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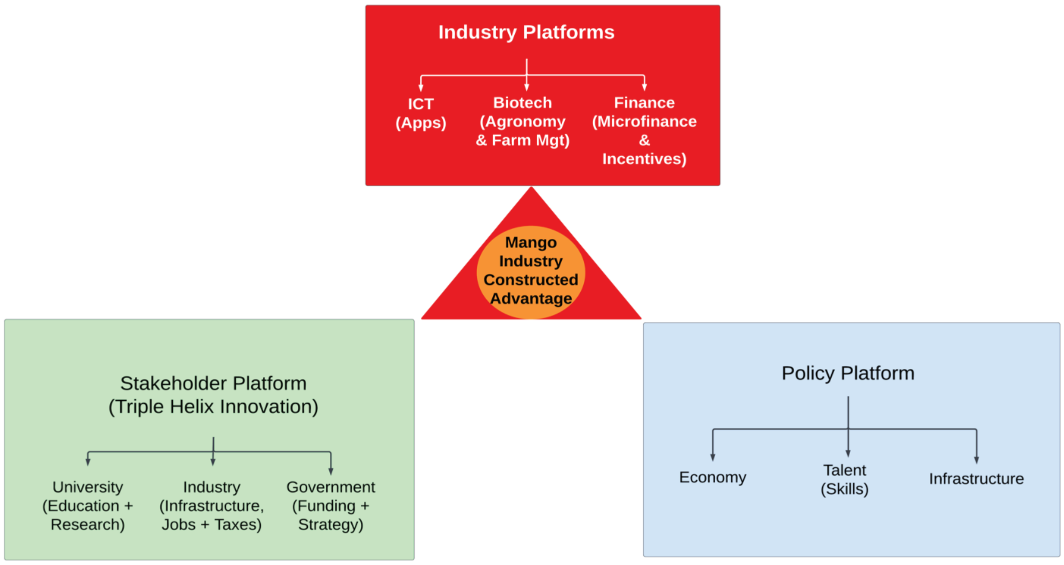

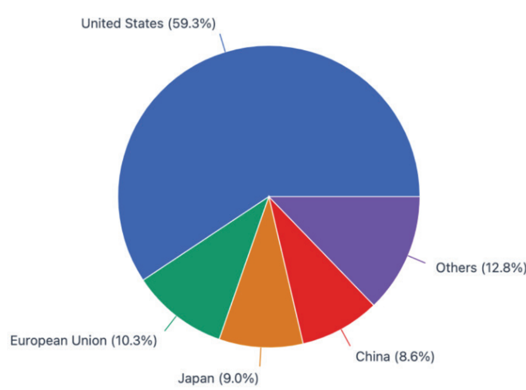

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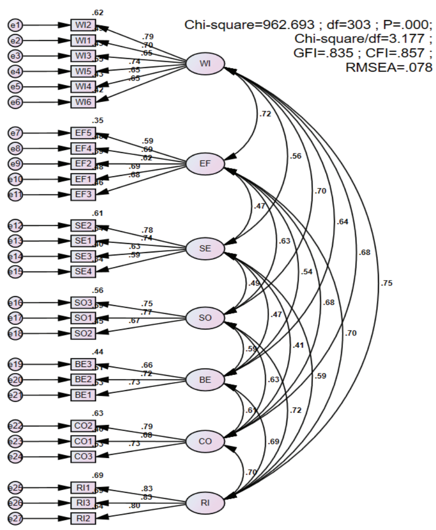

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Factors affecting young people's avoidance of advertisements on social media platforms: A case study in Can Tho city

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Abstract:

This study investigates the factors contributing to the avoidance of social media advertisements among young individuals in the Mekong delta region of Vietnam, employing reactance theory as the guiding theoretical framework. Data were collected from a sample of 232 young participants residing in Can Tho city, a pivotal urban centre within the Mekong delta. The analysis utilised descriptive statistics and a Chi-square test to evaluate the prevalence and behavioural patterns associated with social media advertising avoidance. To examine the influence of various determinants on ad avoidance, a multiple linear regression analysis was conducted, focusing on five key constructs: goal impediment, ad clutter, negative experiences, privacy concerns, and perceived personalisation. Additionally, an independent sample T-test was performed to compare ad avoidance behaviours across the platforms of YouTube and Facebook. The results indicate that goal impediment, ad clutter, and negative experiences positively correlate with the avoidance of social media advertisements, with negative experiences emerging as the most significant determinant. Conversely, perceived personalisation negatively influences the relationship between ad avoidance and social media platforms, while privacy concerns do not exhibit a significant effect on ad avoidance among the youth in the Mekong delta. Furthermore, the findings reveal that advertisements on YouTube are more frequently avoided than those on Facebook. This study provides key insights for crafting marketing strategies that effectively reduce ad avoidance behaviours among consumers on social media platforms.

Keywords: **ad avoidance, personalisation, reactance theory, social media advertising, Vietnam.**

Classification numbers: **1.4, 2.2, 4.1**

1. Introduction

Digital advertising has become an indispensable marketing tool worldwide, with spending in this field projected to account for nearly 70% of global advertising spending by 2023 [1]. Social media advertising is considered to be full of potential as users worldwide spend 38% of their online time using social media, with this figure even higher in some Asian countries [2]. The digital advertising space is becoming more competitive. To compete and advertise effectively, advertisers are increasingly monitoring people's online behaviour and using the information collected to display personalised content ads [3] and individually targeted ads [4, 5] to people. Online behavioural advertising benefits advertisers but raises privacy concerns and may lead to ad avoidance [4, 6]. The advancement of technology has made it increasingly easy for consumers to avoid ads [7, 8]. Therefore, research on user ad avoidance on social media is essential and a topic of interest to many researchers.

F. Celik, et al. (2022) [9] synthesised an integrative/conceptual framework of digital ad avoidance, which encompasses antecedents, moderators, mediators, and outcomes related to ad avoidance, drawn from prominent studies over the past two decades. The factors identified have been examined across various contexts of online advertising, including social media advertising and personalised advertising, revealing complex interrelations. This study specifically aims to investigate the factors contributing to the avoidance of social media advertisements among young individuals in the Mekong delta region of Vietnam, employing reactance theory as the guiding theoretical framework - an extensively recognised theory for explaining advertising avoidance behaviour. Notably, the study incorporates key variables such as negative experiences, goal impediment, ad clutter, and perceived personalisation, which have been supported by influential research in the field, including works by C.H. Cho, et al. (2004) [10], L. Kelly, et al. (2010) [7], T.H. Baek, et al. (2012) [11], and W. Li, et al. (2016) [6]. These variables are posited to significantly impact ad avoidance behaviour on social media, thereby justifying their inclusion in the current model.

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This study is expected to contribute three aspects both in academic and in practical insights to the advertising literature. Firstly, perceived personalisation was included in the model of social media ad avoidance variables. This element is crucial in proving that social media ads are relevant to young Vietnamese viewers in the particular environment. Perceptions of personalisation have been the subject of several prior research, particularly those dealing with online behavioural advertising or personalised advertisements [3, 6, 10]. In contrast to the majority of prior research, which has assumed or organised personalisation in social media ads, this study actually assesses how people perceive it, which sheds light on its effects [5, 12]. Our research indicates that there is a dearth of published works discussing the interplay between customisation, social media advertising's pervasiveness, and the phenomenon known as ad avoidance. Secondly, previous research on ad avoidance has mostly been conducted in developed countries such as the United States, Australia, China, etc. [6, 7, 9, 10]. However, users' behaviour is diverse and culture-dependent [12, 13]. Besides, the digital advertising market in Southeast Asia is growing rapidly, with a projected fivefold increase in scale over the next decade [11]. Therefore, this study was conducted in Vietnam, in the Mekong delta region, as a new contribution. Data were collected from a sample of 232 young individuals residing in Can Tho city, strategically situated in the heart of the Mekong delta region. Renowned as the economic nucleus of this region, Can Tho city boasts a dynamic and diverse young population, making it an ideal locale for examining socio-economic trends for the Mekong delta of Vietnam. Finally, the proliferation of social media ads and the rise of social commerce platforms have shifted the focus of academics and industry professionals towards digital channel engagement in recent years. Therefore, this study shows that major platforms (Facebook, YouTube, etc.) have varied percentages of ad avoidance. Advertisers looking to increase engagement and decrease ad fatigue can find practical recommendations in this comparison, which emphasises the significance of platform-specific methods.

This study aims to answer two central research questions: (a) to what degree do negative experiences, goal impediment, privacy concern, ad clutter, and perceived personalisation influence ad avoidance in a developing country, and (b) are there significant differences in ad avoidance between Facebook and YouTube ads? To address question (a), multiple linear regression was used to assess the relationship between ad avoidance and the influencing factors. For question (b), an independent sample t-test compared the mean values of two groups - those who frequently watch ads on Facebook and those who frequently watch ads on YouTube - to identify any significant differences between the platforms. The results of this study will shed light on key drivers of online video ad avoidance and provide actionable insights for enhancing online marketing efforts.

The remainder of this article is structured as follows. Section 2 reviews the literature; Section 3 outlines the analysis starting from the description of the dataset to the indexing method and the statistical model; Section 4 presents the findings of the analysis. Section 5 presents a discussion of our findings, including the academic and policy implications. From this, we derive conclusions and outline suggestions for future research, as well as the limitations of the study.

2. Literature review and hypothesis development

2.1. Theoretical background

Ad avoidance

This section focuses on clarifying the concept of ad avoidance as adopted in this study, while the underlying psychological theory for the research model is discussed in the subsequent section. Ad avoidance refers to all actions taken by users to reduce the presence of advertising [9, 14]. C.H. Cho, et al. (2004) [10] identified three different aspects of ad avoidance: cognitive, emotional, and behavioural. Cognitive avoidance is related to consumers' thoughts and beliefs about advertising, and in this study, it is the tendency to ignore advertising, and not pay attention to advertising even though it is attractive. Emotional avoidance means disliking advertising, thinking that it would be better without it. The behavioural component of ad avoidance includes consumers' avoidance actions such as scrolling past, clicking to remove ads from the screen, or even exiting the website.

Some studies have addressed all three aspects of ad avoidance [6, 10, 15, 16], while others have focused only on the cognitive and behavioural aspects of avoidance [7, 17]. According to S. Youn, et al. (2019) [17], emotional ad avoidance compared to cognitive and behavioural avoidance is not yet clearly manifested through action. In their proposed model of social media ad avoidance, L. Kelly, et al. (2010) [7] mention two aspects of ad avoidance: cognitive and behavioural. Therefore, in this study, ad avoidance is measured in terms of cognition and behaviour.

Cognitive ad avoidance is a psychological defence mechanism, driven by consumers' beliefs about ads, which leads users to intentionally ignore advertisements to which they are exposed. Consumers engaging in cognitive avoidance remain exposed to the ad but shift their attention elsewhere. In this study, the cognitive dimension of ad avoidance is reflected by users disregarding ads and refraining from clicking on any advertisements on social media [7, 9, 18]. In terms of behavioural avoidance, it refers to any actions taken by consumers to avoid advertisements, aside from simply not viewing them [9]. Previous studies have identified various forms of ad avoidance behaviour, including skipping ads, scrolling past them, reporting them, and employing software or techniques to block ads [7, 9, 18]. This perspective provides a clearer and more realistic insight into how users on social media engage in ad avoidance. To further explore the factors influencing consumer advertising avoidance, reactance theory is also examined.

Reactance theory

According to J.W. Brehm (1966) [19], psychological reactance is the phenomenon where an individual perceives a threat or loss of behavioural freedom and experiences a psychological reaction (or simply, reactance). When individuals perceive that their freedom is being affected by persuasive messages, they experience psychological reactance, which is an aversive motivational state [20], and they often tend to show an increasing preference for restricted behaviour or may engage in behaviour contrary to the desired behaviour [20]. For reactance to be elicited, one must possess the freedom to resist the threat [19]. Therefore, reactance is a response, not self-generated, as it only exists in the context of other agents prompting an individual to give up their freedom and comply with or eliminate the threat.

