it not only bears the traces of historical remnants, but the impacts from the socio-economic context, the level of education, the influences from the views on life, and the customs in ethnic culture can also contribute to the persistent existence of early marriage.

4. Results and discussion

4.1. The perception of Co-tu on early marriage

The Co-tu community places great importance on love, marriage, and family. The principle of monogamy is firmly established within the ethnic group. Boys and girls, upon reaching adulthood, are free to get to know each other [18-21]. After falling in love and deciding to marry, couples meet their parents to discuss the wedding.

The Co-tu people have the custom of "ngủ duông", which means boys and girls get to know each other openly, without hiding or sneaking. The "ngủ duông" house is built on the field, stream, or forest edge. A young man who can afford it will construct a relatively solid house equipped like a small village house. Many boys choose to build a small hut from trees in the forest, mainly to protect against the rain, sun, and people's sight. Typically, Co-tu youths prefer to sleep in places far from the village, possibly deep in the forest or near its edge. In the past, regardless of whether the chosen location was near or far, young men had to inform the village elders of their whereabouts.

According to Co-tu custom, if a boy wants to engage in "ngủ duông" with a girl, he must bring gifts (such as beads, necklaces, and other valuable items) to the girl's house to ask for permission. "Ngủ duông" can last one night, two nights, or even a week. If a man finds the relationship unsuitable after "ngủ duông", he can bring gifts to another girl's house to ask for "ngủ duông". Thus, some men "ngủ duông" with many girls, and vice versa, some girls "ngủ duông" with many boys before getting married.

"Ngủ duông" does not necessarily involve sleeping together but rather confiding and getting to know each other. A "perfect match" couple will spend only a few nights before deciding to marry, not extending the process to a month in the forest. Despite the freedom for men and women to get to know each other through "ngủ duông", customary law clearly and strictly penalises indiscriminate sex or pregnancy before marriage. Violations typically result in severe punishment for men. The village may force a man to buy a white pig, carry it upside down to each house, confess his actions, and seek forgiveness from the villagers and the gods. Sometimes, the man must compensate the girl's family with precious items such as gongs or jewellery. A girl who becomes pregnant outside of marriage may be banished to live alone in the forest, and forbidden to communicate with others [14, 22].

Customary law does not specify an age for "ngủ duông". According to village elders, boys and girls aged 14 and older have traditionally been allowed to engage in "ngủ duông". Therefore, the concept of early marriage, defined by Vietnamese law as marrying before the age of 18, does not align with the community's traditional marriage practices. Parents often encourage their children under 18 to find a partner and, if they wish to marry, to bring gifts to the girl's house and seek permission from the elders. Then, they are allowed to organise the wedding. Village elders in A Drop village, Anong Commune, Tay Giang District, recall engaging in "ngủ duông" at 14 and marrying at 16. Interviews with Co-tu elders reveal that villagers consider 15-year-olds mature, equating "15 crop harvests" with maturity. Consequently, marrying at this age is considered normal.

Youths in the Co-tu community know the custom of "ngủ duông" and view it as a cultural tradition distinct from other ethnic groups, particularly the Kinh majority. They regard it as a heritage from their ancestors, which is still practised today [23, 24]. This custom allows teenagers to get to know each other, making early marriage before 18 seem unproblematic and voluntary. They see marriage as a natural aspiration once they fall in love. Thus, early marriage is viewed positively within the cultural context, normalising sexual relationships and leading to marriage. According to national customs, marrying before 18 is neither wrong nor illegal; it is a voluntary and desired act when they are in love.

A 16-year-old girl stated: "*I think I will get married sooner or later because my sisters are already married. Before they got married, my parents had often told them to get married, and now it's my turn. Every day my parents remind me that I am old enough to get married, so I want to get married like my sisters, which will make my parents feel more secure*" (Fieldwork in 2017).

A 16-year-old boy said: "*My parents say they will allow me to get married if I fell in love. Having a wife means that my parents have one more person who can help with the cultivation work, and if I have children early, then my life becomes stable. This age is suitable for having a wife and having children*" (Fieldwork in 2017).

Most Co-tu youths interviewed expressed a desire to marry and anticipated a good life after marriage. Encouraged and supported by their parents, they feel confident in their decision to marry, even if they are under 18, as required by law. Despite efforts by officials to discourage early marriage and promote knowledge about adolescent reproductive health, the belief that "15 harvests" equate to maturity persists. Customary law permits early marriage, while state law prohibits it, resulting in continued early marriages.

According to our fieldwork, the rate of early marriage in the district is increasing. For example, in Atieng, Anong, and Bhalee Communes, the number of couples marrying before 18 from 2017 to 2019 is as in Table 1.

Table 1. Early marriage data from 2017-2019.

Commune \ Year	Number of couples getting married before the age of 18			
	2017	*2018*	*2019*	*Total*
Anong	4	5	6	15
Bhalee	6	8	7	21
Atieng	7	8	9	24

Source: Authors' fieldwork data.

After marrying with their families' support, most young couples do not register their marriages with authorities, knowing it is illegal. This discrepancy sometimes leads to differences between official reports and the actual number of child marriages in the community. The District Population and Family Planning Centre in Tay Giang District reported that all child marriages from early 2017 to the end of 2019 involved ethnic minorities under 18. The reported number of early marriages seems to have decreased, but our survey data suggest otherwise. This discrepancy is common in sensitive studies on child marriage [25].

An 18-year-old male said: "*The commune officials did not agree to proceed with the marriage registration procedure for us because my husband and I were not old enough, but we recognised by the families and the village as the spouses*" (Fieldwork in 2017). The female aged 17 said: "*We have been married for two years, now we are old enough to register marriage*" (Fieldwork in 2017).

In recent years, district authorities in Tay Giang have implemented various measures to prevent child marriage, such as promoting the abandonment of child marriage, raising awareness about adolescent reproductive health, and highlighting the consequences of child marriage. Despite these efforts, differences remain between customary law and state law. The role of the village patriarch, the importance of customary law, and traditional thinking about "ngủ duông" opportunities for love relationships continue to influence the Co-tu people significantly [17, 20, 22]. They feel content and safe with their community's acknowledgement of early marriage, even if it violates state law. Marriage is seen as a marker of maturity and an affirmation of an individual's role in the family and community [26-28]. When their children express a desire to marry, most parents agree without concern for the legal age of marriage. Consequently, a significant gap exists between customary law and legal requirements regarding early marriage.

4.2. Life after marriage is a fortune

Most interviews with early-married couples revealed a strong belief in living with their loved ones early in their marriage and a conviction that their decision was correct. They emphasised that "*the fundamental thing of marriage is love*", which made it desirable to live with their lover early. This thinking leads to voluntary early marriage. However, after marriage, some insiders began to criticise this initial perspective.

"*After we got married, we had a child right away. We live with our parents-in-law. I have not done well with housework and work in the fields, so I am often scolded by my parents-in-law. They often compare me to my sisters-in-law. However, they are much older than me, so they take good care of children and work better than me*" (Interview with a female, aged 18, 2019).

"*Since we had a child, my husband has changed his personality. He is always gathering friends for fun drinking and does not care for me anymore. I wish I had better perceived not to get caught up in the love whirlwind and get married early. I want to go out with my friends, go back to school*" (Interview with a female, aged 17, 2019).

"*My parents-in-law love me very much. My husband and I also love each other a lot. We have a daughter who is seven months old. He works downtown and comes home twice a month. I don't regret getting married early. I feel happy*" (Interview with a female, aged 18, 2018).

In most of the three researched areas, the Co-tu community's marriage is patriarchal. After the wedding, the couple typically resides with the husbands' families. Girls participate in livelihood activities with their husbands' families (shifting cultivation, housework, and other livelihood activities) and are seen as additional labour for the family. They share the responsibility of protecting and ensuring the family's livelihood with other members. Traditionally, a young couple lives with the boy's parents until they have a child, then move out. However, most early-married couples rarely leave home immediately after the wedding or even after having children due to a lack of experience and the ability to care for themselves.

All young couples do not favour living with parents-in-law (all interviews show a preference for independent living); however, they must live with them due to insufficient resources for independent living. Living together is believed to ensure the safest livelihood for early-married couples. In these contexts, a young girl living with her husband's family must completely obey her mother-in-law and avoid arguments.

"*The daughter-in-law in the house is under control of my wife. Wherever my wife goes to work, there the daughter-in-law is*" (Interview with a man, 55 years old, in 2018).

"*A good daughter-in-law is someone who has to do good housework and have filial respect for her parents-in-law. If the couple earns money well, she must share with her parents-in-law, or siblings-in-law in the family, not hide her property*" (Interview with a female, 50 years old, in 2018).

"*Young spouses must give in to each other; a wife must share the income with her husband and listen to her husband's words to make life sustainable*" (Interview with a male, 47 years old, in 11/2019).

The notion that a wife has duties such as housework, working in the fields, childcare, and obeying her parents-in-law is implicit and taken for granted within the Co-tu ethnic group. Customary law also recognises a wife's refusal to argue with her husband in the family. After marriage, while a husband maintains a close relationship with his parents, a wife cuts off ties with her parents [15]. The patrilineal family structure shapes relationships such as husband-wife, parents-children, and siblings. The high dependence of a wife on her husband and his family after marriage makes young Co-tu couples (mainly females) perceive marriage as a "fortune". If lucky, the wife lives in a loving relationship with her husband's family; otherwise, she suffers in the relationship. A young wife has little voice in her husband's family.

Although the concept of a wife's dependence on her husband's family is upheld, Co-tu women do not see it as a human rights issue or gender discrimination [15]. Each gender is aware of their role and responsibilities within the family: the husband is the breadwinner, handling important family affairs and managing property, while the wife helps with cultivation and child-rearing without participating in social activities. The principle of "giving in to each other" is essential to maintaining good family relationships. However, early-married couples are typically of school age (secondary and high school) and unable to live independently. Even with parental support, they cannot fulfil the roles of a faithful husband and wife as expected by the community, leading to dependence on parents-in-law, especially for young wives.

Fieldwork group discussions estimate that the number of children attending primary school in the studied areas reaches 99%, gradually reducing at secondary (80%) and high school (over 40%). The dropout rate increases from primary (10%) to lower secondary (20%) and upper secondary (45%). Early-married couples often quit their studies, feeling unprepared for early marriage but voluntarily engaging in it.

5. Conclusions and implications

Most early marriages in the Co-tu ethnic group in Quang Nam province, Vietnam, are voluntary, involving boys and girls with their parental consent. Although early marriage is considered usual and customary within the Co-tu community, it is legally unacceptable for those under 18, still in high school. Early marriage often leads to hard work, poverty, lack of independent voice, and disadvantages for females (wives, mothers). Thus, although couples hold the mindset of willingness to love each other and their attachment to a partner's choice of love marriage is respectable and appreciated, early marriage has caused them difficulties.

Young couples often live with their parents and depend on the husband's family financially. Females have no say in decision-making, and boys and girls who marry early often quit school. Girls typically stay home, limiting social relationships. "Depending on and entrusting life to the husband and his family" is common among Co-tu girls after early marriage. "*Depending on and entrusting life to the husband and the husband's family*" is the thought of most Co-tu girls after getting married early. Despite severe or unexpected experiences, almost none consider divorce.

"*That cannot happen, despite difficulties, we try to keep the family*" (Interview with a female, 18 years old, 2018).

"*Although it is hard, we do not want to break up. I still hope for better things in the future*..." (Interview with a male, 17 years old, 2017).

The leading causes of early marriage in the Co-tu community, Tay Giang district, Quang Nam province, Vietnam, include lack of awareness, incomplete enforcement of legal frameworks, and customary law. First, the traditional custom of "ngủ duông" supports teenagers' freedom of choice in marriage and selecting their life partner. However, it also fosters a permissive mindset about cohabitation, creating accessible opportunities for intimate relationships during their psychophysiological adulthood. Evidence suggests that, in today's context, the strict regulations of "ngủ duông" are almost no longer observed, with the majority of young couples in the researched area having had sex before marriage.

Second, other influences, such as marrying early to gain more labour for household work, also play a role. Additionally, limited awareness of legal observance among the ethnic group and the lack of strict enforcement of sanctions contribute to the persistence of early marriage. Economic challenges further exacerbate this issue, as families often lack the financial resources to send their children to school, leading to higher dropout rates and limited job opportunities. This creates a mentality among some teenagers to forgo education in favour of early marriage. The negative impact of social networks and new lifestyles also affects young people's perceptions of early marriage.

Thus, even though young Co-tu couples marry voluntarily, early marriage before the age of 18 presents significant disadvantages. It deprives them of many better life opportunities they might otherwise have. The study makes the following recommendations: First, it is necessary to strengthen the leadership of Tay Giang district authorities at all levels, enhance the role of mass organisations, and create unity of awareness and social consensus in preventing child marriage. Second, Improve the responsibility and coordination of all levels and sectors in propaganda, advocacy, and handling of administrative violations related to child marriage according to the law. Third, Change community awareness about child marriage. Propagate the benefits of marrying at the legal age and highlight the limitations and challenges that child marriage imposes on children under 18. Expand and improve healthy recreational activities, skills training, and life values for young people to help them make better and more appropriate decisions about marriage. Help the community understand the positive aspects of the "custom of sleeping rough" while aligning the idea of early marriage with national customary laws and Vietnamese law. Raising awareness of the roles of both men and women in love and marriage, emphasising equal respect and treatment for boys and girls within their families. Finally, the fourth recommendation is to focus investment resources on socio-economic development and improving people's lives.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] A. Bunting (2005), "Stages of development: Marriage of girls and teens as an international human rights issue", *Social and Legal Studies*, **14(1)**, pp.17-38, DOI: 10.1177/0964663905049524.