Threats to freedoms can be implied or directly expressed [19]. For example, in a group setting, when one observes others experiencing threats to their freedom, it can imply that one's own freedom may be at risk [21, 22]. Most participants in the survey of L. Kelly, et al. (2010) [7] avoided ads if they knew someone who had a negative experience or was warned by an authority figure. Besides, the importance of threatened freedom [19] and the number of freedoms threatened [23] will determine the degree of reactance. The perception of the intrusion of a threat depends on the intensity or focus of an individual's cognitive process [24]. Simply put, ads elicit a stronger reaction when they appear while an individual is focused on browsing social media. This characteristic also reflects the level of awareness and resistance of social media users to ads when they appear too frequently, hindering their goal of using social media. Personalised ads containing too much personal information can lead to consumer reactance and ad avoidance [25]. In this case, the degree of user reactance to ads depends on their concern for privacy and their ability to perceive the degree of personalization of ads.

On the other hand, reactance may decrease when threats come from powerful communication sources [26], when one is committed or has a tendency to interact in the future with the freedom threat [27], or when restoring freedom has negative implications for others [28] or for oneself [18]. When the pressure to comply or the costs for resisting the threat are greater than the motivation to restore freedom, people give up their freedom [20]. According to S.W. Edwards, et al. (2002) [24], a threat with a positive social impact elicits less reactance, and ads consistent with expectations and current cognitive activity may be considered to have a positive social impact and not be perceived as a threat.

The reactance theory explains why users resist unwanted ads during social media browsing. Unexpected ads interrupt the user's social media experience and persuasive efforts in ads aimed at changing behaviour can lead to psychological reactance. The impact of advertising may not be as strong as other forms of direct coercion, but it still causes disruption and evokes a similar psychological reactance [26]. Importantly, users have the freedom to react to the advertisements they see, so avoiding advertisements to restore freedom is understandable.

2.2. Hypothesis

Goal impediment

Perceived goal impediment, which includes search hindrance, disruption, and distraction, has a significant positive impact on ad avoidance [9, 14]. Advertising appears without warning, interrupting the user's use of social networks, and leading to their psychological reactance [29]. Unsolicited ads that disrupt users' tasks [6] or are inconsistent with the website they are browsing [30] can lead to a tendency to avoid ads. T.V. Ho, et al. (2019) [31] mentioned that information on Facebook is displayed as data flow, and ads appear to disrupt this flow. F. Çelik, et al. (2022) [9] found that goal impediment positively impacts digital ad avoidance among telic users. According to Y. Chen, et al. (2023) [32] based on the psychological reactance theory, individuals experience discomfort when their independence is encroached upon, prompting them to seek to restore control. Ads that prevent users from accessing their desired content create frustration, leading them to circumvent the impediment [32]. Unanticipated advertisements hinder users from accessing their preferred content, prompting them to circumvent the impediment. This view is supported by S. Pahari, et al. (2024) [33], who identified significant links between goal impediment and both cognitive and behavioural ad avoidance among users of meta-platforms. As a result, the interruption of this flow by advertisements is considered an obstacle to achieving their goals. From this, the hypothesis is proposed as follows:

H_1: Goal impediment has a positive impact on ad avoidance on social networks.

Ad clutter

According to M.T. Elliott, et al. (1998) [34], the term "perceived ad clutter" refers to a consumer's belief that the quantity of advertising within a particular medium is excessive. The number of liberties at stake affects the degree of reactance, usually in the same direction [20]. When users are exposed to too many ads, their experience is disrupted and the likelihood of ad avoidance increases [35, 36]. Y. Chen, et al. (2023) [33] proved to be a positive relationship between the perception of advertising clutter and the tendency to avoid them, which implies that advertisers might gain from streamlining their internet advertising, hence, fewer annoying ads will reach consumers, and they will be less likely to avoid them. Furthermore, N. Cao, et al. (2024) [37] investigates the impact of previous negative experiences and personality characteristics on ad perceptions and ad avoidance behaviours among Chinese generation Y and generation Z users within two leading mobile social applications: WeChat and TikTok. Ad clutter is one of the crucial factors that influence ad avoidance, manifested through an excessive number of ads, causing users to be confused by information and confused in their shopping choices [10, 38]. The following hypothesis H_2 is derived from this:

H_2: Ad clutter has a positive impact on ad avoidance on social networks.

Negative experience

According to S.J. Hoch, et al. (1989) [39], customers tend to rely on their own practical experiences to evaluate an issue. Negative experience is reflected through dissatisfaction, lack of benefits, and low motivation, leading to avoidance behaviour [10]. Besides, reactance arises when one person perceives a threat to another's freedom and fears similar threats [21, 22]. In the survey of L. Kelly, et al. (2010) [7], the majority of participants did not directly experience negative events, but only heard about them, such as hearing about computer virus infections or receiving inaccurate information from social media advertisements. Y. Chen, et al. (2023) [33] showed future advertisement avoidance has also been demonstrated to be influenced by past unpleasant experience with the advertising, clutter, or impediments of a brand by adopting a survey with a national sample of 513 university students in China. Furthermore, psychological reactance theory posits that advertising intrusiveness engenders impediment and threat, leading to adverse outcomes [40]. Moreover, F. Çelik, et al. (2024) [41] illustrate that perceived goal impediment and previous negative experiences exerted positive influences on affective avoidance during both ad-clutter and non-clutter periods. As a result, they were reluctant to click on any advertisements. Hypothesis H_3 is therefore developed as follows.

H_3: Negative experience has a positive impact on ad avoidance on social networks.

Privacy concern

According to T.H. Baek, et al. (2012) [11], privacy concern is the degree of consumer concern about potential privacy violations, which can be triggered by intrusive ads. A.M. Miron, et al. (2006) [20] mentioned that the importance of threatened freedom affects the level of response, and in this situation, the threat of misuse of personal information can lead to reactance depending on the level of importance of people's perception of personal information. Privacy risk is one of the primary concerns associated with advertising [42]. Consumer attitudes toward privacy are evolving and impacting how companies can target consumers [43]. M. Morimoto (2021) [44] pointed out the positive impact of privacy concerns on ad avoidance. M.H. Grubbs, et al. (2010) [45] found that the abuse of personal information, its publicisation, its use for purposes that users do not want, or concerns about account hacking or personal computer system virus infection greatly affect users' privacy and their avoidance of ads to protect their privacy. According to T.V. Ho, et al. (2019) [32], the privacy of information is a major concern for users. With these theories, hypothesis H_4 is proposed as follows:

H_4: Privacy concern has a positive impact on ad avoidance on social networks.

Perceived personalisation

According to M.L. Roberts (2003) [46], perceived personalisation refers to users' perception that advertisements are tailored to their personal preferences or interests. Perceived personalisation increased attention and triggered more thoughts, leading to an overall positive effect on attitude toward the message [47]. According to S.W. Edwards, et al. (2002) [24], ads that meet viewer expectations are less intrusive and less avoided. One key distinction between traditional advertising and online behavioural advertising is that the latter provides a personalised experience [6]. Consumers tend to avoid advertisements if they perceive them as irrelevant and not aligned with their interests [48]. T.B. White, et al. (2007) [25] found that reactance to personalised ads can be determined by whether the perceived utility of the advertised products or services compensates for the psychological cost of receiving inappropriate personal messages. According to N. Cao, et al. (2024) [37] (WeChat & TikTok among Chinese Gen Y/Z), prior negative experience indirectly reduces perceived ad personalisation, which in turn increases ad avoidance. In other words, when users feel ads are no longer well-personalised (due to past poor experiences), personalisation fails to reduce avoidance. Therefore, the hypothesis is proposed as follows:

H_5: Perceived personalisation has a negative impact on ad avoidance on social networks.

3. Methodology

3.1. Measurement

This study measures six latent constructs using five-point Likert scales. They included advertising avoidance, perceived goal impediment, perceived advertising clutter, prior negative experience, privacy concern, and perceived personalisation. In addition, due to social media platforms' algorithms for tracking user behaviour have become increasingly sophisticated. Users must accept terms that allow these platforms to collect data, including audio-visual information from their devices and search history. For example, after searching for product A on Google, users often see related ads on social media. Therefore, this study develops the survey statement "I am concerned that social media platforms have too much access to my information" in the construct for privacy concern.

3.2. Data collection and sampling

The questionnaire, conducted in March 2023, has two main parts: one about user perceptions of social media advertising, and the other about factors influencing ad avoidance. The first part has qualitative questions about social media use and ad perceptions. The second part uses a five-point Likert scale to survey factors influencing ad avoidance from strongly disagree (level 1) to strongly agree (level 5) for all observed variables in the research model.

The sampling method employed is convenience sampling. The survey targeted young individuals aged 18 to 35 who had seen advertisements on social media who were living or working in Can Tho, the central hub of the Mekong delta. Respondents were approached in densely populated areas where youth congregate, such as universities, parks, and cafes. Before conducting the official survey, a pilot study involving 20 respondents from Can Tho University and 10 respondents from the park provided practical insights for adjusting the wording, the number of questions, and the presentation of the questionnaire. The official survey employed a non-probability convenience sampling method to efficiently reach the target population of young individuals in Can Tho city - centre of the Mekong delta area. This approach facilitated timely and cost-effective data collection while ensuring representation of participants familiar with social media use and exposure to advertisements.

According to J. Hair, et al. (1998) [49], the necessary sample size for exploratory factor analysis is five times the number of items in the scale. The research model of this topic has 28 items in total, so the minimum sample size required is 140 observations. After inspecting and filtering the invalid observations, the final sample in this study is 232 respondents.

3.3. Analytical methods

Descriptive statistics and Chi-square were used to process the responses in the first part of the questionnaire which aims to reflect the current situation for the first specific research objective. Independent sample T-tests were also applied to evaluate the level of advertising avoidance on different social media platforms. For measuring and evaluating factors affecting advertising avoidance, Cronbach's alpha reliability coefficient test, exploratory factor analysis (EFA), and multiple linear regression methods were applied. Cronbach's alpha eliminates unnecessary variables before using the EFA method to avoid the possibility of these variables creating false factors. After the scale had been standardised, multiple linear regression was chosen to proceed. According to J. Hair, et al. (1998) [49], regression is a powerful tool for exploring dependent relationships and can be used to study consumer decision-making, impressions, and attitudes. Therefore, the multiple linear regression model is appropriate to apply in this study. The regression equation has been formed as follows:

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n + \varepsilon$$

Where:

Y: dependent variable

$X_1, X_2, \dots, X_n$: independent variables

B_0: the intercept

$B_1, B_2, \dots, B_n$: regression coefficients

ε: the error term.

The implementation of a multiple linear regression model in this study serves not only to identify the factors that influence advertising avoidance but also to assess the relative importance and strength of their impact (based on the magnitude of the regression coefficients). Furthermore, multiple regression provides a means of evaluating the nature of the relationship between independent and dependent variables through the sign of the regression coefficients. In this study, the dependent variable is ad avoidance (AA), and the independent variables include goal impediment (GI), ad clutter (AC), negative experience (NE), privacy concern (PC), and perceived personalisation (PP). The proposed research model is presented in Fig. 1. A five-point Likert scale is used, and the value of each variable is calculated as the average of the items.

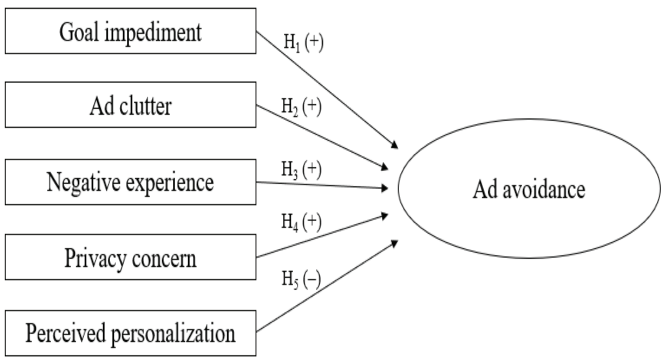

Fig. 1. Proposed research model.

4. Results

4.1. The status of advertising and the avoidance of advertising on social networks in the Mekong delta area of Vietnam

The survey was conducted in the central districts of Can Tho city using a non-probability convenience sampling method. The respondents were mainly aged 18-24 (accounting for 66.4%), with females being the majority (56.9%) compared to males (43.1%). At this age, most respondents have graduated from high school or university. The survey area also affects the level of education, as Can Tho is a large city with a high level of education, resulting in a high proportion of respondents who have completed high school. In this survey, there were no respondents with an educational level of primary or secondary school. The income level of the survey sample varies across classes. The classes earning less than 15 million VND per month have similar proportions ranging from 17 to 21%, while the high-income one earning more than 15 million VND per month accounts for only 5.6%, equivalent to 13 respondents. Table 1 summarises the demographic characteristics of the respondents.

Table 1. Respondents' demographic profiles.

Demographic information	Frequency	%
Gender		
Male	100	43.1
Female	132	56.9
Age		
18-24	154	66.4
25-35	78	33.6
Income		
Under 1.5 million VND/month	45	19.4
From over 1.5 million - 3 million VND/month	43	18.5
From over 3 million - 4.5 million VND/month	40	17.2
From over 4.5 million - 7.5 million VND/month	50	21.6
From over 7.5 million - 15 million VND/month	41	17.7
Over 15 million VND/month	13	5.6
Education level		
High school	114	49.1
Intermediate/college	6	2.6
Undergraduate	104	44.8
Postgraduate (Master, Doctoral...)	7	3.0

Source: Results based on questionnaire responses from March 2023.

In terms of social media usage behaviour, the survey results indicated that Facebook was the most popular social media platform, with 100% of respondents reporting usage. This was followed by YouTube and Zalo, with usage rates of 93.5 and 88.4%, respectively. More than 50% of respondents said they most often see ads on Facebook, and YouTube followed with 31%. The majority of advertisements seen by respondents were in the fashion/beauty and media/entertainment (e.g., games, music) industries, as well as electronics/technology/telecommunications. Chi-square tests revealed that men were more likely to see advertisements for electronics/technology/telecommunications than women, while women were more likely to see advertisements for fashion/beauty than men.

4.2. Scale validation

The research model under consideration comprises six distinct factor groups. Results from the Cronbach's alpha test, as presented in Table 2, indicate correlation coefficients greater than 0.3 for both independent and dependent variable groups concerning the total variable, thus warranting their retention [43]. Furthermore, Cronbach's alpha coefficient for all variables exceeds 0.7, indicating the suitability of the scale [44]. After testing all 28 observed variables, no items were eliminated, thereby confirming the appropriateness of the scale for further analysis.

Table 2. Cronbach's alpha result.

Items	Corrected item-Total correlation	Cronbach's alpha if item deleted
Goal impediment: α = 0.858		
GI1	0.683	0.827
GI2	0.685	0.827
GI3	0.713	0.815
GI4	0.731	0.808
Ad clutter: α = 0.851		
AC1	0.711	0.803
AC2	0.722	0.793
AC3	0.733	0.781
Negative experience: α = 0.827		
NE1	0.639	0.788
NE2	0.641	0.788
NE3	0.626	0.792
NE4	0.521	0.822
NE5	0.693	0.772
Privacy concern: α = 0.913		
PC1	0.744	0.900
PC2	0.772	0.895
PC3	0.789	0.891
PC4	0.809	0.887
PC5	0.779	0.893
Perceived personalisation: α = 0.850		
PP1	0.669	0.819
PP2	0.699	0.810
PP3	0.699	0.809
PP4	0.620	0.832
PP5	0.631	0.828

Source: Results based on questionnaire responses from March 2023.

An exploratory factor analysis using PCA and Varimax rotation grouped observed variables into meaningful factors. The KMO coefficient was 0.902 (>0.5) [50], Bartlett's test is significant at 0.000, and the TVE was 69.211% (>50%) which is suitable for further analysis [42]. Factor loadings ≥0.3 [42] revealed items PC5, NE1, NE4, AC3, and AC2 exhibited loadings on two distinct factors. NE1 demonstrated a loading on factor 1 of 0.439 and on factor 3 of 0.603, indicating characteristics of negative experience and privacy concerns. The difference between these two-factor loadings was 0.164<0.2, warranting consideration for elimination [45]. EFA results following NE1's elimination are in Table 3.

Table 3. EFA results of independent variables.

Factors	Items	Factor loading				
		1	*2*	*3*	*4*	*5*
Privacy concern	PC4	0.815				
	PC2	0.800				
	PC3	0.786			0.318	
	PC5	0.782				
	PC1	0.771				
Perceived personalisation	PP3		0.823			
	PP2		0.818			
	PP1		0.798			
	PP4		0.747			
	PP5		0.738			
Goal impediment	GI1			0.777		
	GI3			0.762		
	GI4			0.746		
	GI2			0.705		
Negative experience	NE3				0.775	
	NE5				0.722	
	NE2				0.661	
	NE4				0.602	
Ad clutter	AC1			0.300		0.794
	AC3			0.320		0.766
	AC2					0.753

Notes: KMO coefficient: 0.898; Sig. Bartlett test: 0.000; Total variance explained: 69.989%; Eigenvalues = 1,009 at the 5-factor level. Source: Results based on questionnaire responses from March 2023.

Table 3 indicates the KMO value is 0.898 (>0.5), Bartlett's test is significant at 0.000, and TVE is 69% (> 50%), suitable for further analysis. Following NE1's elimination, PC, PP, GI, NE and AC account for 69.989% of data variation. Items PC3, AC1, and AC3 exhibit loadings on two distinct factors but are retained as the difference between loadings exceeds 0.2 [45]. Primary factor loading coefficients of observed variables are >0.6, indicating suitability for further analysis [46]. The EFA results for the independent variable in Table 4 demonstrate that Sig. of Bartlett's test, KMO coefficient, and TVE meet the conditions for the scale to be considered suitable.

Table 4. EFA result of dependent variable.

Factors	Items	Factor loading
Ad avoidance	AA1	0.836
	AA2	0.828
	AA3	0.802
	AA4	0.784
	AA5	0.774
	AA6	0.769

Notes: KMO coefficient: 0.846; Sig. Bartlett test: 0.000; Total variance explained: 63.853%.
Source: Results based on questionnaire responses from March 2023.

4.3. Regression results

After testing the reliability of the scale and performing exploratory factor analysis, regression analysis was performed to test the hypotheses. Social media advertising avoidance behaviour is dependent on five independent variables: perceived personalisation, goal impediment, ad clutter, negative experience, and privacy concern. The Durbin-Watson coefficient = 1.881 so the results do not violate the first-order sequence autocorrelation assumption [47]. The VIF is all less than 2 means the model does not violate. The Sig. value of the model < 0.01 means that this model is statistically significant at a level of 1%. The R^2 coefficient = 60.4% shows that the independent variables in the regression analysis explain 60.4% of the variation in advertising avoidance, with the remaining 39.6% due to external variables and random error. Detailed regression results are shown in Table 5.

Table 5. Regression results.

Variable name	Normalised beta coefficient (Beta)	T	P. value	Statistical multicollinearity	
				Tolerance	*VIF*
Constant		2.582	0.010		
GI	0.262***	4.474	0.000	0.512	1.952
AC	0.226***	4.017	0.000	0.555	1.801
NE	0.361***	6.659	0.000	0.598	1.674
PC	0.037	0.662	0.509	0.548	1.825
PP	-0.145***	-3.323	0.001	0.925	1.081
N = 232, R^2 = 60.4%, Adjusted R^2 = 59.5%, F = 68.945, Significant = 0.000 < 1%, N = 232 respondents					

Note: Sig. at: *0.01; dependent variable: Ad avoidance; independent variable: PP - Perceived personalisation; GI - Goal impediment; AC - Ad clutter; NE - Negative experience; PC - Privacy concerns. Source: Results based on questionnaire responses from March 2023.

Regression results in Table 5 show that the significance levels corresponding to the variables GI, AC, NE, and PP have Sig. values less than 0.01. Therefore, at a significance level of 1%, it can be concluded that there is an impact of GI, AC, NE, and PP on the dependent variable AA (ad avoidance). Specifically, the variables GI, AC, and NE positively influence AA as their normalised coefficients are greater than 0. In contrast, PP has a negative impact on AA due to its normalised coefficient being less than 0. The remaining variable (PC) has a significant value greater than 0.05, so at the 5% significance level, it can be concluded that PC does not affect AA.

As can be seen in Table 5, negative experience has the strongest influence on advertising avoidance (Beta = 0.361). Similar results were obtained by F. Çelik, et al. (2022) [9]; X. Li, et al. (2023) [51]; S. Pahari, et al. (2024) [33]; W. Li, et al. (2016) [6], these works confirmed consistent results in their study of user avoidance of online behaviour in social media advertising. The majority of respondents reported that social media advertising fails to provide any form of stimulation that would engender loyalty or continued use of the service following engagement with an advertisement. Additionally, negative experiences or perceptions of social media advertising among acquaintances also generate concerns among respondents. Although survey results indicate that only 5.17% of respondents identified negative experiences as the primary reason for avoiding advertisements, in terms of impact level, once users have had negative experiences with social media advertisements, their avoidance behaviour becomes significantly more pronounced. Besides, seeing or hearing about negative experiences from others is also a primary reason users perceive negative experiences with advertising and consequently avoid social media advertising.

Next, goal impediment exhibits standardised beta coefficient = 0.262 > 0 has a positive impact on social media advertising avoidance. Following numerous prior studies, such as X. Li, et al. (2023) [51]; K.N. Salam, et al. (2024) [52] confirmed that goal impediment has been identified as a crucial factor influencing user avoidance of advertising [10, 16]. The majority of respondents reported that social media advertising impedes their ability to engage in leisure activities, seek information, etc. The appearance of advertisements distracts users from the primary content, causing discomfort and leading to avoidance behaviour.

Ad clutter is another factor that positively influences social media ad avoidance (Beta = 0.226). This finding is supported by prior studies such as the studies of C.H. Cho, et al. (2004) [10], L. Ha, et al. (2008) [36], K.N. Salam, et al. (2024) [52], and P. Perumal (2023) [53]. The excessive presence and disruptive nature of social media advertising increases the likelihood of user avoidance behaviour. Additionally, when advertisements for the same product from multiple suppliers appear in abundance, users may experience confusion when making purchasing decisions. In such instances, they tend to refrain from taking any action and simply scroll past the advertisements.

Perceived personalisation, with a standardised beta coefficient = -0.145<0, exerts an inverse impact on user avoidance of social media advertising. This result is consistent with the results of studies conducted by T.H. Baek, et al. (2012) [11] and W. Li, et al. (2016) [6]. Within the scope of this study, perceived personalisation has also been found to influence social media advertising in general, as most marketers are currently striving to personalise advertisements (in terms of both content and targeting) to more effectively reach their intended audience, and consumer awareness of advertisement personalisation is increasing. Accordingly, the more relevant an advertisement is to a consumer, the less likely they are to avoid it.

The only factor to be excluded is a privacy concern, according to the results from Table 5, there is no impact on social media advertising avoidance in the context of this study. This finding is in alignment with S.M.C. Loureiro, et al. (2023) [54]. Based on empirical observations, users tend to perceive social media advertising as annoying or untrustworthy, rather than as a privacy invasion. However, when presented with items on a privacy concern scale, the majority of respondents indicated agreement or strong agreement. This suggests that users are relatively unconcerned about privacy issues in everyday situations and only become concerned when prompted.

In summary, corresponding to the significant independent variables in Table 5, hypotheses H_1, H_2, H_3, and H_5 are accepted. Conversely, hypothesis H_4 is rejected.

4.4. Independent sample T-test

Different social media platforms may vary in terms of their format, placement, and frequency of ad display, which can lead to ads interrupting the user experience differently on each platform. Therefore, a mean comparison test of advertising avoidance (AA) and variables affecting it in this research (NE, GI, AC, PP) with the classification variable being the social media page where ads are seen the most was conducted. According to survey results, most of the respondents see the most ads on Facebook (56.03%) and YouTube (31.03%), while other platforms have much lower rates. To ensure significant mean comparison test results, only Facebook and YouTube are used as classification variables to compare advertising avoidance levels using the independent sample T-test.