[2] A. Bunting, B.N. Lawrance, R.L. Roberts (2006), *Marriage by Force? Contestation over Consent and Coercion in Africa*, Ohio University Press, 358pp, DOI: 10.2307/j.ctv224tvwm.

[3] The United Nations Fund for Population Activities (2012), *UNFPA Annual Report 2012, Promises to Keep*, https://www.unfpa.org/publications/unfpa-annual-report-2012, accessed 1 December 2020.

[4] United Nations Office of The High Commissioner for Human Rights (2017), *Recommendations for Action Against Child and Forced Marriages*, https://www.ohchr.org/Documents/Issues/Women/WRGS/CEFM/RecommendationsForActionEbook.pdf, accessed 1 January 2021.

[5] T.H. Nguyen, P. Oosterhoff, J. White (2011), "Aspirations and realities of love, marriage, and education among Hmong women", *Culture, Health and Sexuality*, **13(2)**, pp.S201-S215, DOI: 10.1080/13691058.2011.626074.

[6] G.B. Dahl (2010), "Early teen marriage and future poverty", *Demography*, **47**(**3**), pp.689-718, DOI: 10.1353/dem.0.0120.

[7] M.C. Nguyen, Q. Wodon (2012), "Measuring child marriage", *Economics Bulletin, AccessEcon*, **32**(**1**), pp.398-411.

[8] United Nations (2018), *The Sustainable Development Goals Report*, https://unstats.un.org/sdgs/files/report/2018/TheSustainableDevelopmentGoalsReport2018-EN.pdf, accessed 1 January 2021.

[9] UNICEF Vietnam, UNFPA (2017), "Understand the current situation of child marriage in Vietnam", https://www.unicef.org/vietnam/media/2411/file/T%C3%B3m%20t%E1%BA%AFt%20th%E1%BB%B1c%20tr%E1%BA%A1ng%20k%E1%BA%BFt%20h%C3%B4n%20tr%E1%BA%BB%20em.pdf, accessed 1 January 2021 (in Vietnamese).

[10] P.Q. Phuong, D.Q. Anh, H.N. An, et al. (2017), *Child Marriage in Some Ethnic Minority Communities in Vietnam, an Analysis from an Anthropological Point of View*, Thanh Nien Publishing House, 145pp.

[11] N. Jones, E.P. Marshall, T.T.V. Anh (2016), "Individual empowerment is not enough: Using a social norms lens to understand the limited educational uptake of Vietnam's Hmong girls", *Policy Futures in Education Journal*, **14(5)**, pp.539-555, DOI: 10.1177/1478210315620943.

[12] H.R. Bernard (2006), *Research Methods in Anthropology*, *Qualitative and Quantitative Approaches*, AltaMira Press, 824pp.

[13] J.L. Pichon (1938), *Les Chasseurs de Sang*, IDEO, 408pp (in French).

[14] J.L. Schrock, W. Stockton, E.M. Murphy, et al. (1966), *Ethnography Study Series, Minority Groups in The Republic of Vietnam*, American University, Washington D.C., Cultural Information Analysis Center, 1163pp.

[15] N.H. Thong (2004), *Co-tu Who Lives in The Watershed*, Thuan Hoa Publishing House, 443pp (in Vietnamese).

[16] N.H. Thong (2005), *Culture of The Mountainous Village of Central Vietnam: Traditional Values and Historical Changes (Data from The Mountainous Area in Quang Nam*, Thuan Hoa Publishing House, 440pp (in Vietnamese).

[17] T.T.M. An (2014), *Traditional Social Organization of The Co-tu People in Nam Dong District, Thua Thien Hue Province*, National Political Publishing House, 186pp (in Vietnamese).

[18] L. Bh'riu (2009), *Co-tu Culture*, Danang Publishing House, 118pp (in Vietnamese).

[19] K. Dien (1974), "Ethnic groups in the Truong Son - Central Highlands region", *Journal of Ethnic Minorities*, **1**, pp.41-46 (in Vietnamese).

[20] N.X. Hong (1998), *Marriage - Family - Funeral of The Ta-oi, Co-tu, Bru-Van Kieu in Quang Tri - Thua Thien Hue*, Quang Tri Department of Culture and Information, 134pp (in Vietnamese).

[21] L. Hung (2006), *Contribution to The Study on Co-tu Culture*, Social Sciences Publishing House, Hanoi, 292pp (in Vietnamese).

[22] V.M. Nguyen, X.H. Nguyen, H.T. Nguyen (2001), *Customary Law of Ta oi, Co-tu, Bru-Van Kieu in Quang Tri, Thua Thien Hue*, Thuan Hoa Publishing House, 419pp (in Vietnamese).

[23] P.H. Dat (2018), *Some Issues about Vietnamese Ethnology*, Vietnam National University - Hanoi Publishing House, 495pp (in Vietnamese).

[24] J. Dournnes (1993), *Forest, Woman, Madness: Crossing The Jarai Imaginary*, Aubier-Montaigne Publisher, 368pp (in French).

[25] P.M. Christensen, A. James (2000), *Research with Children: Perspectives and Practices*, Falmer Press, 272pp.

[26] P.Q. Hoan (1979), "On the marriage and family relations of the Co-tu people", *Journal of Ethnology*, **4**, pp.40-45 (in Vietnamese).

[27] N. Ngoc (2005), *Understanding The People of The Quang Land*, Danang Publishing House, 675pp (in Vietnamese).

[28] B.Q. Thanh (2020), *Study on Customary Laws and Traditions of Ethnic Minorities in Quang Nam*, Danang Publishing House, 375pp (in Vietnamese).

 DOI: 10.31276/VMOSTJOSSH.2023.0098

The Vietnam's Law on Marriage and Family 2014 and related documents: Unreasonable points about surrogacy and recommendations

Nguyen Thi Le Huyen*

Faculty of Civil Law, University of Law, Hue University, Hue University Planning Area, Vo Van Kiet Street, An Tay Ward, Hue City, Thua Thien Hue Province, Vietnam

Received 25 November 2023; revised 24 December 2023; accepted 16 April 2024

Abstract:

Since Vietnam's Law on Marriage and Family 2014 took effect, it has promoted positive effects in regulating this social relationship [1]**. Allowing legal couples to use a surrogate mother when they meet the legal requirements has provided an opportunity for couples who cannot have a child naturally, even when using reproductive support techniques to have children with the same bloodline. However, after eight years of implementation, the regulations on surrogacy for humanitarian purposes recorded in Vietnam's Law on Marriage and Family 2014 still reveal many limitations, particularly regarding synchronisation with existing related legal regulations** [1]**. Among these, issues such as the conflict with divorce provisions in the Law on Marriage and Family Act; the protection of the right to life of children born from surrogacy in the Criminal Code 2015** [2] **(amended and supplemented in 2017); protecting the legal rights of the surrogate mother and the intended mother in the Law on Social Insurance 2014** [3]**, and the right to adopt children in the Law on Adoption 2010** [4] **have not yet been properly resolved. Realising the contradictions in the regulations on the aforementioned issues, the author analyses and clarifies the inadequacies between the provisions of Vietnam's Law on Marriage and Family 2014** [1] **and the relevant legal documents concerning surrogacy in general and surrogacy for humanitarian purposes in particular. Specific recommendations were proposed to improve Vietnamese legislation regulating surrogacy, a newly emerged social issue.**

Keywords: **surrogacy, surrogacy for humanitarian purposes, synchronisation of the law.**

Classification numbers: **6, 12**

1. Introduction

From the perspective of protecting the parental rights of couples unable to give birth naturally, surrogacy for humanitarian purposes is considered one of the most important regulations. Progress is recognised in Vietnam's Law on Marriage and Family 2014 to help realise their dreams. These regulations have created a legal corridor to clearly define issues such as conditions for implementation, rights and obligations of parties involved, procedures, and dispute resolution. However, as this is a newly regulated social relationship, it raises many related legal issues such as determining the relationship between father, mother, and child; social insurance regimes for relevant entities; sanctions for violations; adoption relationships, etc., making it difficult to avoid overlaps and conflicts between the Law on Marriage and Family and related legal documents. Therefore, to promote effective regulation, it is necessary to review and evaluate the compatibility between legal regulations related to the surrogacy regime, gradually improving the system effectively to implement legal provisions on this humanitarian issue.

2. The conflict between the Law on Marriage and Family and related documents on surrogacy for humanitarian purposes

The regulations on surrogacy for humanitarian purposes in the Law on Marriage and Family reveal certain limitations concerning other legal provisions within the same document and other relevant legal documents. The lack of consistency among legal

*Email: ntlhuyen.dhl@hueuni.edu.vn

documents has negatively impacted the legitimate rights and interests of related parties, especially the rights of children.

2.1. Regarding the provisions of the Vietnam's Law on Marriage and Family 2014

Right to request a divorce: The right to divorce between husband and wife is fundamental in protecting personal rights in Marriage and Family Law and human rights in civil law in general. However, for couples undergoing surrogacy, adjustments to the right to request a divorce need to consider specific factors to balance the legal rights and interests of the parties involved. This needs to be addressed in two specific cases:

First, Article 51, Clause 3 of Vietnam's Law on Marriage and Family 2014 states: "The husband does not have the right to request a divorce when the wife is pregnant, giving birth, or raising a child under 12 months old" [1]. This means the right to request a divorce is not restricted to the husband of the intended parents when the surrogate mother is pregnant. This is unreasonable, considering the psychological impact of divorce on the surrogate mother and the development of the foetus. During pregnancy, the husband of the intended parents requesting a divorce may cause concerns and worries about the child's future, possibly leading to neglect of responsibility to care for and raise the child, which can seriously affect the pregnant woman's health and the foetus's development.

Second, from the perspective of ensuring equal rights of the parties in marital relationships, the adjustment to divorce issues should reconcile the interests between husband and wife, individuals, families, and society. In this regard, the issue of limiting the right to request divorce for the husband needs to be considered on a reasonable basis. It is worth noting that Clause 3 of Article 51 of the Law on Marriage and Family 2014 [1] adds a case restricting the husband's right to request a divorce compared to the Law on Marriage and Family 2000 [5]: "The husband has no right to request a divorce if the wife gives birth". The legislative intent is to limit the husband's right to request a divorce from the husband's intended parents. During the wife's pregnancy or after birth and the child has been given to the intended parents, the husband has no right to request a divorce. However, the current law does not explicitly explain the case when the wife gives birth. If the wife does not take responsibility for raising the child after birth, how long does the husband's restriction last? It is not appropriate to unify the time limit for the husband's right to request a divorce as 12 months after birth in both direct birth and surrogacy cases, as the surrogate mother only needs time to recover her health after giving birth. Therefore, if the regulation is applied such that the husband can request a divorce only after 12 months, as in other typical cases, it is not appropriate, unlike a mother who raises the child.

2.2. For the provisions of the 2015 Criminal Code, amended and supplemented in 2017

The provision regarding the timing of determining a child as a common child of a married couple through assisted reproductive technology (ART) from the time the child is born may cause irrationality in relation to the provisions of the Criminal Code 2015 [2] regarding the protection of the right to life of children - one of the most important human rights.

The right to life is one of the most fundamental human rights. Article 6 of the International Covenant on Civil and Political Rights of 1966 [6], of which Vietnam is a member, states: "Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life". Recognising and protecting the right to life of children becomes even more urgent and meaningful because they are a vulnerable group, unable or less able to protect themselves. Protecting the right to life is protecting the integrity of human life and existence. To protect the right to life of children, Article 124 of the Criminal Code 2015 [5] regulates the crime of killing or abandoning newborns. Accordingly, "Any mother who, due to the heavy influence of backward thinking or in special objective circumstances, kills a child she has given birth to within seven days of age shall be sentenced to imprisonment from 6 months to 3 years; ...abandons a child she has given birth to within seven days of age leading to the consequence of the child's death shall be sentenced to non-custodial reform for up to 2 years or imprisonment from 3 months to 2 years". However, in the case of children born through ART, this issue needs to be considered more fully and comprehensively. This is because these are children at higher risk of infringement of the right to life than other ordinary cases, especially for children born with disabilities or for some other reason, leading to the legal parents of the child not accepting it after the woman who gave birth through ART.

A hypothetical situation is considered where, in the case of ART, a child has just been born (under 7 days old), is disabled, and subsequently dies. The woman who gave birth through ART, due to exceptional objective circumstances (such as this woman has many children, poor economic conditions, is experiencing a postpartum psychological disorder, or the child is born with congenital disabilities, etc.) decides not to raise the child. As a result, she abandons the child in a deserted place, leading to the child's death. Under these circumstances, can the woman who gave birth through ART be criminally responsible, and if so, under which specific crime?

Clearly, under current law, the criminal responsibility of a surrogate mother cannot be pursued for the crime of killing a newborn under Article 124 of the Criminal Code 2015 [2], because the surrogate mother, after giving birth, is not considered the "mother" of the child under the provisions of Article 94 of Vietnam's Law on Marriage and Family 2014 [1]. Of course, the applicable crime would be murder under the provisions of Article 123 of the Criminal Code 2015, with a much higher penalty. However, in our opinion, not applying the crime of killing a newborn under Article 124 of the Criminal Code 2015 to the above case is not reasonable or logical. Objectively, the surrogate mother in this case has just gone through a process of pregnancy and childbirth with many psychological impacts. Medicine has shown that women after giving birth may experience abnormal psychological conditions due to the effects of childbirth and unfavourable external factors, which may lead to their committing acts with dire consequences. Therefore, they clearly belong to the case that needs humane sanctions as stipulated in Article 124 of the Criminal Code 2015 [2]. However, this cannot be applied because it contradicts the provisions for determining the subject's status under Article 94 of Vietnam's Law on Marriage and Family 2014 [1].