Table 6. Independent sample T-test results.

F		Levene's test for equality of variances		T-test for equality of means				
		Sig.	*t*	*df*	*Sig. (2-tailed)*	*Mean difference*	*Std. Error difference*	
PP	Equal variances assumed	0.282	0.596	1.690	200	0.093	0.224	0.132
	Equal variances not assumed			1.681	144.349	0.095	0.224	0.133
GI	Equal variances assumed	2.341	0.128	-1.174	200	0.242	-0.159	0.135
	Equal variances not assumed			-1.228	166.701	0.221	-0.159	0.129
AC	Equal variances assumed	2.995	0.085	-2.034	200	0.043	-0.299	0.147
	Equal variances not assumed			-2.113	163.550	0.036	-0.299	0.141
NE	Equal variances assumed	2.501	0.115	-1.312	200	0.191	-0.162	0.124
	Equal variances not assumed			-1.391	172.745	0.166	-0.162	0.116
AA	Equal variances assumed	0.274	0.601	-1.898	200	0.059	-0.255	0.134
	Equal variances not assumed			-1.912	149.821	0.058	-0.255	0.133

Source: Results based on questionnaire responses from March 2023.

Table 6 shows Levene's test results for all variables are >α=0.05, hence Sig. results of the T-test for equal variances are considered for all variables. AA, AC, and PP have Sig. values of 0.059, 0.043, and 0.093, respectively. Among these, AC is statistically significant at the 5% level, while AA and PP are marginally significant at the 10% level. In contrast, NE and GI have Sig. of T-test equal to 0.191 and 0.242>0.1. As a result, people who see the most ads on Facebook have the same level of negative experience and goal impediment as those who see the most ads on YouTube. This result suggests that there are some differences in ad avoidance, ad clutter, and perceived personalisation levels between these two platforms. The average perceived personalisation of users who see more ads on Facebook is higher than that of those who see more ads on YouTube (mean difference is 0.224). Those who see more ads on YouTube have higher average levels of ad avoidance and ad clutter than those on Facebook (the mean difference between YouTube and Facebook is 0.225 and 0.299, respectively). Therefore, YouTube ads tend to be avoided more because they are cluttered and less personalised than Facebook ads.

5. Discussion and implications

5.1. Discussion

This study explores ad avoidance in the context of Vietnam - a developing country that has had different results contributing to the research field on users' avoidance of advertising on social networks. Applying the theory of psychological reactance, more specific findings and theoretical contributions of this study are presented as follows.

First, negative experience, goal impediment, and ad clutter all have a positive effect on ad avoidance among social media users. This is consistent with previous studies by C.H. Cho, et al. (2004) [10], W. Li, et al. (2016) [6], Z. Seyedghorban, et al. (2016) [16], T.V. Ho, et al. (2019) [31], N. Cao, et al. (2024) [37], and F. Çelik, et al. (2024) [41]. Furthermore, the conceptual model of A. Sahli, et al. (2024) [55] test antecedents and outcomes of advertising intrusion based on surveys of 170 respondents and structural equation modelling, and presented that personalised mobile ads, privacy concerns and perceived vulnerability heighten intrusion, leading to resistance behaviours like avoiding ads and negative brand attitudes. However, the degree of impact of each factor varies among studies that arise from different research subjects and survey areas. In this research, negative experience has the strongest impact on advertising avoidance, similar to W. Li, et al.'s (2016) [6] result; whereas C.H. Cho, et al.(2004) [10] indicated that ad clutter is the most important factor in their study.

The next highlight is that perceived personalization also affects social media advertising avoidance because most marketers strive to personalise ads to deliver content to the right people, increasing consumers' avoidance of ads. This is consistent with the work of M. Morimoto (2021) [44], and W. Li, et al. (2016) [6] on personalised advertising and online behavioural advertising. Perceived utility (e.g., some rewards and benefits from restricted freedom) significantly reduces consumer response [23]. Enhancing an individual's connection to an advertisement will decrease the tendency to avoid it [48]. Y. Pasadeos (1990) [56] also found that personalised content is the most effective way to avoid ads considered annoying.

Third, privacy concerns do not affect ad avoidance by young people in Can Tho. This result differs from the research of T.V. Ho, et al. (2019) [31] because their study was conducted in Ho Chi Minh city, where the e-commerce index is much higher and awareness of privacy on online platforms is also higher than in most provinces in Vietnam [57]. During our survey, when not directly mentioning the possibilities of privacy infringement, respondents did not know and did not pay much attention to it. However, most respondents agree or strongly agree with perceptions such as "I feel uncomfortable when my information on social media is shared without permission". In the study by N. Cao, et al. (2023) [42], privacy concerns influence ad avoidance among Gen Z in China; however, the impact is less significant than in previous studies. It is likely that Gen Z is less worried about privacy because they understand the trade-offs of using free and personalised app services, aided by improved privacy protection measures and a greater awareness of how advertising functions. This also indicates the diverse perspectives on privacy concerns among digital natives.

Moreover, the T-test result shows that people who see the most ads on YouTube tend to avoid ads more than on Facebook. This is because ads on YouTube are usually not skippable, while on Facebook, most ads can be scrolled past or skipped leading to a higher perception of repetition and clutter with ads on YouTube [58]. Facebook focuses on social interaction, whereas YouTube does not, and these differing platform functionalities lead to distinct consumer experiences [59]. This research indicates that YouTube ads are often avoided more frequently because they are viewed as more cluttered and less tailored to individual users than Facebook ads.

Ad avoidance is a challenge in the digital age, with social media full of ads and fierce competition among marketers to reach customers. Factors such as negative experience, goal impediment, ad clutter, and perceived personalisation affect ad avoidance on social media whereas privacy concerns exist, but do not affect ad avoidance by responding in normal situations. Besides, differences in ad avoidance between different social media platforms need to be considered. This result is characteristic of the target group in the Mekong delta area of Vietnam, a developing country, compared to similar studies in developed countries.

5.2. Implications

In terms of theoretical implications, this study contributes to demonstrating the applicability of reactance theory in explaining advertising avoidance on social media in the Mekong delta region of Vietnam, a developing country. The factors of negative experiences, goal impediment, ad clutter, and perceived personalisation significantly influence ad avoidance, consistent with the principles of reactance theory, in contrast, privacy concerns do not significantly impact ad avoidance in this research indicates that cultural differences have a substantial effect on the applicability of the theoretical framework. Furthermore, the Levene's test results reveal individuals exposed to a greater number of advertisements on YouTube exhibit higher average levels of ad avoidance and ad clutter compared to those on Facebook. YouTube ads are often avoided due to their cluttered nature and lower level of personalisation compared to Facebook ads.

From the factors affecting ad avoidance derived, this research proposes some management implications for advertisers and businesses. First of all, perceived personalisation negatively affects consumers' advertising avoidance. If users perceive that advertising is tailored to them, with optimised experiences, they are less likely to avoid advertising. To best personalise ads, marketers need an understanding of their target audience. Therefore, researching the market and targeting customers carefully before running ads is necessary. Analysing consumer needs will help reduce negative experiences and ad avoidance [6].

Negative experiences and goal impediments have a positive influence on advertising avoidance. To reduce negative experiences and reduce the feeling of advertising interference during users' use of social networks, producing appropriate ad content and setting ad targets to reach the right audience is very important. Ads that provide value in the form of information or entertainment are considered less disruptive, and less annoying [30]. It is crucial for advertisers to identify the intended audience for their ads and ensure that these advertisements provide value to the consumers who encounter them [48].

When creating ads, setting the right display frequency is necessary because it is closely related to the ad clutter - one of the factors affecting positively on ad avoidance. Repetition makes consumers become familiar with that content and gradually trust it. A. Hassan, et al. (2021) [60] found that perceived truthfulness increased as repetition increased, and this increase is logarithmic. The largest increase in perceived truth comes from encountering a statement for a second time; beyond that, there are diminishing increases in perceived truth for each additional repetition. Therefore, repeating an ad too many times in a short period is not necessarily good and sometimes makes resources more wasteful.

To optimise the reach of the ad to the target customer, the experience after clicking on the ad also needs to be thoroughly optimised. M. Wendlandt, et al. (2007) [61] found that perceived utility (e.g., some rewards and benefits from restricted freedom) significantly reduces consumer response to loyalty programs. Each personalised touchpoint is perceived as necessary to optimise ads that match consumer preferences [10]. Optimising the customer experience after clicking on an ad helps increase personalisation for ads while increasing credibility for businesses - reducing negative experiences, thereby minimizing ad avoidance in subsequent times.

In addition, marketers must carefully consider their choice of communication channels, as the degree of advertisement avoidance varies across different social media platforms. Individuals exposed to advertisements predominantly on YouTube tend to exhibit higher levels of ad avoidance, perceive lower personalisation, and find advertisements more cluttered compared to those who frequently encounter ads on Facebook. This discovery plays a crucial role in informing advertisers' media planning and decision-making processes.

Finally, to develop sustainably in the long term, businesses need to build customer sentiment towards the brand. According to M.E. Heilman (1976) [24], threats from powerful sources are less likely to cause psychological reactance. If ads are broadcast from reputable and trustworthy sources, they will be more accepted and less likely to encounter psychological reactance. According to S.W. Edwards, et al. (2002) [24], consumers tend to have fewer negative emotions towards messages/ads from marketers with whom they have had previous business interactions (e.g., purchases and correspondence). If businesses want to develop sustainably in the long term, understanding customers and making them love their brand is significant.

6. Conclusions

The use of reactance theory as a framework for our analysis has allowed our study to shed light on the factors that influence young people in the Mekong delta region of Vietnam to avoid advertisements on social media platforms. According to the findings, the tendency to avoid advertisements is highly influenced by a number of factors, including aim obstruction, ad clutter, and negative experiences, with negative experiences being recognised as the most important component. Consequently, this indicates that marketers should make the creation of ad experiences that are both good and engaging a priority in order to reduce avoidance behaviours.

It is interesting to note that perceived personalisation was found to have a negative effect on ad avoidance. This finding suggests that specifically tailored advertising methods have the potential to increase engagement and decrease avoidance rates. On the other hand, concerns about privacy did not have a significant impact on ad avoidance among this cohort. This finding suggests that concerns over data privacy may not be as strong in the context of social media advertising among young consumers in the Mekong delta.

Furthermore, the comparison of ad avoidance behaviours across platforms revealed that there is a stronger tendency to avoid commercials on YouTube than there is on Facebook, which highlights the necessity of marketing strategies that are tailored to certain platforms.

Taking everything into consideration, this study offers crucial insights that are necessary for marketers who are looking to optimise their tactics in the highly competitive world of social media advertising. Marketers are able to build tailored interventions that not only improve the effectiveness of their campaigns but also foster a more favourable reception of commercials among youthful audiences. This is made possible by the understanding of the factors that determine what causes people to avoid advertisements.

7. Research limitations

This study, while offering valuable insights, has several limitations. Primarily, it examines social media advertising broadly rather than focusing on specific platforms or advertising formats (e.g., video ads, catalogue ads, or livestream ads). Future research could yield more targeted insights by narrowing its scope to particular advertising methods or specific product categories, such as fashion or electronics. Additionally, the study's geographical focus on Can Tho city, a pivotal urban centre within the Mekong delta, limits the generalisability of the findings to other regions, and the demographic sample is restricted to young adults aged 18-35. Expanding age ranges and including other developing countries in future studies could enhance the representativeness of the results. Finally, the quantitative approach in this study does not fully capture user insights into digital ad avoidance. Qualitative research exploring ad avoidance behaviours, particularly within developing economies, could offer a more nuanced understanding of this phenomenon.

APPENDICES

Questionnaire items used in the study.

Constructs	Items code	Survey statement	Source
Goal impediment	GI1	Ads on social networks increase obstacles during the search	[6, 9, 32]
	GI2	Ads on social media disrupt my reception of desired content	[6, 9, 18]
	GI3	Ads on social media distract me from the main content on that social network	
	GI4	Ads on social media interrupt continuity while I browse social media	
Ad clutter	AC1	There are too many ads on social media	[9, 31]
	AC2	Excessive ads on social media confuse me during the process of receiving content	[31]
	AC3	Numerous similar ads on social media confuse me when making shopping choices	
Negative experience	NE1	I am dissatisfied with my decision to click on social media ads	[9]
	NE2	Clicking on social media ads does not benefit me	
	NE3	There is no incentive for me to remain loyal and continue using services after clicking on social media ads	
	NE4	I have seen people around me have negative experiences with social media ads	[19, 20]
	NE5	Most people familiar to me think social media ads should not be clicked	[7]
Privacy concern	PC1	I feel uncomfortable when my information is shared without permission	[6, 10]
	PC2	I am concerned that social media platforms have excessive access to my information	Recommended by the author
	PC3	I am concerned that the personal information I provide could be misused	[6, 36]
	PC4	I am concerned that my personal information on social media might be used for unanticipated purposes	
	PC5	I am concerned that clicking on social media ads could lead to fraudulent websites (e.g., hacking or viruses)	
Perceived personalisation	PP1	Social media ads provide the information I need	[6, 10]
	PP2	Social media ads offer purchase recommendations that match my needs	
	PP3	Social media ads enable me to buy the products I need more easily	
	PP4	Social media ads make me feel like I am a unique customer	
	PP5	Social media ads are customised to my preferences	[10]
Ad avoidance	AA1	I ignore ads on social networks	[7, 9, 18]
	AA2	I do not click on any ads on social media, even if the ads draw my attention	
	AA3	I scroll past or skip social media ads	
	AA4	I respond to social networking sites to reject ads	[18]
	AA5	I install software to limit ads on social networks	
	AA6	I use tricks to limit social media ads	

CRediT author statement

Ngoc Tran Luong: Conceptualisation, Methodology, Software, Data curation, Writing - Original draft preparation; Thu Huong Tran: Formal analysis, Supervision, Writing - Reviewing and Editing; Phu Tan Huynh: Validation, Investigation.

COMPETING INTERESTS

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

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Examining corporate governance's influence on financial performance in Vietnamese banks

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Abstract:

Various theories and empirical studies have been applied and proposed to establish and explain how corporate governance practices are related to banks' financial performance. Using agency theory, stewardship theory and resource dependence theory, this study investigates the effect of corporate governance on Vietnam-listed banks' performance. It tests the influence between bank performance (measured by return on assets (ROA) and return on equity (ROE)) and selected factors of corporate governance mechanisms, such as board size, independent directors, and female board members. ROA and ROE are used as proxies for bank performance. The control variables used in this study include bank size, real GDP, state ownership, and bank holding structure. The study used financial and corporate data from 19 banks, covering a period from 2015 to 2022. The methodologies adopted in this research include descriptive analysis, correlation analysis, and regression analysis. In this study, the findings indicate that female board members have a negative effect on bank performance. The board size is negatively related to bank performance; however, the result is not significant. Independent directors are found to have a positive influence with bank performance.

Keywords: **bank financial performance, corporate governance, Vietnam-listed banks.**

Classification numbers: **2.1, 2.2**

1. Introduction

Corporate governance is a pivotal component in the financial and business management realm, impacting decision-making processes, accountability, and transparency within banks. In the context of Vietnam's banking sector, which is currently undergoing significant transformations, the significance of studying the interplay between corporate governance and financial performance cannot be overstated. Several compelling reasons underscore the necessity of such research, particularly in the case of Vietnam-listed banks.

First and foremost, Vietnam's economic growth is closely tied to the health and stability of its banking sector [1]. As the backbone of the nation's financial infrastructure, banks play a vital role in economic development. A robust understanding of how corporate governance influences financial performance is crucial to sustaining this economic growth. Effective governance practices can lead to a more resilient and stable financial sector, thereby contributing to the overall economic stability of Vietnam.

Moreover, the eyes of the global financial community are increasingly focused on Vietnam as the country continues to open its financial markets to international investors [2, 3]. Research exploring the connection between corporate governance and financial performance has the potential to enhance Vietnam's standing in the global financial landscape. Such research can signal to international investors that the country is committed to maintaining high governance standards, thus attracting foreign investments, and fostering economic growth.

Within Vietnam, regulatory authorities are beginning to acknowledge the need for stronger corporate governance standards, especially within the banking industry [2]. Research in this area can provide valuable insights into the specific aspects of corporate governance that require regulatory attention. It can guide policymakers and help in crafting effective regulations aimed at fortifying the banking sector and ensuring its long-term stability.

Furthermore, the financial sector carries inherent risks (Asian Development Bank Economics Working Paper Series), by its very nature. Effective corporate governance practices can act as a key tool for mitigating these risks. Understanding how specific governance elements impact risk management and financial performance is paramount for ensuring the stability of the banking sector and safeguarding the interests of both banks and their customers.

The Vietnamese banking market, like all others, relies on both domestic and foreign investors for growth and stability.

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Research in the domain of corporate governance can enhance investor confidence in Vietnam-listed banks, as it showcases the commitment to secure and transparent investment opportunities [1].

With the increasing focus on stability and efficiency of the banking sector in Vietnam, understanding the influence between corporate governance elements (such as board size, independence of the board, and number of female directors) and financial performance indicators (ROA, ROE) becomes crucial. The research can serve as a benchmark for banks in Vietnam, allowing them to evaluate their governance structures in comparison to international best practices. By providing insights into how corporate governance is linked to financial performance, it can encourage the adoption of globally accepted governance standards, ultimately leading to a more robust and reliable banking system [4, 5].

This research aims to contribute to the existing body of knowledge by exploring and analysing the impact of corporate governance on the financial performance of banks, providing valuable insights for regulators, policymakers, and banking professionals to enhance governance practices and achieve sustainable financial outcomes. By understanding the dynamics of corporate governance, it becomes possible to strengthen the banking sector, attract investments, ensure ethical practices, and maintain the sustainable growth of the nation's economy. As Vietnam continues to evolve as a prominent player in the global financial arena, such research becomes increasingly useful.

The research aims to provide a comprehensive understanding of how these components collectively influence the financial health of banks in Vietnam. This exploration of the research questions is designed to contribute actionable insights which can support strategic decision-making for policymakers, empower bank managers in adopting effective governance strategies, and provide stakeholders with valuable perspectives on optimising financial performance in the banking sector.

The research continues with a systematic literature review on agency theory, stewardship theory and resource dependence theory in section 2. Section 3 provides the methods as well as the empirical work employed to analyse the influence of corporate governance on the financial performance of Vietnam-listed banks. After the estimation, the results are analysed and policy implications are followed in section 4. The research concludes with key findings and outlines its limitations in section 5.

2. Literature review and hypothesis development

2.1. Theoretical framework

The "Agency theory": Agency theory is an economic theory that views the firm as a set of contracts among self-interested individuals. An agency's influence is created when a person (the principal) authorizes another person (the agent) to act on their behalf. Issues arise in this influence are based on the risk that the agent will act opportunistically and not act in the best interests of the principal. Therefore, a contract or agreement should be designed to eliminate or reduce the potential of the agent acting opportunistically. Agency theory examines the influence between managers (agents) and shareholders (principals) [6]. Agency theory stresses the important role of external directors within the context of internal governance mechanisms. Agency theory suggests that independent directors can improve bank performance by promoting alignment of interests, providing effective monitoring and accountability, mitigating risks, contributing to strategic decision-making, offering valuable advice, and enhancing corporate governance. Their role helps to ensure that bank management acts in the best interests of its shareholders, which ultimately supports the bank's financial success and long-term sustainability. These directors play a crucial part in ensuring the board's effectiveness by overseeing and restraining managers' self-interested behaviour and curbing managerial opportunism.

The "Stewardship theory": According to C. Caldwell, et al. (2008) [7] the stewardship theory is a framework which argues that people are intrinsically motivated to work for others or for organisations to accomplish the tasks and responsibilities with which they have been entrusted. According to stewardship theory, directors can achieve the organisational objectives of shareholders by prioritising utility maximisation over self-interest. Furthermore, E.F. Fama, et al. (1983) [8] argues that managers have greater access to specific insider information about the organisation's ongoing activities compared to independent directors. This insider knowledge enables managers to make well-informed decisions based on their acute understanding of the company's operations. In line with the stewardship theory, it is suggested that a lower number of independent directors is considered to be ideal for companies; Moreover, the stewardship theory asserts that an insider-dominated board of directors is more effective in achieving organisational objectives due to their enhanced accessibility to information and technology.

The "Resource dependence theory": The resource dependence theory is based on the idea that organisations don't operate in isolation but depend on their surroundings and need resources to do well. When we apply this theory to how companies are managed, it highlights how important it is to have a diverse and efficient board of directors. Resource dependency theory advocates for board diversity across three primary dimensions. The first dimension pertains to board structure, including the presence of independent directors, leadership duality, and board size. The second dimension involves demographic diversity, encompassing factors such as gender, age, nationality, and ethnicity. The third dimension emphasises cognitive diversity, which is achieved through variations in experience, qualifications, and educational backgrounds [9]. To sum up, the resource theory suggests that increased board diversity enhances strategic decision-making, monitoring functions, and brings a wider range of knowledge, perspectives, and problem-solving abilities to the formulation of policies and strategies within organisations.

2.2. Corporate governance on bank's financial performance

Corporate governance, as defined by various scholars, centres on directing and controlling organisations, promoting accountability, transparency, and considering the interests of stakeholders [3]. Emphasises its influence on participants in publicly traded firms, expanding to all stakeholders due to global economic changes and corporate scandals. This shift has led to a global market for corporate governance-related services, with investors perceiving it as a significant investment risk [4]. Defines corporate governance as addressing issues related to the direction and control of companies, encompassing systems and processes to ensure accountability, probity, and openness in organisational conduct.

The implications of corporate governance on a bank's financial performance are diverse and crucial for sustainable growth. Corporate governance, including mechanisms for directing and controlling companies, significantly influences a bank's success in a competitive environment [5]. One key aspect is aligning governance practices with the interests of stakeholders, fostering transparency, accountability, and trust among investors and depositors. Effective governance also plays a direct role in shaping risk management strategies, ensuring a balanced approach between risk and return [6]. Board diversity is highlighted as a critical factor, contributing to better decision-making and risk assessments, ultimately leading to enhanced financial performance. Adherence to ethical standards and regulatory compliance not only maintains the bank's social license but also influences its reputation and attractiveness to investors. In summary, prioritising and enhancing corporate governance practices are imperative for long-term sustainability and prosperity in the evolving financial landscape.

2.3. Research hypothesis

2.3.1. Board size and bank's financial performance

Board size and financial performance: N.K.Q. Trung (2022) [10] argues that board size positively affects the bank performance. The results are based on data collected over eleven years (2010-2020) from a set of 35 Vietnamese commercial banks listed on the stock market. The author found that increased board size is associated with enhanced bank performance, in line with the principles of agency and resource dependence theories. These theories contend that a greater number of directors on the board correlates with improved bank performance. This is attributed to the notion that a larger board can provide more robust support, and counseling to the CEO when making proactive decisions. P.M. Guest (2009) [11], V. O'Connell, et al. (2010) [12], and T.N.Q. Nguyen, et al. (2022) [13] show that the larger the board size, the better the performance of the organisation is. They believe that having a bigger board of directors is beneficial because it increases the expertise and resources available to a company. They also discovered that banks often have larger boards due to their complex organisational structure and the presence of various committees, such as lending and credit risk committees. Studies on various banking sectors, including: Malaysia, Nigeria, and Jordan, have consistently shown that board size has no significant impact on bank performance. Researchers in Malaysia, Nigeria have found no substantial relationship between board size and bank performance in their respective analyses [14, 15]. In conclusion, various studies, including extensive research on Vietnamese commercial banks, suggest that a larger board size tends to positively influence bank performance [10]. This finding aligns with agency and resource dependency theories, emphasising that a greater number of directors correlates with improved performance by providing increased expertise and resources. Based on the discussions, the following hypothesis is proposed:

Hypothesis 1 (H1): Board size positively influences the bank's financial performance.