2.3. According to the provisions of the Law on Social Insurance 2014

The regulation on determining the time of birth mentioned above also creates an overlap with the legitimate rights and benefits of the commissioning party and the surrogate in some cases as stipulated in the Law on Social Insurance 2014 [3], specifically as follows:

Firstly, regarding the entitlement to sick leave for a child's illness according to the provisions of Article 27 of the Law on Social Insurance 2014 [3], it is determined as follows: "1. The duration of entitlement to sick leave for a child's illness within one year for each child is calculated based on a maximum of 20 working days of childcare if the child is under 3 years old; a maximum of 15 working days of childcare if the child is from 3 to under 7 years old; 2. In case both the father and mother participate in social insurance, the duration of entitlement to sick leave for a child's illness for each father or mother is determined according to the provisions of Clause 1 of this Article" [3]. With this provision, it can be seen that the application of the law's provisions on resolving entitlements for the employee in case of a child's illness is only implemented when they themselves are determined to be the father or mother of the child. However, as analysed above, in the case of surrogacy, the principle of determining the relationship between the father, mother, and child is different from other normal cases where the child's legal parents are determined as the intended parents from the time of the child's birth. In reality, it is possible that after the surrogate gives birth, the intended couple may delay taking the child due to reasons such as the couple divorcing during the surrogate's pregnancy, or the child being born with disabilities. The surrogate may file a lawsuit demanding that the intended couple take the child, but The Lawsuit process could be prolonged. So, during this time, the intended parents still have an obligation to take care of and nurture the child even though legally the child is not theirs. Assuming that during that time the child falls ill and needs special care, with confirmation from a qualified medical facility [3], can the intended parents take sick leave to take care of the child? Clearly, legally, the intended parents are not the biological parents of the child, so there is no basis to apply Article 27 of the Law on Social Insurance 2014 as analysed above. In our opinion, this is unreasonable and does not ensure the humane nature that the provision of gestational surrogacy should have. Because before the child is transferred/received, the intended parents are identified as the ones who are nurturing and caring for the child. Therefore, their legitimate rights and obligations must be ensured if the child is sick. From our point of view, to address this issue thoroughly, it is essential to determine the appropriate legal status of the intended parents as parents in this case. This is first to protect the legitimate rights of children born from surrogacy - subjects who cannot protect themselves, and then to ensure the legitimate rights of those who are nurturing the child. Only then can surrogacy provisions for humanitarian purposes in the 2014 Family and Marriage Law and the sick leave policy in the Law on Social Insurance 2014 truly fulfil their intended purpose.

Secondly, regarding the funeral allowance policy, Point a Clause 2 Article 67 of the Law on Social Insurance 2014 [3] stipulates that the relatives of the employee specified in Clause 1 Article 67 are entitled to monthly funeral allowances, including "Children under 18 years old; children from 18 years old and above if they have a loss of working capacity of 81% or more; children born when the father died while the mother was pregnant". This regulation can lead to confusion regarding the funeral allowance entitlement of a child born through ART using a deceased father's sperm. According to Article 94 of Vietnam's Law on Marriage and Family 2014 [1], the child born is still considered the common child of the couple through ART, even if the father passed away before the child's birth. However, it is noteworthy that in this case, the mother of the child was not "pregnant" before. Therefore, when applying the regulation at Point a Clause 2 Article 67, if the woman using ART becomes pregnant and the husband (the father of the child) dies, will the child be entitled to the funeral allowance of the father because the father has passed away even though the mother of the child was "not pregnant"? Under this interpretation, it means that the child born through ART would not be recognised as eligible for the funeral allowance policy according to the Law. This would adversely affect the legitimate rights and interests of the child. Therefore, this issue needs to be addressed and adjusted accordingly.

Thirdly, the new Marriage and Family Law only mentions protecting the rights of mothers but does not acknowledge or protect the rights of fathers who use a surrogate. In fact, the rights of the husband using a surrogate have yet to be adequately protected. This can be clearly seen in the provisions of the Law on Social Insurance 2014 [3]. Specifically, Article 31 of the Law on Social Insurance 2014 [3] regarding maternity leave entitlements only includes "male workers who are paying social insurance and have wives who give birth". This means that only surrogate mother's husband is entitled to maternity leave, while the husband of the intended parents is not entitled to this benefit. According to Clause 2 of Article 34 of the Law on Social Insurance 2014 [3], if the wife gives birth, she is entitled to "maternity leave as follows: a. 5 working days; b. 7 working days if the wife gives birth by surgery or the child is born before 32 weeks; c. In the case of twins, 10 working days off, for each additional child, an additional 3 working days off; d. In case of twins or more requiring surgery, 14 working days off. The leave entitlement period for maternity leave specified in this clause is calculated within the first 30 days from the day the wife gives birth" [3]. The above regulation aims to ensure that the husband of the intended mother can exercise his rights and responsibilities, such as taking care of the wife and child during childbirth. This is entirely reasonable. However, this provision does not clarify whether a man who is enrolled in social insurance as the husband in an intended-parent couple is entitled to maternity leave if the surrogate mother immediately transfers the child to the intended parents for care after birth. According to Article 35(2) of the Law on Social Insurance 2014 [3], in the case of surrogacy, the intended mother is entitled to maternity leave from the time of receiving the child until the child is six months old. The rights of being a father or mother are equal rights of individuals. After receiving the child, not only the wife but also the husband needs to take responsibility for caring for the child - this is both a right and a duty of the relevant parties. From the gender equality perspective in the Law, the fact that the husband in an intended parent is not entitled to maternity leave (taking leave according to the number of days specified in Article 34(2) of the Law on Social Insurance 2014) is not appropriate. They also have the right to take care of and show their love for the newborn child. Therefore, in our opinion, the Law needs to recognise the right to maternity leave for male labourers in surrogacy arrangements to be consistent with the humanitarian spirit of the Law.

2.4. Regarding the provisions of the Law on Adoption 2010

The Law on Adoption 2010 [4] does not provide a specific provision regarding disputes related to adopting children born through assisted reproductive technology. However, we can infer that such disputes may be considered as disputes over parent-child relationships. This is because parent-child relationships can be established based on both biological and nurtured connections.

Regarding the jurisdiction for resolving disputes related to adopting children, Article 28 of the Code of Civil Procedure 2015 [7] stipulates that such disputes fall within the jurisdiction of the People's Court. However, this article does not explicitly mention disputes over adopting foster children. In a broader sense, disputes over adopting foster children can be understood as disputes over parent-child relationships, which may fall under the category of "disputes over determining parentage or child custody", as stipulated in Clause 4 of this Article of the Code of Civil Procedure 2015 [7]. However, The Lawmakers intended this provision to address disputes over parentage or child custody based on blood relationships. Therefore, in the case of disputes over adopting foster children, where the child in question is born through assisted reproductive technology, it is unclear whether the People's Court has jurisdiction to resolve such disputes under Article 28 of the Code of Civil Procedure 2015 [7]. We also hold the view that disputes over the right to adopt a child born through surrogacy fall under the category of "Other disputes regarding marriage and family" as regulated in Clause 8 of this Article. However, even if the dispute falls under the jurisdiction of the People's Court, there are still many shortcomings that make it difficult for the Court to handle and resolve the issue. This is evident in the conflicts and inconsistencies between the specific content regulations of Vietnam's Law on Marriage and Family 2014 [1] and the Law on Adoption 2010 [4].

Clause 2 of Article 99 of Vietnam's Law on Marriage and Family 2014 [1] stipulates the resolution of disputes related to the use of assisted reproductive techniques, surrogacy for humanitarian purposes as follows: "In cases where the child has not been delivered, if both intended parents die or lose their civil act capacity, the surrogate mother has the right to adopt the child" [1]. This means that if a child is born and the intended parents die or lose their civil act capacity, the surrogate mother has the right to adopt the child as a foster child. However, this provision is incompatible with the Law on Adoption 2010 [4] if the surrogate mother is not also the biological aunt/uncle; spouse of the child's biological uncle/aunt. According to Article 5 of the Law on Adoption 2010, the subject with the right to priority in adopting the first child is the stepfather, stepmother, aunt, uncle, great aunt, great uncle of the child to be adopted [4]. If the surrogate mother is a sibling of the intended parents, do they have priority to adopt the child if the legal parents of the child have passed away? Clearly, in such a case, if the surrogate mother and the parties involved in accordance with the regulations under Article 5, Clause 1 of the Law on Adoption 2010 have a dispute over the right to adopt the child and initiate a lawsuit in court, resolving the priority of the right to adopt will become very difficult. In terms of legal principles, according to Article 156, Clause 3 of the Law on Promulgation of Legal Documents 2015 [8], in case legal documents promulgated by the same authority have different provisions on the same issue, the provisions of the legal document promulgated later shall apply. The author believes that this is appropriate. In the context of the legal relationship regarding surrogacy for humanitarian purposes [9], as well as from the perspective of best protecting the child's interests, it is clear that the surrogate mother is the one who has "borne the pain of childbirth" to give birth to the child. Even though the child and the surrogate mother may not be biologically related, they and the child they gave birth to have a close emotional connection.

3. Conclusions and recommendations

Based on the above analysis, the author proposes several recommendations to improve the Law on Marriage and Family and related legal documents on surrogacy for humanitarian purposes, specifically as follows:

Firstly, Clause 3, Article 51 of Vietnam's Law on Marriage and Family 2014 [1] stipulates that the right to request a divorce must be adjusted to ensure harmony in the subjects' legitimate interests. Accordingly, to ensure that the psychology of the mother is not negatively affected and does not impact the development of the foetus, we propose that the restriction of the right to request a divorce be applied even to married couples using surrogacy when the surrogate mother is pregnant. Additionally, it is necessary to specify how long the husband of the mother will be limited in his right to request a divorce after the surrogate mother gives birth and hands over the child. To ensure compatibility with the regulations on the maternity leave period of the surrogate mother after delivering the child in Clause 3, Article 97 of Vietnam's Law on Marriage and Family 2014 [1], we recommend a reasonable time limit for the right to request a divorce. The limit for the husband of the surrogate mother is 60 days (2 months) if the surrogate mother hands over the child within 60 days. In cases where the surrogate mother cannot hand over the child for legitimate reasons after 60 days, the husband of the surrogate mother has no right to request a divorce while the surrogate mother raises the child until the child turns 12 months old.

Secondly, it is necessary to issue guiding documents on the application of regulations in Article 124 of the Criminal Code 2015 [2] regulating the crime of killing or abandoning newborn children. Accordingly, adding the case that "the surrogate mother, under the heavy influence of outdated ideology or in special objective circumstances, kills the child she gave birth to within 7 days of age, shall be sentenced to imprisonment from 6 months to 3 years; ...abandons a child born to her within 7 days of age leading to the death of the child, shall be sentenced to non-custodial reform for up to 2 years or to imprisonment from 3 months to 2 years". The provisions of Article 124 of the Criminal Code 2015 [4] do not apply to the party requesting gestational surrogacy [10].

Thirdly, the Law on Social Insurance 2014 regulations also need to be adjusted appropriately. Specifically, it is necessary to add subjects entitled to maternity benefits in Article 34 of the Law on Social Insurance 2014, including husbands who rely on maternity benefits. Regulations on death benefits for children born from surrogacy for humanitarian purposes need to be adjusted by removing the regulation on "children born when the father dies but the mother is pregnant" at Point a, Clause 2, Article 67 of the Law on Social Insurance 2014 [3]. This regulation needs to be adjusted to: "Children under 18 years old; If a child is 18 years of age or older, his or her working capacity is reduced by 81% or more". As long as the child is determined to be the child of a person who relies on legal aid, the child is entitled to the death benefit of the father or mother, even if the child's father or mother died before the child was born.

Fourthly, with regard to the provisions in Article 5 of the Law on Adoption 2010 [4], when there are conditions for amendment and supplementation, adjustments should be made to add the surrogate mother as the subject with priority in adopting the child. This adjustment should ensure parents' legal rights and provide the best conditions for children.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] The National Assembly of The Socialist Republic of Vietnam (2014a), *Law on Marriage and Family, No. 52/2014/QH13 Dated 26 June 2014* (in Vietnamese).

[2] The Office of The National Assembly of The Socialist Republic of Vietnam (2017), *Criminal Code 2015, Amended and Supplemented in 2017 No. 01/VBHN-VPQH Dated 10 July 2017* (in Vietnamese).

[3] The National Assembly of The Socialist Republic of Vietnam (2014b), *Law on Social Insurance No 58/2014/QH13 Dated 20 November 2014* (in Vietnamese).

[4] The National Assembly of The Socialist Republic of Vietnam (2010), *Law on Adoption, No. 52/2010/QH12 Dated 17 June 2010* (in Vietnamese).

[5] The National Assembly of The Socialist Republic of Vietnam (2000), *Law on Marriage and Family, No. 22/2000/QH10 Dated 9 June 2000* (in Vietnamese).

[6] United Nations (1967), *International Covenant on Civil and Political Rights*, 127pp.

[7] The National Assembly of The Socialist Republic of Vietnam (2015a), *Code of Civil Procedure No. 92/2015/QH13 Dated 25 November 2015* (in Vietnamese).

[8] The National Assembly of The Socialist Republic of Vietnam (2015b), *Law on Promulgation of Legislative Documents No. 80/2015/QH13 Dated 22 June 2015* (in Vietnamese).