2.3.2. Board independence and financial performance

Agency theory stresses the important role of external directors within the context of internal governance mechanisms. Agency theory suggests that independent directors can improve bank performance by promoting an alignment of interests, providing effective monitoring and accountability, mitigating risks, contributing to strategic decision-making, offering valuable advice, and enhancing corporate governance. They are often more effective than internal directors in preventing self-serving behaviors and actions by managers because of their heightened inclination to meticulously monitor firms. Their vigilant oversight aims not only to protect their reputation but also to curtail or report instances of managerial opportunism [8]. Supporting this perspective, A. Klein (2002) [16] provides evidence that a board with greater independence from the management team is less likely to engage in earnings manipulation. In contrast to these above findings, A. Agrawal, et al. (1996) [17] reported a negative influence between board independence and firm performance. They argued that independent directors are sometimes added to boards for political reasons and may lack the monitoring expertise necessary, potentially resulting in negative effects on firm performance. The third perspective arises from three research papers conducted in Australia and Vietnam, suggesting that the presence of independent directors does not significantly affect the performance of banks or firms. In conclusion, the body of research under Agency theory consistently advocates the crucial role of external directors in bolstering corporate governance mechanisms and, in turn, positively influencing bank performance. Given this substantial body of evidence highlighting the contributions of independent directors to governance, the author proposes the following hypothesis to test:

Hypothesis 2 (H2): The independence of the board positively impacts the banks and financial performance.

2.3.3. Board gender diversity and financial performance

Lately, there has been a growing interest in the presence of women on corporate boards. Studies show that female board members put in more effort in overseeing and controlling executive directors [18]. Female board members often bring diverse perspectives and experiences to the boardroom. This diversity can lead to more thorough discussions and a broader range of viewpoints when it comes to overseeing and controlling executive directors. The inclusion of different perspectives is associated with a greater depth of scrutiny. Female board members are often more proactive in attending board meetings compared to their male counterparts, suggesting their increased dedication to supervising executive board members [19, 20]. It is demonstrated that the presence of female board members had a positive impact on firm (non-bank) performance measured by ROA, indicating that gender diversity on the board contributed to better financial performance. However, there is an opposing perspective. Other research finds that the inclusion of women on firm boards has a negative impact on performance [21]. The varying perspectives on the influence of female board members on firm or bank performance highlight the complexity of this issue. It is evident that the impact of gender diversity in leadership is context-dependent and influenced by cultural, social, and economic factors. Further research is needed to provide a more comprehensive understanding of the implications of gender diversity in corporate governance. Findings from studies done in Bangladesh, Egypt, Malaysia, and Vietnam are inconsistent, with some showing no significant impact and others indicating a negative or positive influence of gender diversity on financial performance.

Hypothesis 3 (H3): The number of female directors negatively impact the bank's financial performance.

3. Research methods and data

3.1. Data source and scope

In terms of methodology, the study employs a comprehensive sample, encompassing all banks listed on the Vietnam Stock Exchange. The data period selected for analysis spans from January 1, 2015, to December 31, 2022, capturing a substantial timeframe to draw meaningful conclusions. We examine the annual financial data from 01/01/2015 to 31/12/2022 of the listed banks on the Vietnam Stock Exchange. The research focuses on corporate governance. Joint-venture banks and 100% foreign-owned banks exhibit distinct governance characteristics compared to domestic banks, particularly when board members are foreigners and the bank operates under the supervision and management of its parent bank abroad. To ensure the accuracy of the research findings, the sample will be exclusively limited to Vietnamese banks. Financial data, including ROA and ROE will be gathered from the consolidated annual reports and financial statements of the selected banks. These reports provide detailed information about the banks' financial performance, governance structure, and practices. Annual reports are obtained from the official websites of the banks. Information on corporate governance elements such as board size, independence, and the number of female directors will be obtained from corporate governance reports published on the banks' official websites. These reports are found in the "Investor relations" or "Corporate governance" sections. The SSC website and their designated portal (The Refinitiv Data Platform and Finpro) are utilised as a starting point to search for the relevant reports.

3.2. Empirical model and principal variables

The research model follows:

Bank Performance (proxy as of ROEi,t and ROAi,t) = β0 + β1.BSit+ β2.IDit + β3.FDit + β4.TAit + β5.BHit + β6GDPt + β7.SOit + ε

where: ROAi,t represents the ROA of the bank (i) in the year (t); ROEi,t represents the ROE of the bank (i) in the year (t); BSi,t represents the board size, indicating the total number of board members of the bank (i) in the year (t); IDi,t represents the independent directors, measured as proportion of independent directors of the bank (i) in the year (t); Di,t represents the female directors, measured as proportion of female directors of the bank (i) in the year (t); TAi,t mean total assets to measure by natural log of total assets of the bank (i) in the year (t); GDPt represents GDP growth (annual %) in the year (t); SOi,t refers state ownership structure of the bank (i) in the year (t); BHi,t refer to banking holding structure of the bank (i) in the year (t); β0, β1, β2, β3, β4, β5, β6, and β7 are the coefficients to be estimated; ε represents the error term in the regression model.

Table 1 is the list of variables and their measurements.

Table 1. Measurement variables.

Variables	Types	Measurements	Data sources
Board size	Independent variable	Number of board members	Corporate governance reports published on the banks' official websites.
Independent directors	Independent variable	(Number of independent board directors/Total number of board directors) × 100	Corporate governance reports published on the banks' official websites.
Female director	Independent variable	(Number of female director in board/Total number of board directors) × 100	Corporate governance reports published on the banks' official websites.
Return on assets (ROA)	Dependent variables	ROA = (Net income/ Average total assets) × 100	Annual reports published on the banks' official websites.
Return on equity (ROE)	Dependent variables	ROE = (Net income/ Shareholders' equity) × 100	Annual reports published on the banks' official websites.
Bank size	Control variable	Natural log of total assets	Annual reports published on the banks' official websites.
GDP	Control variable	GDP growth (annual %) as declared by the International monetary fund	International monetary fund
State ownership	Control variable	0 = Not owned by the state, 1 = if the government owns at least 50 percent of its equity	State Bank of Vietnam
Bank-holding structure	Control variable	Bank-holding structure = the bank parent company with bank subsidiary and non-bank subsidiaries 0 = No Bank-holding structure, 1 = Bank-holding structure applied	Annual reports published on the banks' official websites

3.3. Descriptive statistics summary

The descriptive statistics table showed the maximum, minimum, mean, and standard deviation of the studied variables. Specifically, the data set has 152 observations in which the average ROA in the period from 2015 to 2022 is 1.08%, corresponding to the standard deviation of 0.75%, including the bank with the largest ROA of 3.2% and the smallest of nearly 0%. Meanwhile, the ROE at this stage is quite high, reaching about 12.86% on average, corresponding to a standard deviation of 6.89%, of which some banks achieve a return on equity up to more than 26.3% (Table 2).

Table 2. Descriptive statistics.

Variable	Observations	Mean	Standard deviation	Min	Max
ROA	152	0.0108142	0.0075639	8.90e-08	0.032346
ROE	152	0.1286569	0.0689374	1.39e-06	0.2638763
BS	152	8.019737	2.024585	5	15
ID	152	1.171053	0.5492477	0	4
TA	152	12.49895	0.8919632	10.78374	14.56718
FD	152	20.1521	16.68635	0	62.5
GDP	152	5.91375	1.898171	2.58	8.02
SO	152	0.1434495	0.2789569	0	0.9527919
BH	152	0.7302632	0.4452902	0	1

Sources: Research result.
Note: ROA: Return on asset, ROE: Return on equity, BS: Bank size, ID: Independent directors, TA: Total asset, GDP: Gross domestic product, SO: State ownership, BH: Banking holding.

The average board size of banks during this period is about 8 people, including banks where the number of board members is at least 5 people, but the maximum is up to 15 people. Next, the ratio of independent members of the Board of Directors (independent director) in the period from 2015 to 2022 is about 1 person, including some banks with no independent members, but some banks with up to 4 independent members. The average size of bank assets (total assets) in this period is about 12.5 times with a standard deviation of 0.89 times, of which the largest bank is 14.5 times, and the smallest is 10.7 times. The proportion of female members on the Board of Directors (female director) during this period was about 20.15%, corresponding to a standard deviation of 16.68%, in which there were banks with no female members but there were also banks with a high percentage of female members (62.5%). The GDP growth rate during this period is about 5.91% with a standard deviation of 1.8%, of which the highest economic growth achieved is 8.02% and this is the period of economic recovery after the COVID-19 epidemic. Finally, on average during this period, 14.3% of banks were state-owned, including banks with a state ownership of more than 95%. The non-bank structure corresponds to a standard deviation of 44.5%.

3.4. Correlation matrix and regression results

There are also several different correlations between variables, but in general, the correlation coefficients are less than 1, showing that the model likely does not have multi-collinearity. To check more clearly, the author also needs to evaluate through the variance inflation factor VIF to get accuracy (Table 3).

Table 3. Correlation matrix.

	ROA	ROE	BS	ID	TA	FD	GDP	SO	BH
ROA	1.000								
ROE	0.8491	1.0000							
BS	-0.0967	0.0100	1.0000						
ID	0.0731	0.0427	0.0684	1.0000					
TA	0.3153	0.4803	0.4783	-0.0445	1.0000				
FD	-0.3210	-0.2584	0.0264	0.1777	-0.1381	1.0000			
GDP	-0.0996	-0.0871	0.0009	0.0262	-0.1075	0.0122	1.0000		
SO	-0.1033	0.1388	0.5398	-0.2256	0.7333	0.0186	0.0122	1.0000	
BH	0.1430	0.1979	0.2337	-0.0538	0.5055	0.0137	-0.0060	0.2598	1.0000

Sources: Research result.
Note: ROA: Return on asset, ROE: Return on equity, BS: Bank size, ID: Independent directors, TA: Total asset, GDP: Gross domestic product, SO: State ownership, BH: Banking holding.

Regression results according to pooled OLS model, fixed effect model, random effect model, FGLS are presented in Table 4:

Table 4. Determinants of financial performance.

ROA	OLS	FE	RE	FGLS
BS	-0.0005387*	0.0002404	0.0000514	-0.0001696
ID	0.0000783	-0.000365	-.000188	0.0004091
TA	0.0074261***	0.0121174***	0.0106738***	0.0069465***
FD	0.0000314	0.0000387	0.0000377	0.0000211
GDP	[0.0002635]	[0.0068666]	[0.0044526]	[0.0014359]
SO	0.0017289***	0.090788***	0.0154375***	0.0069465***
BH	[0.0013271]	[0.0032489]	[0.0002894]	[0.0020544]
-CONS	0.0017289***	0.090788***	0.0154375***	0.0069465***
Number of obs	152	152	152	152
Number of group	19	19	19	19
F-test	F test that all u-i=F(18,126)=25.95 Prob > F=0.0000			

Sources: Research result.
Note: ROA: Return on asset, ROE: Return on equity, BS: Bank size, ID: Independent directors, TA: Total asset, GDP: Gross domestic product, SO: State ownership, BH: Banking holding.

After detecting that the model suffered from heteroscedasticity and autocorrelation defects, the author proceeded to fix it using the FGLS method. Once the analysis of regression is conducted the results are as follows (Table 5).

Table 5. Regression results.

Hypothesis	Results	Supported/Not Supported
H1: Board size positively influences the bank's financial performance	Negative - insignificant	Not Supported
H2: The independence of the board positively impacts the bank's financial performance	Positive -insignificant	Not Supported
H3: The number of female directors negatively impact the bank's financial performance.	Negative significant	Supported

4. Results and discussion

4.1. Findings and discussion

Firstly, the board size measured by "Board size" has a negative influence on profitability measured by ROA and ROE, but this influence is not statistically significant. These findings align with the conclusions of V.H. Duc, et al. (2013) [20] which encompassed 77 listed firms on the HOSE Vietnam stock exchange between 2006 and 2011. To shed light on this finding, the author offers some explanation that Vietnam has a strong hierarchical culture where authority and decision-making traditionally reside at the top. Vietnamese culture often emphasises collectivism over individualism. In larger boards, there may be more diverse opinions and interests, which can lead to conflicts and difficulties in reaching a consensus. This may hinder the abilities of the board to make quick and effective decisions, ultimately affecting bank performance metrics. Smaller and more agile boards may be better suited to adapt to the rapidly changing business environment and make quicker decisions. The author recommended that bank's decision-makers should consider both agency costs and resource dependency when determining a firm's ideal board size.

Secondly, the proportion of independent directors has a positive influence with profitability measured by ROA and ROE; however, this influence is not statistically significant. It is worth noting that while statistical significance might not always be evident, the presence of independent board members can exert a substantial positive influence on a business's ability to generate profits. In the context of Vietnam, where family dominance and regulatory oversight might be less stringent, the need for independent directors becomes particularly significant. Independent directors play a crucial role in safeguarding the interests of minority shareholders. Consequently, this heightened vigilance is likely to be related to improved firm performance, including both ROE and ROA. This result may imply that factors other than board independence play a more dominant role in shaping financial outcomes for banks in Vietnam.

Thirdly, the result suggests that the presence of female members on the Board of Directors may lead to a statistically significant 5% reduction in the bank's performance. From reviewing these literatures, three potential explanations for the negative influence between female directors and bank performance emerge as follows. The first argument is that women tend to be more risk-averse than men, potentially leading to a more cautious approach in decision-making, which can impact bank performance [22]. Secondly, tokenism occurs when women are appointed as 'tokens' and may not contribute substantively to board decisions [23]. Gender diversity may negatively affect the performance of the firm if women directors are appointed as "tokens" rather than for their competence. Thirdly, it is explained that when gender diversity focuses on societal pressure and certain quota sets by government regulations, thus to fulfill said quota and adhere to societal pressure, companies induct incapable and incompetent female directors for their board which affects the efficiency of companies [22].

4.2. Policy implications

The finding that the presence of female members on the Board of Directors may lead to a statistically significant reduction in the bank's performance may also prompt further investigations into the specific mechanisms or contextual factors that contribute to the observed reduction in performance loss associated with the presence of female members on the Board of Directors in the context of the Vietnamese banking sector. Based on the third hypothesis for why board diversity may negatively impact a bank's performance, here are some bank's recommendations for policymakers to counter those effects.

Firstly, recognising the impact of gender differences in risk aversion is paramount. Policymakers should advocate for banking institutions to embrace a nuanced approach to risk management that values diverse perspectives. Encouraging open dialogues on risk and reward among board members, irrespective of gender, can foster well-informed decision-making.

Secondly, addressing the negative consequences of tokenism is another critical policy consideration. To counteract the adverse effects on firm performance, policies should emphasise the appointment of female directors based on merit, qualifications, and expertise rather than as a mere diversity checkbox. Establishing an inclusive corporate culture that values diversity and ensures the meaningful integration of all board members in decision-making processes is essential.

Finally, in response to government regulations and societal pressures, policy makers should advocate for a shift from a quantitative to a qualitative approach in promoting gender diversity. Emphasising merit-based selection processes over numerical quotas ensures that female directors are chosen for their ability to contribute effectively. Mandating transparency and reporting on diversity and inclusion efforts, including board gender composition, serves as a powerful tool to incentivize companies towards proactive measures in improving diversity. Policymakers play a pivotal role in steering organisations towards a future where gender diversity is not only a statistical target but a genuine enabler of corporate excellence.

It is important to note that the relationship between gender diversity and firm performance is a complex and heavily debated topic. While this finding may not conform to conventional expectations in all cases, they underscore the need for a more comprehensive understanding of the contextual factors, dynamics, and nuances that shape the governance-performance influence. As corporate governance practices continue to evolve, our research highlights the importance of considering these multifaceted influences when formulating governance strategies and policies in the banking sector.

5. Conclusions

The article examined three hypotheses relating to the influence between corporate governance variables and financial performance indicators. It suggests that the size of the board and the higher number of independent directors does not significantly influence financial performance within the banking sector as the analysis showcased an insignificant influence. The analysis presented a finding that a higher number of female directors is associated with a negative and significant effect on bank performance. These results provide insights into the complex influence between corporate governance variables and financial performance within the context of the study. Some results can be attributed to a combination of cultural, historical, and political-social factors in Vietnamese society context. Understanding these contextual factors is crucial for devising governance reforms that better align the interests of the board with the financial performance of banks in Vietnam.

Several limitations were encountered during the course of this study, which should be acknowledged. *Firstly,* the study was focused on the Vietnamese banking industry, specifically on locally listed banks. This led to a constrained sample size, as foreign commercial banks were excluded due to resource limitations. Therefore, the other nine wholly foreign banks in Vietnam: ANZ, CIMB, Hong Leong, HSBC, Public Bank, Shinhan Bank, Standard Chartered, UOB and Woori were not included because these foreign banks are mandated to report their board size, board structure to the State Bank of Vietnam and are not required to publish their corporate governance on the website or Vietnam Stock Exchange. *Secondly,* the study's timeframe was limited to a seven-year period, spanning from 2015 to 2022. The reason being that several banks disclosed Corporate Governance annual reports only for recent years, and some didn't disclose reports before 2015, making it impossible for the author to gather data on independent directors, board size, and the number of female directors prior to that year. One recommendation for future research in Vietnam is to use a larger sample of banks with different methodologies, such as surveys, case studies, and qualitative research, to find out the causes of the question of why the presence of women on boards might impact financial performance.

In conclusion, the future recommendation can broaden the scope of corporate governance variables and diversifying the methods of measuring bank performance and stability will enhance the depth and breadth of future research in this field, providing more comprehensive insights into the intricate influence between governance and bank outcomes.

CRediT author statement

Cao Phan: Writing-Original draft preparation, Reviewing the paper; Hai Yen Hoang: Methodology, Supervision, Validation, Reviewing and Editing; Tan Thi Nguyen: Conceptualisation, Data curation.

COMPETING INTERESTS

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

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A pathway to digitising Vietnamese mango value chains to facilitate international export growth

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Abstract:

Recent growth in global demand for fresh mangoes has created an attractive export opportunity for Vietnam's mango industry. However, accessing international markets requires adherence to stringent quality, safety, and traceability standards. This article highlights three key areas where digital information technology (DIT) can enhance the efficiency of Vietnam's mango export value chain to meet these requirements. First, DIT can improve communication and the sharing of market information among stakeholders while simultaneously enhancing quality, safety, and traceability standards. Second, digital technology can automate various activities within the value chain, creating opportunities to reduce production costs and improve product uniformity. Finally, it can facilitate the recording and tracking of stakeholders' activities to ensure compliance with traceability requirements. However, the adoption of digital technology by mango farmers remains limited due to the need for substantial investment capital, a lack of DIT-related skills, and the traditional absence of farm record-keeping for improving management practices. This study found that both financial and non-financial government support programmes are essential for the widespread adoption of digital technology across the mango value chain. These programmes can provide the necessary resources and training to develop a more efficient and competitive mango export value chain.

Keywords: **digital information technology, global market requirements, Vietnam's export mango value chains.**

Classification numbers: **2.1, 2.2**

1. Introduction

Mangoes (*Mangifera indica L.*) rank among the most widely consumed fruits worldwide, with global consumption experiencing significant growth due to increasing income levels and evolving dietary habits [1]. Consequently, production and exports are rising, particularly from Asia, with a projected annual growth rate of 3.3% from 2020 to 2030 [2]. Southeast Asia, as the genomic home of mangoes, is home to major producers such as India, China, and Thailand [3]. Despite this, Vietnam is currently ranked only tenth in global production, accounting for approximately 3% of total world output [4].

At present, Vietnam exports mangoes to 53 countries and territories. While Vietnamese mangoes are exported to markets such as the US, the European Union (EU), and Japan, export volumes remain modest. China is the most significant export market, representing over 83% of the market share and contributing USD 151.8 million to the total mango export value. Other importers of Vietnamese mangoes include Russia, Papua New Guinea, the US, South Korea, EU, Australia, and Japan (Fig. 2). In 2020, the global export value of mango products reached USD 12.3 billion; however, Vietnam's export turnover was approximately USD 180.8 million, accounting for just over 1.5% of the global market [5].

Over the past three years, mango production volumes in Vietnam have steadily increased, accompanied by significant growth in export volumes and revenues. The Vietnamese government aims to expand mango cultivation from 87,000 to 140,000 ha by 2030, with the goal of positioning Vietnam among the top 15 organic-producing countries by the same year [6]. Since mangoes are predominantly consumed fresh, compliance with general quality standards, food safety regulations, and traceability requirements mandated by importing countries is essential for export success [7-11]. This includes achieving organic certification and ensuring adherence to international quality and traceability standards. The government has a critical

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role in issuing specific production unit codes (PUCs) for mango-growing areas designated for export markets. These codes validate the authenticity of growing regions by certifying their compliance with established quality standards, ensuring that products meet the requirements set by importing countries. As of now, the Vietnamese Ministry of Agriculture and Rural Development (MARD) has issued 845 PUCs for mango-exporting regions nationwide [6]. Consequently, product attributes such as food safety, quality standards, and traceability should be prioritised as key information to be exchanged among stakeholders in the value chain to ensure effective compliance.

The adoption of DIT, such as smartphone-based tools for weather monitoring, farm management recording, marketing information, and traceability data, could enable actors throughout the mango value chain to meet these requirements. However, practical implementation of DIT in agribusiness value chains remains a significant challenge [12-14].

The research is guided by the following questions: (1) How do current information exchange practices and communication flows among mango value chain actors influence their capacity to adhere to international market requirements?; (2) What are the perceived benefits of DIT adoption for mango farmers and other value chain stakeholders in the context of international market compliance?; (3) What constitute the principal constraints and challenges impeding the effective adoption and implementation of DIT within the Vietnamese mango value chain?; (4) How can governmental intervention in the mango industry effectively facilitate the application of DIT to enhance traceability and food safety within mango export value chains?

By focusing on two exemplary mango value chains in Son La and Dong Thap provinces, this research aims to propose a possible pathway for improving the mango industry's adoption of DIT that will build its capability to meet the international market requirements.

2. Literature review

While opportunities for Vietnamese mango production are evident, total factor productivity in agriculture is declining. The industry is characterised by small landholdings, institutional constraints, reliance on low-skilled labour, and traditional production methods [15]. Decades of agricultural research have identified several specific challenges, including poor agronomic practices and farm business management, a lack of collaborative marketing to achieve economies of scale, inefficient supply chains [16, 17], and an inability to comply with the requirements of modern international markets in and non-compliance with modern international standards for quality, food safety, phytosanitary measures, and provenance [18]. Addressing these issues is critical for enhancing the competitiveness of Vietnamese mangoes in the global market.

The World Bank has identified information gaps within the agricultural value chain as a primary contributor to high transaction costs and low productivity in Vietnamese agriculture. These issues arise primarily from the lack of effective decision-support systems and the inability of key stakeholders to access necessary information, address challenges, and communicate effectively within the value chain [15]. However, Vietnam holds significant potential for digital transformation, given that it has the third most affordable digital access globally. Additionally, 90% of farmers own mobile phones, and 42% have access to 3G or 4G networks [19].

Various proposals have advocated the adoption of DIT, such as blockchain technology, to enhance traceability, food safety, and food authenticity in agriculture [14, 20]. Studies have also shown that applying DIT in farming can boost labour productivity and increase transparency within the value chain [21, 22]. Digital green value co-creation behaviour has been identified as a tool for agribusinesses to achieve sustainable ecological advantages in today's complex market environment [23]. However, despite its potential, concerns have been raised about the challenges posed by the heterogeneity of the agrifood sector, infrastructure limitations, small farm scale, and resource constraints [13, 24]. Globally, blockchain technology is in its infancy, with few established standards and significant challenges related to transaction risks, high costs, interoperability, and scalability [25-28].

Addressing these challenges requires a multi-faceted response from the government, with digital literacy identified as the first stage of digital transformation in agriculture [29]. From 2015 to 2017, the Vietnamese government introduced policies focused on developing Industry 4.0 through initiatives such as Decision No. 392/QD-TTg (2015), which outlined a vision for the digital transformation of the agricultural economy, Decision No. 149/QD-TTg (2016), which focused on infrastructure development, and Directive No. 16/CT-TTg (2017), which aimed to strengthen progress in this domain.