[9] N.H. Cuong (2016), "Some inadequacies in the regulations on surrogacy for humanitarian purposes in the Vietnam's Law on Marriage and Family 2014", *Journal of State and Law*, **9**, pp.38-40 (in Vietnamese).

[10] N.V. Lam (2016), "Discussion on surrogacy in Vietnamese law", *Journal of Procuracy*, **4**, pp.50-52 (in Vietnamese).

DOI: 10.31276/VMOSTJOSSH.2023.0035

The hero-Zen practitioner protagonist in Haruki Murakami's novels: An analysis from Joseph Campbell's hero's journey monomyth

Thi Mai Lien Nguyen[1*], Bich Nha Truc Nguyen[2]

[1]*Hanoi University of Education, 136 Xuan Thuy Street, Dich Vong Hau Ward, Cau Giay District, Hanoi, Vietnam*
[2]*Ho Chi Minh City University of Education, 280 An Duong Vuong Street, Ward 4, District 5, Ho Chi Minh City, Vietnam*

Received 14 May 2023; revised 19 June 2023; accepted 5 December 2023

Abstract:

The authors approach the protagonist in Haruki Murakami's novels from the archetype methodology, and from the perspective of J. Campbell's monomyth of the hero's journey. According to J. Campbell's theory, the archetypal hero embarks on challenging journeys to accomplish the twin goals of exploring the world and self-perfection. The journey of the heroic characters in H. Murakami's novels is from isolation, away from the problems of social life. Then, because of an unexpected mission, returning and entering the underground world to execute hard tasks, solving the problems of individual destiny, hence getting closer to the core of one's own existence (the self), very close to the the archetypal hero's journey that the American comparative mythologist J. Campbell outlined and explained. Haruki Murakami's hero - meditator has reached the core of Japanese art and culture, which is Zen. The type of character like a Zen master creates an artistic and ideological bond between Murakami's literature and the Japanese artistic tradition. Moreover, this research also clarifies the connection between Murakami's works and myths in famous Japanese historical records such as *Kojiki* and *Nihonshoki*.

Keywords: **Haruki Murakami, hero-Zen practitioner, Japan, Japanese literature, Joseph Campbell's monomyth, novels, protagonist.**

Classification numbers: **9.2, 9.3**

1. Introduction

In most of H. Murakami's novels with their dual narrative structures, the protagonist embarks on a journey to another world to accomplish an unexpected task which does not only relate directly to the protagonist's own fate but also affects the fates of many others. Despite being primarily set in contemporary Japanese society, H. Murakami's stories resonate deeply with readers around the world living in modern, sprawling metropolises as they share the characters' experiences. In an interview, the author revealed his artistic goal: "What I write are stories in which the hero is looking for the right way in this chaotic world... That is my theme. At the same time, I think there is another world underground. You can access this inner world in your mind. Most protagonists in my books live in both worlds - the realistic world and the underground world" [1]. The protagonist's journey in a H. Murakami novel typically goes through three stages: (1) leaving the ordinary world and everyday life to embark on an unexpected quest, (2) encountering and battling strange, dark forces in another world, and (3) returning to the real world and normal life. This three-stage pattern resembles the three stages described in J. Campbell's monomyth of the hero's journey, proposed in his famous 1949 work *The Hero with a Thousand Faces*. By applying J. Campbell's general monomyth of the hero's journey to analyze H. Murakami's storytelling, this article aims to examine the characteristics of the hero protagonist in H. Murakami's novels, identify similarities and differences in implementing the hero's journey monomyth between H. Murakami's and J. Campbell's models, and determine the protagonist type that shapes H. Murakami's literary style: the

*Corresponding author: Email: mailien.edu@gmail.com

hero-Zen practitioner protagonist. Additionally, the article points out the uniqueness that H. Murakami has inherited from Japanese culture and traditional ways of thinking in constructing the hero-Zen practitioner protagonist.

This article applies archetypal literary criticism and J. Campbell's monomyth theory to analyze the journeys of the protagonists in these five H. Murakami novels: *Hard-Boiled Wonderland and the End of The World* [2], *Kafka on The Shore*, *The Wild Sheep Chase* [3], *The Wind-up Bird Chronicle* [4], and *Killing Commendatore* [5]. These five novels are chosen because H. Murakami employs the hero's journey motif of travelling to another world, with two archetypes of journeys: (1) travelling to another place on earth; (2) travelling to another world underground in order to accomplish a special quest.

2. Joseph Campbell's hero's journey monomyth in narrative

Through comparative mythology, J. Campbell found a general formula we can use to read all myths and narratives around the world: "The hero's journey" from the ordinary world to another world to battle supernatural forces, and then return to the old world to bestow boons upon the community. J. Campbell called this journey formula "monomyth": *"The standard path of the mythological adventure of the hero is a magnification of the formula represented in the rites of passage: separation - initiation - return: which might be named the nuclear unit of the monomyth"* [2].

In J. Campbell's monomyth, the hero's starting point is the ordinary world, not the supernatural world. The hero receives a call to adventure and embarks on a strange adventure. After the victory, the hero returns to the old world and brings change to the whole community: *"A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man"* [2]. J. Campbell's monomyth (hero's journey) model consists of three basic stages corresponding to 17 events in the hero's journey (Fig. 1).

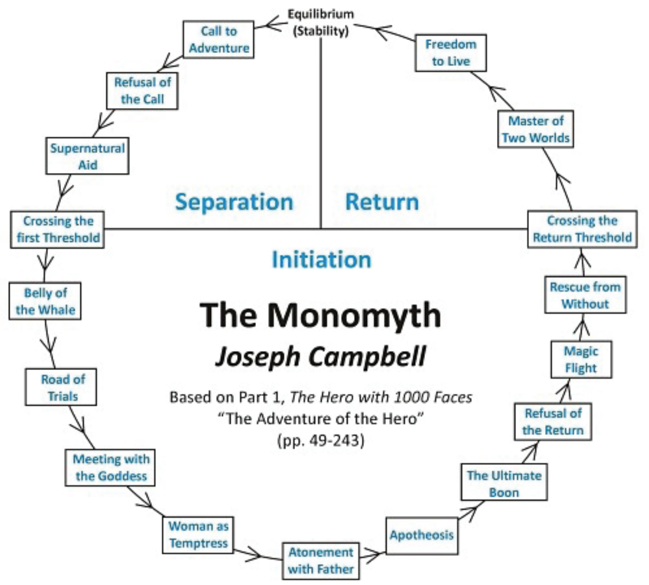


Fig. 1. Joseph Campbell's 17-Stage Monomyth (The Hero's Journey).

The characteristic feature and key difference of this formula lies in the initiation ritual - the crucial element that all heroes must undergo before returning and resurrecting the old world. In other words, this is the most important event in the hero's journey because it marks the turning point of transformation, when the hero overcomes the threshold of challenge, achieves spiritual maturity and enlightenment. It determines the difference between the nature of the hero in the two periods before and after returning to the community. After undergoing the initiation ritual, the hero gains another power and becomes someone who can go back and forth, understanding both the human world and the spiritual world.

Above, we have introduced J. Campbell's monomyth formula and the basic stages of the hero's journey. It can be seen that the archetypal criticism method and J. Campbell's journey formula are quite suitable if applied to reading narrative stories that are connected to mythological thinking. In postmodern literature, authors sometimes use the mythological literary technique to create new myths in order to revive the mythological atmosphere of ancient times in novels. By re-reading myths from new perspectives or adding new meanings to existing archetypal myths, authors have created resonances, connections between the past and the present, between the myths of their own nations and the myths of humanity, in a systematic and comparative view to create intertextual dialogues. H. Murakami is one of the contemporary authors with this writing style. His works always refer to Japanese and Western myths, evoking readers' new and boundless imaginations. In the next part, we will proceed to demonstrate and analyze the characteristics of the journey of the main characters in H. Murakami's novels to prove the encounter between the characteristics of the journeys of the heroes in H. Murakami's novels and J. Campbell's hero's journey formula.

3. Haruki Murakami's protagonists' journeys: Adapting Joseph Campbell's hero's journey pattern

Examining the journey of the main characters in five H. Murakami novels within the scope of this article, the common point is that the main characters all go through 3 steps in their adventure: Leave their ordinary daily life; Go to another place and return to ordinary daily life, where they had left before (Fig. 2).

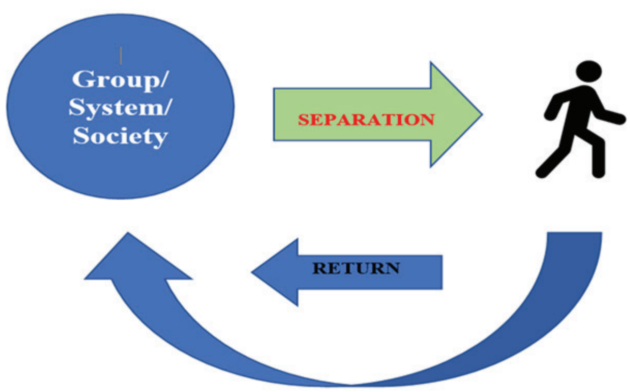


Fig. 2. The journey of the main characters in Haruki Murakami's novels.

The main characters of H. Murakami are often young or middle-aged people living in large cities. Their common feature is that they often have a lonely mood, indifferent to social issues. They actively detach themselves from groups, companies, and government organizations; live in their own world, pursuing passions like listening to music, reading books, cooking, and exercising. They equip themselves with many survival and independence skills but inevitably feel lonely because they really have little connection with family and society. The main characters in H. Murakami's works are ordinary people, if not quite bland in society. The narrator (boku) in the novel *A Wild Sheep Chase*, before embarking on a strange journey to find a sheep with a star on its back, is introduced as a bachelor working for a small private advertising company, always busy in the office with advertising photo contracts. T. Okada, the protagonist of *The Wind-Up Bird Chronicle* [4], is unemployed, his wife left and then sent him a divorce petition in absentia, asking him to sign without meeting again. The portrait painter protagonist who undertakes the journey in *Killing Commendatore* [5] was originally a poor painter, after being abandoned by his wife, he lives alone in a rented house with little income from portrait painting work, while also teaching drawing classes locally. H. Murakami's main characters not only have unfortunate and loss-filled lives, but are sometimes self-described as tasteless, colorless and without identity. *Colorless Tsukuru Tazaki and His Years of Pilgrimage* - the name the author gave to one of his novels - reflects the accurate characteristic spirit of the young generation in modern Japanese society with a sense of alienation, lack of identity, lack of real meaning in life, not knowing where to go in a lonely life full of losses in an irrational society with many changes. If judged by the criteria set by Japanese society, H. Murakami's main characters would sometimes belong to the group of losers, pushed out of the huge industrial machine - where only efficiency and economic benefits are valued. Japan is a country with a modern economy and strong digital technology development. The fierce competition to chase efficiency to maintain such a huge economic machine has turned people into emotionless machines, existing as "screws" in the system and sometimes being swallowed up by the system itself. From this perspective, H. Murakami's main characters show an attitude of resistance to automation and herd mentality in Japanese society when they tend to oppose, even completely detach from groups and systems in society that stifle life and individual freedom. So, the question here is what people will do after detaching from the system? Can they still exist and find true freedom for themselves or will they be lost in the system itself? This is also the fundamental issue that H. Murakami always poses in his huge fictional novels to find the answer - the destination of the main character's journeys. Will H. Murakami's main characters be swallowed by the system, depriving them of freedom and meaning of life or will they become "heroes" with their own path - as the author said: my characters are "heroes seeking the right path in this chaotic world".

To measure human endurance and limitations, H. Murakami conducts experiments on his main characters. The author lets them follow the call to embark on strange journeys, forcing them to fully reveal their latent potential that has not yet been fully discovered. All those small, ordinary people have a common script: they are suddenly pulled out of their everyday world, thrown into a "Kafkaesque" situation. They embark, take action and face their fate as heroes in stories and myths that J. Campbell mentioned. Kafka, the young hero, the "toughest teenager" in the novel Kafka on the Shore; T. Okada of *The Wind-Up Bird Chronicle* [6] or the employee of a small private advertising company in *A Wild Sheep Chase*, the portrait painter in *Killing Commendatore* [5] and the mathematician in *The Accidental Kingdom*... are all characters who embark, take action, embark on their fateful journey, face unpredictable situations, accomplish difficult tasks that cannot be refused. Indeed, difficult tasks are always the starting point of the journey to seek and discover the fate and world of all heroes. Without challenges, heroes cannot embark on the battle, in order to accomplish their noble mission.

Overall, H. Murakami's main characters in the first stage of their journey go through events that align with J. Campbell's monomyth model. Specifically, they listen to the call to action and embark on their journey rather than refusing the difficult task at hand. For H. Murakami's characters, accepting the call and facing the challenges of the journey is the virtually inevitable choice, as there are no viable alternatives.

After the first stage, the main characters in H. Murakami's novels continue into the second stage - experiencing unexpected challenges and undergoing initiation rites in the difficult journey. When they enter another world, they meet strangers or meet their own parents again; they go through the strange events of initiation rites similar to the journey model of hero J. Campbell.

In Murakami's novels, there are many types of "other worlds" where the main character goes and experiences the second stage of the journey. That world is not just another place on earth but sometimes an unfamiliar place underground - an underground world existing right under Japanese megacities. That world is not just physical space but also a metaphysical space of consciousness. As in the novel *Killing Commendatore* [5], the mathematician enters another world called "the end of the world" - in fact it is his subconscious world, encoded by himself. Therefore, when the mathematician enters this world, he enters the darkness of his unconscious, exploring memories and dreams that he has lost. H. Murakami also often creates a special intersection between different spatial and temporal modes in his works: reality - surreality, consciousness and unconsciousness, past and present... And at these intersections, at special moments of intersection, the main characters perform special, extraordinary actions or experiences. In other words, the main characters are often transcended in space, time, experiencing moments of revelation, seeing the essence of existence and the world.

It can be seen that in the second stage, H. Murakami's characters also go through special events similar to J. Campbell's model events. For example, the main characters embark on the *Road of Trials* and complete Initiation *(Complete the Initiation)*. The mathematician in *Killing Commendatore* [5] had to live in the darkness of his unconscious until he was completely immersed in his own shadow. The portrait painter in *Killing Commendatore* [5] ventured into the dark cave under the ground to rescue his student. T. Okada in *The Wind-Up Bird Chronicle* [4] went down to the darkest place in the well alone to understand his own darkness, then decided to rescue his wife Kumiko and help those around him out of the darkness of their lives. The narrator (boku) in *A Wild Sheep Chase* went to the cold land of Hokkaido to find his missing friend and find the sheep with a star on its back - a symbol of evil that steals the souls and minds of others, including his friend the Rat. And we cannot overlook Kafka's special journey to escape his cruel father's curse and save his own wounded soul. All of H. Murakami's characters, in the sense of their actions, can be considered heroes because they fight not only for themselves but also for others. If in myths the hero embarks and acts to protect and rescue the community, then in H. Murakami's postmodern novels the hero first fights for himself to solve his personal problems. Before there is a sense of community and fighting for great things, H. Murakami's main characters - heroes must understand their own pain and find solutions to their personal fate. This is the difference, also the interest and uniqueness in the journey and mission of the hero in H. Murakami's novels. And in that journey, along with maturity, through initiation, they achieve a double result: saving themselves and helping the community and those around them.

In the second stage of the journey of characters in H. Murakami's novels, we also see the appearance of the hero meeting the goddess element/event (Meeting with the Goddess). These women often have special abilities to support the hero in overcoming the difficulties they face. The role of female characters in the journey of H. Murakami's main characters cannot be denied. They often appear at important times, playing the role of the right-hand person, an effective and efficient supporter for the success of the journey. In *A Wild Sheep Chase*, the main character has to rely on the special ability of the girl with beautiful, alluring ears and extrasensory ability to help him find the Sheep and accompany him to Hokkaido. T. Okada in *The Wind-Up Bird Chronicle* [4] also met some important women who influenced his key decisions, such as the young girl K. May or N. Akasaka - the middle-aged woman with special abilities who will later share with him the strange story of herself. In the novel *Hard-Boiled Wonderland and The End of The World* [2], in either world, the mathematician is guided and guided by special girls: the pink girl, the professor's granddaughter guides him down to the secret laboratory to avoid the black ghosts; the girl working at the library of "the end of the world" plays the role of preserving and guiding him to read the lost dreams. Even in H. Murakami's novels, sometimes the female protagonist is directly involved in the initiation ritual - or the rite of passage, helping the hero transform his power and enter another world. This is the case of Miss Saeki when she plays the role of both the one who needs to be healed and the one who heals Kafka when she performs the baptism ritual, dissolving the terrible curse, helping Kafka complete the initiation before returning to his own world. Thus, although the female characters are minor characters, functional characters, their importance in supporting the hero in overcoming challenges and completing his initiation cannot be ignored.

At the end of the journey, after undergoing initiation rituals and enlightenment experiences (whether in reality or symbolically), H. Murakami's heroes have to make a choice between returning or staying - refusing to return to the old world. Out of the 5 novels surveyed, only one novel has the hero choosing not to return to the old world (refusal of return) - that is the mathematician character in the novel *Hard-Boiled Wonderland and The End of The World* [2]. But in fact, staying in "the end of the world" is for the mathematician to continue the journey to regain his lost shadow, memories and self in the world he himself created. Ultimately, this decision is an act of self-responsibility, facing oneself. The other four main characters in the four other novels - Kafka in *Kafka on The Shore*; the narrator in *A Wild Sheep Chase*; the portrait painter character in *Killing Commendatore* [5]; and T. Okada in *The Wind-Up Bird Chronicle* [4] - all choose to return to the old world (return). Among these heroes, we see that three out of four (the advertising agency employee character, the portrait painter character and T. Okada) have achieved results that affect the fate of others around them. The nobility and significance of their struggle is further heightened by H. Murakami skillfully connecting the private story of the hero with important issues related to the past, history of a land or the Japanese nation. From there, their lives become more meaningful and steadfast when they have rooted and connected with the vast and broad life... In other words, the experiences on that journey have awakened not only their inner strength but also their historical roots and national identity that they have lost before.

The constant construction of the endings of journeys is for the main characters - heroes to return to ordinary life after experiencing pain, facing the dark past of individuals and the nation with a new awareness of personal responsibility in connecting with the community and society. This also reflects H. Murakami's maturity and commitment as a writer who always orientates towards the nation, as J. Rubin noted: *"Both writers (O. Kenzaburo and H. Murakami) explore questions of memory and history, legend and storytelling, and both continue to probe the dark forest of feeling to find who they are as individuals, as citizens of the world, and as Japanese"* [7].

Therefore, from analysing the characteristics of the three-stage journey of H. Murakami's heroes in the novel, we can see the transmission and similarities with J. Campbell's monomyth model. From this we can see that although H. Murakami's novels are postmodern stories, they seem to be systematic and inherit unique elements of autobiographical storytelling from mythological hero journey stories, in terms of narrative structure and character traits (archetypal hero).

4. Haruki Murakami novel's protagonist as the hero - Zen practictioner

In his work, J. Campbell demonstrated that Buddha is a typical example of a hero - a Zen master. What distinguishes an ordinary hero from a hero - Zen master in literature? The difference lies in the results and ultimate goals of a journey, when the hero achieves spiritual enlightenment and can master both the human and spiritual worlds. This enlightenment helps the hero achieve the super-ego - what Jung calls the Self archetype in his model of the human psyche. The difference between Western epic heroes and Eastern epic heroes (Indian epics Ramayana and Mahabharata) is also in this direction: while Western epic heroes are emphasised in the spoils they gain after battles (opponent's head, wealth, kingdom, beauty), the most meaningful victory of the five Pandava brothers in the great epic Mahabharata is self-conquest, relinquishing the ego to achieve spiritual liberation (Moksha).

H. Murakami's novel characters are also built with characteristics like Eastern epic and mythological heroes. A common feature of H. Murakami's main characters is that in their adventures, they often undergo special metaphorical events such as meditation, entering the inner world (unconscious) and experiencing enlightenment states as in initiation ceremonies commonly seen. This also helps readers identify H. Murakami's main characters. The initiation ceremony or investiture of H. Murakami's characters often occurs before they are reborn into another world or return to the real world - the world they have long left. The narrator character in *A Wild Sheep Chase*, after all the strange events in Hokkaido, 'purifies' his body and mind in the simplest way by taking a bath before returning to Tokyo. In all novels, Miss Saeki's purification ritual (*Kafka on the Shore*) with Kafka - her (possible) son - is the most special. Saeki's act of bleeding herself and then letting Kafka drink her blood reminds readers of ancient rituals where humans used blood for purification in sacred ceremonies of primitive communities in many different cultures around the world. R. Thakur, et al. (2020) [8] believed: *"She commits the taboo of sleeping with her 'supposed' son. As she renounces her earthly life, she stabs a hairpin in her arm and lets Kafka drink her blood in lieu of the milk a mother provides to her offspring. The ritual absolves her and purges Kafka of the toxic blood he has inherited from his father. He accepts the taboo relationship, completes the prophecy and ultimately empathises and forgives her"*.

To prepare for the initiation ritual of heroes, H. Murakami often creates a special space in his novels: a dark cave, a basement or a secret underground world beneath the ground... The cave in H. Murakami's novels is not only a physical space where the main character's adventures take place but also a spiritual space connected to the characters' journey into the depths of consciousness. It reflects the complex, multi-layered nature of the human psyche. The cave is the shadow of the unconscious - the spiritual reality, containing fears, repressed feelings and "personality masks" in humans. The cave image in H. Murakami's novels plays the role of an archetype meaning the center of energy of the world, where transformation and rebirth occur. The main characters in the novels, before achieving 'enlightenment' and awakening the inner world to reach the stature of heroes, must enter dark caves, tombs or deep wells. In *The Wind-Up Bird Chronicle* [4], Toru entering the dry well in the abandoned house, which can connect him to the past, is a symbolic act: entering the inner world to connect with his unconscious. And each time entering the world of darkness under the well, he almost gets closer to the "crux" of the problem, understanding the deep reasons why his wife Kumiko left for the stories of the past related to N. Akasaka and C. Akasaka. Sitting under the dry well, Toru first feels a clear physical change as he notices the bruise on his face starts to heat up. Then comes spiritual transformation when he feels the darkness inside and outside merging. Toru begins to leave himself to go to another world. After the symbolic initiation ritual, Toru returns to the real world on the ground with the attitude of one who has seen through the layers of consciousness and found the solution to his problem: rescuing Kumiko. In *Killing Commendatore* [5], the cave space - where the journey takes place - is an ancient tomb that the portrait painter accidentally discovered and entered. The ancient tomb was where Japanese Buddhist monks practised nyuudou, an ancient Buddhist initiation ritual to achieve "enlightenment" in the form of mummification (overcoming the boundary of life and death) to become a living Buddha. This ritual was practiced for a long time in the history of Japanese Buddhism until the Meiji period when it was banned. The painter was able to connect with the past and understand the secret of the famous painter Amada - the owner of the mountain house where he is living - after experiencing the strange journey in the darkness of the cave he discovered when going down the stone cellar.

Thus, in H. Murakami's novels, the cave really means the center of energy where heroes, through the "initiation ritual", transform their spiritual energy and gain supernatural power before returning to the real world. According to J. Campbell, once heroes have overcome all challenges and decided to return to the world, they will become those who can connect the two realms. At that time, the hero possesses a mysterious and especially the ability to master two worlds: the human realm and the spiritual realm. He is called the "master of the two worlds": "Freedom to pass back and forth across the world division, from the perspective of the apparitions of time to that of the causal deep and back-not contaminating the principles of the one with those of the other, yet permitting the mind to know the one by virtue of the other - is the talent of the master" [9]. In H. Murakami's novels, the function of connecting the two worlds of the hero - the Zen master - has also been established and demonstrated. The main characters, after the journey of challenges, have acquired a kind of superpower that allows them to move between the conscious and unconscious mind and sometimes even cross the boundary of physical space and time. At that time, the existence of heroes not only had personal meaning for them but also carried greater values and could affect the whole community. J. Rubin saw the transformation of the character Toru (*The Wind-Up Bird Chronicle*) and called this character a cultural hero: "*Toru launches his quest inwards. He goes down into the earth, into a well, to brood on his past. What he finds there has implications that go far beyond his own inner world. As his young friend May Kasahara tells us (almost too directly), in choosing to fight for his wife Toru will become a kind of culture hero, fighting battles not only for himself as an individual but "fighting for a lot of other people" as well. In trying to find out who he is, Toru discovers elements of his identity that have wide-ranging cultural and historical significance"* [7].

Thus, the heroes - Zen masters of H. Murakami, after the journey, have found spiritual power and more genuine and intimate joys and pleasures closer to life. Happiness and things they lost before sometimes also return to them. And most importantly, they find true freedom (freedom to live) in their lives. This freedom means something different from lonely and alienated freedom, detached from society and responsibility as before. They attach themselves to the lives of others, of the community - as a true hero can fight not only to change oneself but also to change the lives of those around. In this very human sense, H. Murakami and his fictional adventure stories have value in inspiring the spirit of young lonely and lost people who are detached from society and cannot yet awaken their inner strength. The choice to become a hero or become a fool, not finding true happiness and high noble values - that is entirely within the possibility of each of us. Murakami's typical of hero - Zen practitioner protagonist has contributed to demonstrating the unity of the his perspective on the meaning of the writer's storytelling activity: The artist must face the shadow, must go through his dark inner tunnel. Telling a story is the process of the Japanese writer facing his own shadow to heal his own problems, as he wrote: "*When I write novels myself, as I pass through the dark tunnel of narrative I encounter a totally unexpected vision of myself, which must be my own shadow. What's required of me then is to portray this shadow as accurately, and candidly, as I can. Not turning away from it. Not analyzing it logically, but rather accepting it as a part of myself. But it won't do to lose out to the shadow's power. You have to absorb that shadow, and without losing your identity as a person, take it inside you as something that is a part of you. You experience that process together with your readers. And share that sensation with them. That's one of the vital roles for a novelist*" [6].

5. Conclusions

The main character - the hero in H. Murakami's novels has the characteristics of the archetype of the hero, appearing in all the author's novels and creating his own style of storytelling. Reading H. Murakami's novels and examining the characteristics of the main character from the perspective of J. Campbell's theory of the hero's journey, we have two conclusions: (1) Through the fate journey of the main characters, H. Murakami's works have reflected the realistic state of mind of modern Japanese people: people with deep spiritual wounds, the collapse of belief in traditional values; being discarded from the political, economic and educational machinery; feelings of emptiness, anxiety and loss of identity in an irrational, chaotic and constantly changing world. (2) The type of main character as heroes - Zen masters in H. Murakami's novels reveals the author's proposed solution to Japan in dealing with and healing the psychological wounds of Japanese people after World War II and the period of rapid economic development, when people are facing many intractable problems in finding solutions to existence. Clearly, the solution is the lesson of facing one's own darkness, personal and national darkness to understand and self-heal. Only by going through the unconscious darkness can people sincerely face and resolve personal pain. The new contribution of this assessment is identifying a typical archetypal character in H. Murakami's novels: hero - Zen practitioner. This is a new discovery that results from approaching H. Murakami's novels by J. Campbell's hero's journey monomyth.

CRediT author statement

Thi Mai Lien Nguyen: Conceptualisation, Writing; Bich Nha Truc Nguyen: Writing - Original draft preparation, Reviewing, Editing.

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] H.W. French (2001), "Seeing a clash of social network; A Japanese writer analyzes terrorists and their victims", *The New York Time*, https://www.nytimes.com/2001/10/15/arts/seeing-clash-social-networks-japanese-writer-analyzes-terrorists-their-victims.html, accessed 11 February 2023.

[2] H. Murakami (2009), *Boiled Wonderland and The End of The World*, Penguin Random House, 416pp.

[3] H. Murakami (2011), *A Wild Sheep Chase*, Vintage Books, 356pp.

[4] H. Murakami (2007), *The Wind-Up Bird Chronicle*, Vintage Classics, 624pp.

[5] H. Murakami (2018), *Killing Commendatore*, Harvill Secker, 704pp.

[6] H. Kawaii, H. Murakami (2016), *Murakami Haruki Goes to Meet Hayao Kawai*, Daimond Verlag, 160pp.

[7] J. Rubin (2002), *Haruki Murakami and The Music of Words*, The Harvill Pub, 328pp.

[8] R. Thakur, V. Khurana (2020), "Privileging oddity and otherness: A study of Haruki Murakami's Kafka on the shore", *Rupkatha Journal on Interdisciplinary Studies in Humanities*, **12(5)**, DOI: 10.21659/rupkatha.v12n5.rioc1s6n2.

[9] J. Campbell (2004), *The Hero with A Thousand Faces*, Princeton University Press, 464pp.

DOI: 10.31276/VMOSTJOSSH.2023.0075

Southern culture in Ca Van Thinh's research

Sy Dong Le*

Thu Dau Mot University, 6 Tran Van On Street, Phu Hoa Ward, Thu Dau Mot City, Binh Duong Province, Vietnam

Received 17 October 2023; revised 22 April 2024; accepted 27 May 2024

Abstract:

This study focuses on clarifying those good memories in the image of Southern Vietnamese people, the history of struggle in the South, and the beauty of Southern poetry. Using the survey method, we review Ca Van Thinh's articles in journals, research works, as well as Ca Van Thinh's posthumous records from before 1945 to after 1975. Using the analytical method, the author delves deeper into the main contents of Ca Van Thinh's research. Using the synthesis method, we summarize the typical contributions of Ca Van Thinh in the study of Southern culture. From the research results, it has been shown that in his research works on Southern personalities, history, and literature, Ca Van Thinh has pointed out that Southern people - vivid symbols of the behavioural culture of Southern people; Southern history - an indicator of the tendency to build culture attached with patriotism; Southern literature - a database showing the characteristics of popular culture in the South. From there, we hope to once again affirm the contributions of Ca Van Thinh to the study of Southern Vietnamese culture. At the same time, the author clarifies Southern cultural characteristics in the research of a Southern intellectual.

Keywords: **Ca Van Thinh, Southern culture, Southern intellectuals, Southern literature.**

Classification numbers: **9.3, 10**

1. Introduction

In their book *Culture: A Critical Assessment of Concepts and Definitions*, A.L. Kroeber, et al. (1952) [1] cite 164 definitions of culture, including "learned behaviour", "ideas in the mind", "logical structure", "mental defence mechanisms", and "spirit", among others. These definitions illustrate that the concept of culture varies according to the research direction of the discipline. In this article, we define culture as the attitudes and behaviours of humans towards nature and social circumstances.

To date, various aspects of Southern culture have been studied from multiple perspectives, revealing many previously hidden elements of the spiritual life of Southern people. Research efforts have not only highlighted the unique characteristics of the land and its inhabitants but also made recommendations for preserving and promoting its inherent values. Examples of such research include: *Southern Culture in Southeast Asian Social Space* (2000) [2]; Ho Ba Tham's *Southern Cultural Issues and Developments* (2003) [3]; *Characteristics of Southern Folk Cultural and Artistic Heritage* (2004) [4]; Vu Van Ngoc's *The South Viewed from Culture, Literature, and Language* (2011) [5]; Vo Van Thanh's *Southern Culture through The View* (2013) [6]; *Folk Culture in The South* (2014) [7]; Ho Ngoc Mai's *Southern Culture and Language* (2015) [8]; *The South: Land and People* (2017) [9]; Nguyen Huu Hieu's *Rivers and Waters in Southern Cultural Life* (2017) [10]; Tran Duc Hung's *Local Words in Southern Folk Poetry* (2019) [11]; and *Southern Ecology and Culture in Vietnamese Literature* (2022) [12]. From these works, it is evident that Southern culture is a "living existence" in the process of acculturation, integration, and acceptance of differences.

Ca Van Thinh (1902-1987) was a prominent Southern figure of the 20th century. He spent nearly 20 years (1928-1945) as the school director of Ben Tre province. After 1945, he held numerous important positions in the revolutionary government, such as Acting Minister of Education, Consular Representative in Indonesia, and director of the Social Sciences Library. Alongside his revolutionary career, he

*Email: dongls@tdmu.edu.vn

consistently researched the cultural heritage and history of the South. From the 1940s onwards, Ca Van Thinh published numerous cultural and historical research articles in *Dai Viet Magazine* and *Tri Tan Magazine*, such as *Confucianism in Dong Nai* [13], *De Thien Temple with Our Ancestors* [14], and *Minh Bot Di Ngu - One Book, Two Groups of Writers* [15]. He continued to write about Southern writers and intellectuals like Ho Huan Nghiep, Phan Van Tri, Mac Thien Tich, Trinh Hoai Duc, Vo Truong Toan, Dang Duc Thuat, Ngo Nhan Tinh, Le Quang Dinh, Nguyen Thong, Huynh Man Dat, Tran Thien Chanh, and Nguyen Dinh Chieu through works such as Nguyen Van Thoai with *Thoai Ha River Digging and Vinh Te Canal* [16], *Nguyen Huu Huan's Life and Career* [16], *Dinh Chieu's Life and Career* [17], *Remembering Two Teachers Vo Truong Toan and Nguyen Dinh Chieu* [17], *Thoughts on Southern Literature History and the North - South Relationship* [17], *Translation about Nguyen Thong* [16], and *Dong Nai's Magnanimity* [18]. A close reading of these articles reveals that Ca Van Thinh reconstructed the lives of historical figures who significantly influenced the cultural development and character of Southern people. These research results laid the foundational "bricks" for later academic research on Southern culture. With his contributions, "Ca Van Thinh became a pioneering Southern researcher with modern perspectives and research methods" [17]. This is why the author chose Ca Van Thinh's research to re-identify the characteristics of Southern culture.

2. Southern culture in Ca Van Thinh's research

2.1. Southern notable people - vivid symbols of the behavioural culture of Southern people

Cultural research involves studying human behaviour, language, and attitudes towards the natural and social world. Therefore, understanding the culture of a country, region, or people is best achieved by getting to know its inhabitants.

Ca Van Thinh began to research Southern memories by observing and documenting the behaviour of Southern people, particularly notable Southern individuals. His published and posthumous works include numerous articles on figures such as Vo Truong Toan, Nguyen Dinh Chieu, Dang Duc Thuat, Trinh Hoai Duc, Le Quang Dinh, Ngo Nhan Tinh, Huynh Man Dat, Tran Thien Chanh, Ho Huan Nghiep, Phan Van Tri, and Nguyen Huu Huan. Through these articles, he allows readers to perceive the unique culture of the South.

For Southern people, respecting those who are virtuous and intellectual has always been a priority. This respect is not merely conveyed through oral traditions or moral explanations but is demonstrated through concrete actions in everyday life. For instance, Vo Truong Toan, a patriotic scholar, was highly respected by the people of Saigon for his virtue. After the French army occupied three provinces in the Eastern South, patriotic scholars and righteous armies decided to move his grave from Hoa Hung to Bao Thanh (Ben Tre), a location not yet occupied by the enemy, to honour his legacy and prevent the French colonialists from tarnishing his reputation. Similarly, Nguyen Trung Truc (Nguyen Van Lich/Nguyen Lich), a peasant hero, is revered by the southern people. The image of Nguyen Trung Truc has been praised and immortalised in poetry by intellectuals and writers. For example, Huynh Man Dat wrote:

The loyal man whose reputation lasts forever,

The vile man died slowly in shame [19].

Or Truong Gia Mo wrote:

The devil's face is white

Afraid of the fisherman

Brave instead of the patriot

Nhat Tao burned an enemy ship

Kien Giang destroys the enemy post [19].

In the book *Ky Xuyen Van Sao*, Nguyen Thong praised Nguyen Van Lich: *"The man is deep and steadfastness, brave spirit* [17]*"*.

Another point is that through the community's behaviour with notable men, and the behaviour of notable men with different social classes, Ca Van Thinh further shows that Southern people value fairness and equality. The foundation for establishing that fairness and equality comes from the "Tri ngôn dưỡng khí" [To know the meaning of speech, to nourish morals] education. They focus on human moral cultivation as the foundation, taking the interests of the people and national benefit as the course of action. Through the words of Nghe Chieu [17], we see that Southern people set an example of Vo Truong Toan's educational style: If you want to foster loyalty, bravery, and heroism, teachers and students must work together to "báo nghĩa" [do virtuous acts], from "nghĩa nhỏ" [small virtues] (honouring one's parents) to "nghĩa lớn" [loyalty to the country], to accumulate more virtue in the person. They would "lập nghĩa" (foster virtue) three times a week each month (in Southern Vietnam in the past, each week had 10 days) […] Through doing virtuous acts and fostering loyalty and courage, teachers and students remind each other of "tri ngôn", knowing the correct words of the person they are communicating with, whether they are honest or deceitful, because life experiences include deviations (blasphemy), fornication (deceit), deception (false words), and lies that avoid the truth (slanderous words). It is also from Vo Truong Toan's spirit of "trọng nghĩa" [respecting benefaction] and "Tập nghĩa" [doing virtuous acts] that Nguyen Dinh Chieu [17] chose his lifestyle, and wrote:

Transporting righteousness, but the boat will not be sunk,

Writing about treacherous, also the pen is not frayed.

Thus, in the face of righteous deeds, everyone (regardless of social identity and status: teacher or student) must always cultivate to preserve their virtue. When everyone has maintained their virtue, they will be an example for the community to respect and follow; they become a bright spot to exemplify the community's lifestyle.

Moreover, Southerners clearly show contempt for acts that go against national interests and the wishes of the community. A typical example is Nguyen Dinh Chieu's response [17]: "*If the king's land was robbed, my private land was without regret*", when the governor of Ben Tre province, Ponchon, wished to return the fields and gardens to Nguyen Dinh Chieu and patriotic scholars.

The case of Ton Tho Tuong, originally a confucianist, famous for being an excellent student and a good poet, whose family served as mandarins for the Nguyen dynasty for generations, is telling. Despite his poetry being admired by everyone, when Ton Tho Tuong collaborated with the French colonialists, he was immediately condemned and despised by the people through replies to their poems. Southern patriotic poets like Phan Van Tri and other confucians clearly expressed their disdain for Ton Tho Tuong [19]. Their poems condemned him as a "stupid person", "sitting at the bottom of a well", "foolish in old age", "a person with no dignity", and "a person who has lost honour."

For King Tu Duc, the elders in Can Tho told the story of Cu Tri drinking blood and eating "càng đước" (cang duoc is the name of a type of turtle). According to folklore, this story happened as follows: One day, Phan Van Tri caught a big turtle. He invited his friends to eat the turtle meat. While drinking, he extemporaneously composed the poem "phú" (phú is a literary genre):

Eat turtle's meat

Cut off the cang duoc's head

Drink the cang duoc's blood

Tear the cang duoc's body

Eat the cang duoc's meat

The evidence outlined above demonstrates that the behaviour of Southern people is very distinctive. While intellectuals are typically respected by society, and the patrician class often instils fear, in Cochinchina, this was not necessarily the case. To be respected by the community, one must first possess morals, followed by intelligence and social class. Thus, Southern people not only value gratitude but also promote good deeds, creating equality in community relations - equality rooted in the spirit of virtuous action.

2.2. Southern history - An indicator of the cultural tendency towards patriotism

As previously stated, the reason Southern people are attached to community interests, equality, and ethical standards is recognised by the community. But where do these common standards and interests originate?

Ca Van Thinh's research shows that this foundation stems from patriotism. For Southerners, patriotism is not merely empty slogans nor is it tied to a specific king, family, or court; it is linked to the consciousness of expanding, building, and protecting the territory, along with the traditional cultural values of the nation.

A typical example is Truong Dinh's behaviour [17]. In a time when feudal behaviour was still constrained, he dared to prioritise the country's fate over the king's command and stood up against foreign invaders. Therefore, Truong Dinh was honoured by the masses and the righteous as the Great Marshal of Binh Tay.

In addition to Truong Dinh, there is also Ho Huan Nghiep [17]. When Ho Huan Nghiep followed Truong Dinh in an uprising in Go Cong, someone asked him upon his return home: "Can Truong Dinh' suprising succeed?" He replied: "People who do righteous deeds do not count success or failure." Before being executed by the enemy, he washed his face, fixed his towel, and leisurely recited four verses of poetry before being beheaded:

I see a righteous cause, don't dare to be indifference,

Be a loyal and filial boy.

This body dies without regret,

Only compassionate my old mother with gray hair.

Nguyen Thong, with his respect for the heroes, wrote:

"Since the enemy caused upheaval in Luc Province, intellectuals and people risked their lives to stand up and bravely accept death, which is unspeakable, like Do Trinh Thoai in Tan Hoa, Nguyen Lich in Tan An are all brilliant examples. As for the faraway villages and alleys, there were the warrior's wife and the virtuous women who were not dishonored. They fought the enemy to the death. I personally know of more than a dozen people" [19].

Patriotic scholars such as Nguyen Dinh Chieu, Phan Van Tri, and Huynh Man Dat pioneered the "tị địa" [local moving] to move from the Eastern provinces to the three Western provinces.

The patriotic and anti-enemy actions of patriots and intellectuals have set an example in the lifestyle and awareness of patriotism among the people. This foundation of cultural values takes patriotic traditions as a direction for practice and development. Alongside patriotic heroes and scholars, Southern farmers also spontaneously fought the enemy, despite the court ordering the army to withdraw. These farmers, out of love for righteousness - and righteousness here is attached to the national cause, as described in "Văn tế nghĩa sĩ Cần Giuộc" by Nguyen Dinh Chieu [20].

Then in 1885, there was a "Hội kín" [Secret Assembly] in Eighteen Vuon Trau Village, Hoc Mon, led by Nguyen Van Buong and Phan Van Hon (Quan Hon), who attacked Saigon, killing Governor Ca (Tran Tu Ca). Even though Nguyen Van Buong and Quan Hon sacrificed their lives, the struggle movement continued to spread to Cho Lon and Go Cong.

These explanations, along with the traditions and cultural character associated with the patriotic traditions of the Southern people, are evident in Ca Van Thinh's works such as: *Looking Back at The Traditional Morality of The Southern People*, *The Struggle Movement of The People of Luc Tinh during The First Period of Invasion by The French Army*, *Over Many Years Our City Was a Battlefield against Foreign Invaders*, *Mac Thi's Genealogy and The Battle of Rach Gam - Xoai Mut*, *Hoc Mon Uprising* (1885) or the *Tyrant Must Pay for His Crimes*, *From The Ancient Cultural Relationship to The Solidarity of The Vietnamese - Khmer Struggle to Defeat The American Invaders* [20].

From these works, we see another aspect of Southern culture associated with patriotism, not only in the fight against foreign invaders but also in creating productive spaces, and openness to receiving, acculturating, and interacting with other cultural streams. For example, Nguyen Van Thoai, who was credited with digging the Thoai Ha canal, had his name engraved on the epitaph at Thoai Son mountain: *"The mountain is beside the capital, more than 10 trượng [Trượng is same 4 meters], with a circumference of 2,478 tầm [Tầm is same 2.3 meters; Looking out at the blue-green colour, vertiginous. The plants are moving like dragons playing in the water, as if phoenixes are dancing on the river, that wonderful scene, if it weren't for the creator who would have made it? Since ancient times, that scene has been mysterious, few people have gone there. The day, he finished digging the canal and presented the map to the king, that was also the day of the strange-meet with nature! The king issued an edict making the name Thoai Ngoc, the famous "Thoai Ha" for the Dong Xuyen canal, to record the old god's merits…"* [16].

Thus, people who have contributed to building mountains and rivers can have those places named after them. This is also a meaningful deed that Southerners do for those who have contributed to the country.

In the article "De Thien Temple for our Ancestors" (*Angkor Wat - Angkor Thom for our Ancestors*) [14], Ca Van Thinh explored the discovery of Angkor Wat - Angkor Thom by the Vietnamese people. He addressed the scepticism of both himself and archaeological researchers on the question: Did the Vietnamese or the French discover Angkor Wat - Angkor Thom? By relying on passages from "Việt sử thông giám cương mục khảo lược của Nguyễn Thông" (*Nguyen Thong's Viet Su Thong Giam Outline*) and poems by Trinh Hoai Duc, such as "Khách Cao Miên quốc kí hoài Diệp Minh Phụng" (*Being a Guest in Cao Mien Remembers Diep Minh Phung*) and "Kí Huỳnh Ngọc Ẩn - Hối Sơn Chân Lạp thành" (*In Chan Lap Citadel, Remember Huynh Ngoc An - Hoi Son*), he demonstrated that it was the Vietnamese who first discovered Angkor Wat - Angkor Thom, not the French. Moreover, from Trinh Hoai Duc's poems, Ca Van Thinh showed the relationship between Vietnam and Khmer and the acceptance of Khmer culture by the Vietnamese.

At this point, we can conclude that patriotism is a significant factor influencing the behaviour of Southern people, rather than the Confucian academic education style and feudal ideology imposed on them. In Ca Van Thinh's writings about notable men, Southern history also reflects the pride of posterity in the achievements and spiritual heritage of their ancestors.

2.3. Southern literature - A database reflecting the characteristics of popular culture in the South

When Ca Van Thinh was the Provincial Education Officer of Ben Tre, he expressed his concern: *"This post-educated person worries intently that: 'this little literary granary' is not enough to provide spiritual 'food' for all civilians. Therefore, I exerted my small energy to find and collect every seed, every flower in the coastal fields and cross-fields of the Six Provinces of Southern*" [21]. With this spirit, Ca Van Thinh was dedicated to collecting literary works that are not only valuable linguistically but also in expressing the unique characteristics of Southern culture.

Of the ten "Lý" songs Ca Van Thinh collected, eight reflect the behaviour associated with "river-folk" culture - openness and following nature. For example, the song "Ly Tang Tinh" portrays a girl who is relaxed in her work. She is not impatient with the "Con nước" [tide] but sees it as an inevitable natural phenomenon, accepting the natural law of the water's rise and fall, and waiting for the water to recede to catch fish and shrimp:

A ly tang tinh tang,

The green water flows around the rock,

I wait for the water to go down, catch fish, catch shrimp [21].

Similarly, the song "Lý Con Còng" [sand crab] presents a gentle perspective on the objective conditions of life:

The crabs lie curled up in the rocky hollow,

The wind downs the "còng" downs, the wind raises the "còng" too [21].

On the other hand, the song "Lý Cấy" [plant rice] affirms the sentimentality and straightforwardness of Southern women, who do not hesitate to express their feelings when away from their lover:

She returned to Giong Dua, through the fields, then the fields again.

The wind stirs the rice-field veer, it's a lonely sad, and sad for him - id.

The hand hold sheaf of corn, hire by day,

The hand hold sheaf of corn, my heart is sad and miss him [21].

That daring is shown even more clearly in the song "Lý áo vá quàng":

Dare any one to find the scales of a yellow catfish,

The liver of krill, how much it costs i am also buy. [21].

An intractable problem that baffles all who encounter it, but if the person receiving the challenge understands the hidden meaning, they will happily accept the challenge and win the challenger's heart. This reflects the Southern spirit, living in the "Uncle Ba Phi" cultural area.

In addition to the above songs, Ca Van Thinh also recorded proverbs that express the diverse viewpoints of Southern people on life phenomena. For example, the phrase: "*Chân cứng đá mềm"* [Strong and tough] illustrates the will and strength of pioneers exploring new lands; and *"Đoàn kết thì giàu, chia rẽ thì nghèo"* [United we prosper, divided we fall], highlighting the importance of solidarity for development. Other proverbs reflect a pragmatic attitude towards life: *"Của người phúc ta"* [rob Peter to pay Paul] and *"Được làm* *vua thua làm giặc"* [Success is never blamed]. These proverbs also show that Southern people prefer spiritual values over material ones, value a harmonious lifestyle, and are not prone to jealousy.

Moreover, Southern culture is also expressed in folk stories. Ca Van Thinh collected many stories that highlight the fidelity and resilience of Southern women. For instance, the story of *Ba Doi Om's Mountain* [21] recounts a farmer's newlywed wife waiting all year for news of her husband, who had gone to dig the Vinh Te canal. After finishing the harvest, she carried a pot of new rice on her head that she reaped, milled, and pounded it herself. She set out from a distant village, hoping to find her husband, only to learn he had died months ago. Exhausted by the pain and despair, hunger, and cold, she died standing on the mountain, her body turning into stone with the rice pot still carried on her head. The locals call this mountain Ba Doi Om mountain [mountain in That Son (Seven mountains)]. It is 251 m high, 1,200 m long, and 600 m wide, and located in the Tinh Bien district, An Giang province. This story not only praises the woman's deep love for her husband but also reflects the Southern people's respect for a faithful wife. Another story, The Story of *Nguyen Thi Ton*, narrates the courageous actions of a woman seeking to exonerate her husband [21]:

Bui Huu Nghia (Valedictorian Nghia), considered an upstanding individual, especially in his youth, after earning the highest marks on the prefectural examination (valedictorian), was appointed district chief in Tra Vang (Tra Vinh). However, because he allowed farmers to fish freely without paying taxes, he was sentenced to death by the Governor of Vinh Long province and had to stay in jail to wait for the king's approval. His wife, Nguyen Thi Ton, travelled to the Hue Court to submit a petition for his exoneration. The court granted amnesty to Bui Huu Nghia, appointing him to guard Vinh Thong encampment at the border to atone for his crimes. Upon her death, Valedictorian Nghia wrote to honour his wife: "Ngã chi bần, khanh độc năng trợ, ngã chi oan, khanh độc năng minh, triều quận cộng xưng khanh thị phụ" [I am poor, you are not criticised, I suffered an injustice, you cleared my name, everyone in the court and district said she was a truly worthy wife]. This story highlights Nguyen Thi Ton's loyalty and her efforts to save her husband, illustrating the image of a woman who values righteousness and fights for justice.

Similarly, the story of *Ba Tri Old Men* (Ông già Ba Tri) [21] recounts an elderly man persistently filing petitions to sue a tyrant who colluded with district officials to set up a new market, oppressing the people for profit. When his complaints to the district and province were ignored, *Ba Tri Old Men* took his petition to the imperial capital, raising a drum in front of the palace to file his indictment. Thanks to his efforts, people were able to trade again at the old Ba Tri market.

These stories demonstrate that the culture of righteousness is always present in the actions and behaviour of Southern people. That benefaction (việc nghĩa) is linked to community interests and familial relationships, often intertwined with social justice. It is through such righteous behaviour that the position and role of women are elevated, allowing them to influence society. Additionally, popular culture in the South reflects the belief in eliminating evil and restoring good. For example, the story of Thu Huong (Truyện Thủ Huồng) tells of a governor-general and specialist in lending and tax collection (Cai tổng) who, after a near-death experience, dreamt of being in the underworld with shackles awaiting him. Upon waking, he decided to do charitable deeds, building a raft house at the confluence of the Dong Nai and Saigon rivers, where many boats are parked awaiting high tide to row to Bien Hoa or Gia Dinh and home to a bamboo raft with a small hut on top to provide shelter from the wind and rain. The hut provides fish sauce, salt, rice, and water to travellers. This place became known as Nga Ba Raft House (Ngã Ba Nhà Bè). In summary, the belief in eliminating evil, restoring good, and choosing a community-oriented lifestyle characterises Southern people's behaviour. This belief influences their straightforwardness and intolerance of wrongdoing, coupled with their emotional and tolerant nature.

3. Conclusions

The above analysis confirms that Ca Van Thinh provides a clear explanation of Southern culture. He points out that one of the key factors shaping Southern culture is patriotism, along with living conditions associated with rivers. In this environment, Southern people live and act according to righteousness. This righteousness manifests in eliminating evil, believing in and worshipping good, and is evident in both social responsibilities and familial relationships. Moreover, this righteous behaviour is tied to the protection of territory, resistance against foreign invaders, and opposition to forces contrary to community interests. Through his research, Ca Van Thinh has not only reconstructed Southern cultural memories but also decoded the origins of Southern culture, thereby suggesting directions for research, preservation, and development of the good traditions and beautiful values inherited from our ancestors.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

REFERENCES

[1] A.L. Kroeber, Cl. Kluckhohn (1952), *Culture: A Critical Assessment of Concepts and Definitions*, Peabody Museum Press, 247pp.

[2] Many authors (2000), *Southern Culture in Southeast Asian Social Space*, Ho Chi Minh City Publishing House, 316pp (in Vietnamese).

[3] H.B. Tham (2003), *Southern Cultural Issues and Developments*, Hanoi Information Publishing House, 436pp (in Vietnamese).

[4] Many authors (2004), *Learn about The Characteristics Of Southern Folk Cultural and Artistic Heritage*, Social Science Publishing House, 532pp (in Vietnamese).

[5] V.V. Ngoc (2011), *South View from Culture, Literature and Language*, Social Science Publishing House, 555pp (in Vietnamese).

[6] V.V. Thanh (2013), *Southern Culture Through The View Of Son Nam*, Youth Publishing House, 202pp (in Vietnamese).

[7] Many authors (2014), *Vietnamese Folk Culture in The South*, Ho Chi Minh General Publishing House, 353pp (in Vietnamese).

[8] H.X. Mai (2015), *Southern Cultural and Language*, National Political Publishing House, 200pp (in Vietnamese).

[9] Many authors (2017), *The South: Land and People*, Vietnam National University Ho Chi Minh City Publishing House, 714pp (in Vietnamese).

[10] N.H. Hieu (2017), *Rivers and Waters in Southern Cultural Life*, Art Publishing House, 578pp (in Vietnamese).

[11] T.D. Hung (2019), *Local Words in Southern Folk Poetry*, Social Science Publishing House, 260pp (in Vietnamese).

[12] Many authors (2022), *Southern Ecology and Culture in Vietnamese Literature*, Vietnam National University Ho Chi Minh City Publishing House, 692pp (in Vietnamese).

[13] N. Xuyen (1943a), "Confucianism in Dong Nai", *Dai Viet Magazine*, **22 + 23**, pp.22-31 (in Vietnamese).

[14] N. Xuyen (1942), "De Thien Temple with our ancestors", *Dai Viet Magazine*, **2**, pp.7-14 (in Vietnamese).

[15] N. Xuyen (1943b), "Minh Bot Di Ngu - One book, two groups writer poem", *Dai Viet Magazine*, **12**, pp.6-13 (in Vietnamese).

[16] N. Xuyen (1943c), "Nguyen Van Thoai with Thoai Ha river digging and Vinh Te canal", *Dai Viet Magazine*, **28**, pp.1-6 (in Vietnamese).

[17] C.V. Thinh (2022a), *Southern Cultural Heritage View from Southern Famous Intellectual of The 18-19th Centuries Series 1*, Ho Chi Minh General Publishing House, 263pp (in Vietnamese).

[18] C.V. Thinh (1983), *Dong Nai's Magnanimity*, Ho Chi Minh General Publishing House, 410pp (in Vietnamese).

[19] C.V. Thinh (2016), *General Collection*, Ho Chi Minh General Publishing House, 860pp (in Vietnamese).

[20] C.V. Thinh (2022b), *Southern Cultural Heritage View from Southern History Series 2*, Ho Chi Minh General Publishing House, 271pp (in Vietnamese).

[21] C.V. Thinh (2022c), *Southern Cultural Heritage View from Southern Literature of The 18-19th Centuries Series* 3, Ho Chi Minh General Publishing House, 223pp (in Vietnamese).

Table of contents in 2024

16	Pham Van Thieu	The impact of sustainable human resource management on job performance: Considering the role of knowledge hiding.	**Business and Management (2.2)**	66 (2)	41
17	Nguyen Thi Xuan Hoa, Nguyen Duc Anh, Ngo Huu Quang, Nguyen Thi Huyen Trang	Analysis of multi-factors affecting resource consumption efficiency in Vietnam.	**Business and Management (2.2)**	66 (2)	50
18	Thi Bich Thuy Nguyen, Pisa Vongsila, Tran Bao Tran Nguyen	Determinants of tourism destination competitiveness in Savannakhet province, Lao PDR: A proposed model.	**Business and Management (2.2)** **Other Economics and Business (2.3)**	66 (2)	60
19	Nam-Khang Nguyen-Tri, Que-Nhu Duong	Relationship between environmental awareness and environmentally responsible behaviour in the hospitality industry: A literature review.	**Business and Management (2.2)** **Other Economics and Business (2.3)** **Sociology (4.1)**	66 (2)	72
20	Thi Minh Thuy Mai	The impacts of guest-host interaction in tourism from cultural differences approaches: Theoretical basis and management implications.	**Business and Management (2.2)** **Sociology (4.1)** **Cultural Studies (9.3)**	66 (2)	81
21	Truong Thi Thanh Canh, Tran Thanh Tan	How lecturers of English perceive hybrid learning at the tertiary level.	**Education Systems (3.1)** **Curriculum and Pedagogy (3.2)**	66 (2)	94
22	La Duy Tan, Phung Thi Thanh Xuan, Nguyen Trung Hiep	Enlightenment thoughts in Vietnam and Korea: Focusing on the thoughts of renovated education by Nguyen Truong To (1830-1871) and Yu Gil-Jun (1856-1914).	**Other Education (3.4)** **Political Science (5.1)** **History (8.1)**	66 (2)	105
23	Anh Thuy Dung Nguyen	Is the TRIPS Agreement a double-edge sword?	**Jurisprudence (6)**	66 (2)	114
24	Dang Nguyen Huong Trinh	School, family, and children's development in *Time Store* and *Be Friend with The Sky.*	**Literary Studies (9.2)**	66 (2)	121
25	Minh-Hoang Nguyen, Quang-Loc Nguyen, Phuong-Loan Nguyen, Tam-Tri Le, Xuan-Tuan Phi, Cong Thuong Phi, Quan-Hoang Vuong	How does the cognitive process of knowledge accumulation affect Vietnamese entrepreneurs' success likelihood: A mindsponge-based interpretation.	**Other Psychology (1.4)** **Business and Management (2.2)** **Other Social Sciences (7)**	66 (3)	3
26	Chien Thang Nguyen, Thi Minh Hang Nguyen, Mai Anh Le	Digital banking model for promoting retail banking services at Vietnamese commercial banks.	**Economics (2.1)** **Business and Management (2.2)**	66 (3)	21
27	Bich Ngoc Vu, Hai Yen Hoang	Factors influencing gold demand: Evidence from developing countries.	**Economics (2.1)** **Business and Management (2.2)**	66 (3)	34
28	Nguyen Hoang Nam	The impact of green recruitment on environmental and social sustainability: Empirical evidence in Vietnam.	**Economics (2.1)** **Business and Management (2.2)** **Other Social Sciences (7)**	66 (3)	42
29	Thi Minh Ly Pham, Tan Lac Thien Vo, Minh Tuan Phung, Dieu Ha Le	How the authenticity cues provided on product packaging can influence Vietnamese consumers' perception of Korean cosmetics.	**Business and Management (2.2)** **Sociology (4.1)**	66 (3)	56
30	Bao Ngoc Nguyen	Assessing municipal solid waste collection service quality in a developing country context: A case study of Nha Trang, Vietnam.	**Business and Management (2.2)** **Other Social Sciences (7)**	66 (3)	71
31	Van Tu Nguyen, Nam Phuong Nguyen, Vu Phuong-Nha Nguyen, Nguyen Phuong Khanh Pham	Impacts of digital transformation on high school student learning in Nha Trang city, Khanh Hoa province, Vietnam.	**Curriculum and Pedagogy (3.2)** **Specialist Studies in Education (3.3)**	66 (3)	81
32	Thi Khanh Thanh Ho, Hoang Thanh Truc Nguyen, Nguyen Tuyet Minh Ha	Factors affecting the knowledge-sharing activities of university students in Can Tho city.	**Curriculum and Pedagogy (3.2)** **Other Social Sciences (7)**	66 (3)	89
33	Tran Thi Mai An	Early marriage of the Co-tu people in Tay Giang district, Quang Nam province, Vietnam.	**Anthropology (4.2)** **Ethnology (4.3)** **Vietnamese Studies (10)**	66 (3)	97
34	Nguyen Thi Le Huyen	The Vietnam's Law on Marriage and Family 2014 and related documents: Unreasonable points about surrogacy and recommendations.	**Jurisprudence (6)** **Other Humanities (12)**	66 (3)	106
35	Thi Mai Lien Nguyen, Bich Nha Truc Nguyen	The hero-Zen practitioner protagonist in Haruki Murakami's novels: An analysis from Joseph Campbell's hero's journey monomyth.	**Literary Studies (9.2)** **Cultural Studies (9.3)**	66 (3)	112
36	Sy Dong Le	Southern culture in Ca Van Thinh's research.	**Cultural Studies (9.3)** **Vietnamese Studies (10)**	66 (3)	120

VMOST Journal of Social Sciences and Humanities (VMOST JOSSH): Manuscript Template

VMOST JOSSH mainly publishes original research and review articles which should provide a significant and substantial amount of new knowledge that can contribute to the existing theory or practice in the relevant field. The review articles should present a highly conceptual, intellectual, and in-depth analysis of an issue supported by a vigorous synthesis of relevant literature.

The structure of different types of articles may vary according to the type of study, and the content of the article.

The following are the detailed main components of the original research and review articles submitted to the journal.

You can submit your article at: https://mc04.manuscriptcentral.com/vmostjossh

Original research

The original research should have three following parts:

Preliminary section: It includes title, list of all contributing authors with their institutional affiliation, and abstract (160-250 words) with at least 3 keywords.

The title

List the author names separated by commas. Use superscript numbers to link affiliations, and symbols *†‡ for author notes. For example, X. Jones[1*], P.Y. Smith[1, 2]

Author's affiliation addresses:
[1]Affiliations should be preceded by superscript numbers corresponding to the author list
[2]For any institutions, please provide the institution name, street, district, city, country

Received ; revised ; accepted

Abstract:
Start your abstract here…
Keywords: **keyword 1, keyword 2, keyword 3…**
Classification number(s): **1.1, 2.2, 5.3, etc.**

The abstract should range between 160 and 250 words and be structured in a single paragraph following keywords in a separate line. The abstract should represent the main part of the research manuscript. It should reflect a brief and comprehensive background following the aim of the study (main questions to be addressed), methods used for investigating the problem, a summary of significant findings, main conclusions, and implications of the results.

Keywords: They should come immediately after the abstract and contain 3-7 specific and relevant keywords. They should reflect the research study and the relevant field of research.

Classification numbers: Depend on the Journal's Classification Scheme.

Author(s) are encouraged to write a "Highlights" that summarises the most exciting, interesting points from your manuscript.

Manuscript section: It is the main body of the scientific manuscript that consists of an introduction, purpose/objective of the study, research questions and/or hypotheses, literature review, research methods/methodology, results, discussion, suggestions/ recommendations/implications/study limitations...(if any), and conclusions. These sections may slightly vary depending on the type of research approach and design used in the research. Each section should be numbered.

All of the Figures, Tables, and Equations should be cited in numerical order.

Figures

Fig. #: (Begin each figure caption with a label, "**Fig. 1**." for example, as a new paragraph).

Fig. 1. The figure caption should begin with an overall descriptive statement of the figure followed by additional text. They should be immediately after each figure. Figure parts are indicated with capital letters (A). If you prefer, you can place both the actual figures and captions logically through the text near where they are cited rather than at the end of the file (but not both). If a paragraph in the main text begins with the name of a figure, write out "Figure" in full (e.g., <para>"Figure 1 shows…").

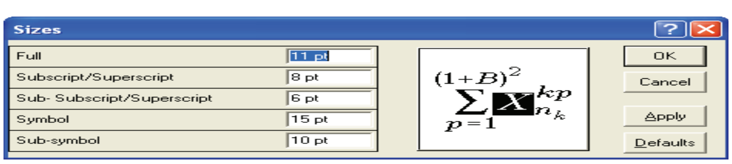


Fig. 1. The figure caption.

[*]Corresponding author(s): Email: Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.

Tables

Table #: (Begin each table caption with a label "**Table 1.**", etc. as a new paragraph).

Table 1. Start this caption with a short description of your table. Format tables using the Word Table commands and structures. Do not create tables using spaces or tabs characters.

Table 1. Caption.

a	b	c	d	e
f				
g				
h				

Equations

$$\int_a^b x dx \qquad (1)$$

Closing section: It includes appendices/supplementary materials/data availability statement if applicable), CRediT author statement (for multiple authors), acknowledgements (if applicable), competing interests, ethics (if any), and a complete list of references corresponding to all the citations given in the text of the manuscript. The appendices/supplementary materials may include data files and other materials relevant to the research that should be submitted in separate files if required.

APPENDICES (if any)

The appendices should ideally be under 1000 words (approximately 2 A4 pages) for printing version. With longer appendices, they are only accepted for online publication.

CRediT author statement (for multiple authors)

CRediT offers authors the opportunity to share an accurate and detailed description of their diverse contributions to the published work.

ACKNOWLEDGEMENTS (if applicable)

This section is for the researchers who were funded for the research projects, and it should enclose all sources of financial support.

COMPETING INTERESTS

The author(s) declare(s) that there is no conflict of interest regarding the publication of this article.

REFERENCES

For in-text citation: References should be cited in the bracket with a number [1]. Multiple reference citations are separated by commas [2, 3] or if a series, dashes [4-6]. When citing sources with the author(s) and the year, they should be shortened to the first author's name, followed by et al. (with more than one author) and the year.

For reference list: With less than or equal to three authors, list all the author(s). With more than three authors, the first three should be listed and followed by et al.

References are listed in numerical order, and in the same order in which they are cited in text. The reference list should include all and only those references you have cited in the text. The reference list appears at the end of the article.

The reference consists of: Initial(s) and first/last name of the author(s), author' names separated by commas (Year of publication), "Titles of journal articles or chapter of book", *Title of Journal, Book or Other Publication*, **Volume(Number)** (if any), page numbers (if any), DOI (if any), URL and accessed date (if any) (in its original language if not English).

To cite a website and online/electronic resources, please include the accessed date (day month year).

Example of a reference list:

[1] D. Acemoglu, U. Akcigit, H.I. Alp, et al. (2018), "Innovation, reallocation and growth", *American Economic Review*, **108(11)**, pp.3450-3491, DOI: 10.1257/ aer.20130470.

[2] G. Dosi (2000), *Innovation, Organization and Economic Dynamics*, Edward Elgar, 720pp.

[3] Asia Program Area (1975), "The agricultural situation in the Far East and Oceania: Review of 1974 and outlook for 1975", *Foreign Agricultural Economic Report, No.105*, https://ideas.repec.org/p/ags/uersfe/145966.html, accessed 15 August 2022.

Review articles

They should be different from the original research as they would contain different sections on the literature review. Authors may structure this part as per nature, background, and available literature on the issue argued in the manuscript.

For more detailed instructions, please visit our website: d.vjst.vn or vmostscience.vn.

P-ISSN 2734-9748 • E-ISSN 2815-6471

VMOST Journal of Social Sciences and Humanities

DECEMBER 2024 • VOLUME 66 NUMBER 3

EDITORIAL OFFICE

113 Tran Duy Hung Str., Cau Giay Dist., Hanoi, Vietnam
Tel: (84.24) 39436793; Fax: (84.24) 39436794
Email: vmostjossh@most.gov.vn; Website: d.vjst.vn or vmostscience.vn

PUBLICATION LICENCE

No. 459/GP-BTTTT 20th July 2021
No. 50/GP-BTTTT 1st February 2023