Although digital transformation offers a promising pathway to improving value chain efficiency, small farmers in developing countries face significant challenges during this process. The World Bank [15] identified that this involves the level of knowledge and skills of the workforce in both technical and soft skills. Regarding this condition, there has been a shortage of employees with professional and technical training in the Vietnam agribusiness [19]. The lack of skills has made agricultural labour productivity relatively low.

A study on value-based decision-making [30] identified that a behavioural shift in traditional farmers' values combined with reputational enhancement and resourcing is required to achieve a change in their self-perception regarding professional-oriented values [23]. Others have highlighted the cost-benefits of focusing on digital literacy and providing the resources to access the internet [31, 32] and the ability to recognise opportunities and accept the risks associated with pursuing the opportunity [33-36].

However, beyond that, there appears to be a widespread lack of understanding of how digitisation has value for smallholders in agribusiness [37]. This is likely because, at the current stage, available technologies are largely limited to smartphone applications, with few specifically designed for agriculture [29].

These imperatives coupled with the low starting base for commencing the transition raise questions about the status of farm labour competencies, how can technology assist, what technologies are appropriate, the scope of competencies needed, and the training priorities [13, 15, 22].

This article seeks to address the question "How can the Vietnamese Government support the application of digital information technologies to improve traceability and food safety in selected mango export value chains in two provinces in northwest and southern Vietnam?" The following sections describe how this investigation's results and findings provide a policy pathway for the Vietnamese Government to develop the industry's capacity to expand international exports of mango products.

3. Methodology

3.1. Site selection

The MARD assisted in selecting two distinct but significant production regions for this investigation: Dong Thap province, located 165 kilometres southwest of Ho Chi Minh City, is a leading producer in the south, while Son La province, situated on the Moc Chau plateau in northwest Vietnam, is a major cool-temperate green mango production area.

Mangoes are predominantly cultivated in the Mekong River delta, which accounts for approximately 48% of the total mango cultivation area in Vietnam. Among these, Dong Thap province is identified as a critical locality, with 13,000 ha under cultivation and an annual output of nearly 113,000 tonnes. Mangoes are cultivated year-round in Dong Thap, with the fruit carefully covered to ensure safety and an appealing appearance. The province has registered 62 PUCs for export to China, covering 3,927 ha, and 45 PUCs for export to other developed countries, encompassing 988 ha [38].

Similarly, the Plant Protection Department of the MARD has granted 99 PUCs to Son La province, covering over 1,400 ha. Most of the mangoes produced in this region comply with VietGAP, GlobalGAP, and organic production standards.

Vietnam cultivates a wide variety of mangoes, with the most popular commercial varieties being Cat Hoa Loc, Cat Chu, and Green Taiwanese. In Son La, Green Taiwanese mangoes are the predominant variety, with an average cultivation area of 0.71 ha per household. In contrast, the cultivation area for Green Taiwanese mangoes in Dong Thap is significantly smaller, averaging 0.06 ha per household. In Dong Thap, Cat Chu is the primary variety, with an average cultivation area of 0.34 ha per household, followed by Cat Hoa Loc, with 0.14 ha per household.

Mango production in Vietnam has gradually increased in recent years, reaching 938.2 thousand tonnes in 2021 [37]. However, climate-related risks, particularly in Son La, have increasingly impacted production. Approximately 76.52% of respondents in Son La reported experiencing production losses due to adverse weather and crop failures over the past three years. Despite this, income from mango cultivation contributes significantly to household livelihoods, accounting for 55.10% of the average household income in Son La and 75.97% in Dong Thap [39]. This indicates a higher dependency on mango production in Dong Thap compared to Son La.

3.2. Research methods

The study utilised a Participatory Action Research (PAR) approach, encompassing a desk study of relevant literature on mango production, in-depth interviews with mango experts, focus group discussions in each province with 10-12 key stakeholders, and face-to-face survey interviews with 150 farmers in each province.

A desktop analysis was conducted on food safety regulations for four major potential markets: China, South Korea, Australia, and the United States. This was followed by in-depth interviews with representatives from the Agri-Trade Promotion Centre (MARD) and three mango exporters from Dong Thap and Son La provinces to understand the challenges of compliance with these regulations.

The focus group discussions were employed to elicit diverse viewpoints and assess their relative efficiency in capturing a wide range of perspectives from value chain stakeholders [40]. The focus group membership was selected using stratified purposeful sampling [41, 42], a non-probability sampling method that divides the sampling frame into strata to create relatively homogeneous sub-groups, from which a purposeful sample is drawn. The strata included representatives from local government authorities, farmers' unions, cooperatives, collectors (aggregators), and exporters. Discussion topics were developed in collaboration with MARD and industry stakeholders.

Survey interviews were conducted with 298 respondents, 148 from Son La and 150 from Dong Thap. Due to literacy concerns, a member of the research team completed the pre-tested survey instrument on behalf of the respondents. Participants were selected using a stratified random sampling method based on local authority records, considering criteria such as location, experience, scale of operation, participation in export production, and technological engagement. The survey instrument was developed in collaboration with stakeholders. Female labourers accounted for an average of 20.81% of respondents in both areas, although women in Vietnam generally do not head households or make production decisions. This is about half the reported rate of female labour participation in agricultural activities overall in Vietnam [39].

The data collected were used to develop a Theory of Change through a large systems change approach [43] with our PAR methods [44, 45]; adopting a multi-strategy approach to designing change which employed two of the four strategies identified by [43]: 'Co-creating change' and 'Supporting Change'. A logic model was constructed using problem and objective tree analysis, followed by listing activities to achieve the objectives. Causal connections were then developed from these activities to project outputs, outcomes, impacts, and strategic impacts, with identified assumptions and external risks summarised into a pathway diagram for ease of interpretation.

We then analysed the study's results using [46] "Policy Platforms" framework, which has been influential in regional innovation systems policy in Europe, to assist the development of 'constructed advantage' for Vietnam's Mango Industry. This framework supports the development of 'constructed advantage' for Vietnam's mango industry by leveraging existing social capital to facilitate product innovation, local governance mechanisms, knowledge infrastructure, and community and cultural readiness for innovation. This involves:

• Proactively 'constructing' economic competitiveness in regions, promoting inter-firm interactions, integration of knowledge generation, both local and global business networks.

• Developing governance mechanisms using multilevel governance of stakeholder interests, policy-support for innovators, enhanced budgets for research and vision-led policy leadership.

• The collaboration of knowledge-based organisations in constructing advantage in regions including universities, public sector research, public sector agencies, and NGOs focused on problem-solving.

• Community and culture: community and a public cultural orientation toward pro-activity and innovation using communication techniques [46].

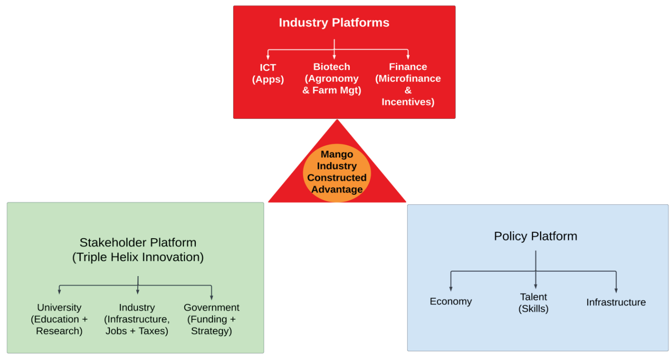

Fig. 1. Policy platforms adapted for Vietnam's export mango industry [46].

Finally, the study's results were presented to 35 processors/exporters, local government officers, and academics in a consultation workshop for critical feedback. The workshop included six presentations by chain stakeholders regarding potential pathways to improve the capacity and skills of workers in mango farms.

Microsoft Excel was used for data management, while SPSS software was employed for descriptive and comparative analyses and to conduct significance tests on the perspectives of respondents across provinces, genders, and ethnicities.

4. Results

Typically, the Mango Value Chain actors engage across three exchange domains: the Product Flow, the Information/Communication Flows, and the Governance Relationships, all of which are centred on delivering value to consumers (Fig. 2). Product Flows involve the physical exchange of goods which in the mango chain flow only towards the Processor/Exporters. The Information/Communication Flows are two-way and usually involve the management of the key supply risk concerns of the Aggregators and the Processor/Exporters. Finally, the third flow is the exchange related to the chain's coordination which is achieved using formal and informal (relational) contracting and Incentives/Disincentives. Ultimately, it is consumer demand for specific value attributes in the product that drives the chain's efficiency and effectiveness. This consumer-driven pull ensures optimal value delivery throughout the chain [47].

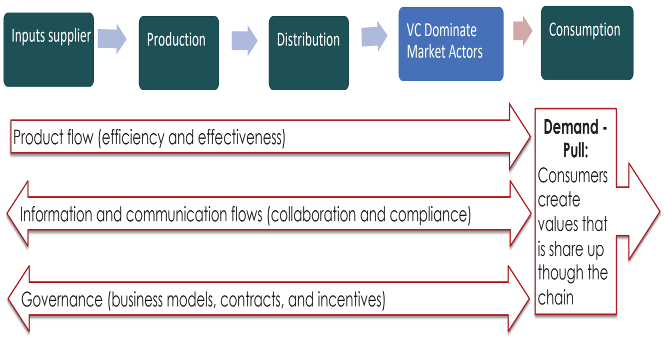

Fig. 2. Domain of exchanges among actors in the mango value chain. Source: Own compilation from the literature [16, 46], interviews and FGDs.

The following sections primarily present findings related to Information/Communication Flows, as these are the areas where DIT can have the greatest impact. We also discuss results related to Production and Product Flows, given that digital tools provided to farmers and aggregators can significantly improve data collection. Such advancements can support the modernisation of mango supply chains, ensuring compliance with international frameworks for quality, food safety, and traceability. This alignment with consumer-driven values can ultimately lead to the upgrading of mango value chains.

4.1. Information perceived by mango farmers

The survey revealed significant disparities in demographics, education, and training opportunities between the two study regions. For instance, ethnic minorities represented 81.76% of participants in Son La, with most identifying as Thai (a minority ethnic group) (Table 1). By contrast, only Kinh (the ethnic majority) participants were recruited in Dong Thap. Additionally, the proportion of farmers with a high school education or higher was low, at just 26.84% across the sample. Dong Thap had a higher rate of educated farmers compared to Son La, indicating that a lack of formal education may influence farmers' awareness and behaviour towards adopting digital technologies.

Table 1. Overview of the survey (n=298).

Proportion of	**Percentage (%)**		
	Average	***Dong Thap***	***Son La***
Female respondents	20.81	6.67	35.14
Ethnic minority respondents	40.61	-	81.76
Female respondents with high school education and above	26.84	35.33	18.24
Household income from mango production	55.10	75.97	33.95

Source: Own compilation from the surveyed data.

Training opportunities were also unevenly distributed. Farmers in Dong Thap were more likely to have participated in training sessions compared to those in Son La, both in production (87.3% versus 58.1%) and marketing (15.3% versus 5.4%) (Table 2). However, these training sessions primarily focused on production practices, with limited coverage of supply chain information or DIT-related content. Farmers in Son La were often unaware of the types of training courses available, particularly those related to marketing.

Table 2. Mango production and marketing training experiences (n=298).

		Province				Gender of household head				Total	
		Dong Thap		*Son La*		*Male*		*Female*			
		Count	*%*	*Count*	*%*	*Count*	*%*	*Count*	*%*	*Count*	*%*
1. Training on growing mango	Yes	131	87.3%	86	58.1%	208	73.5%	9	60.0%	217	72.8%
	No	19	12.7%	62	41.9%	75	26.5%	6	40.0%	81	27.2%
• Production, harvest and post-harvest techniques	Yes	125	96.9%	79	100.0%	196	98.5%	8	88.9%	204	98.1%
	No	4	3.1%	-		3	1.5%	1	11.1%	4	1.9%
• Plant protection (pest management)	Yes	21	16.3%	19	24.1%	37	18.6%	3	33.3%	40	19.2%
	No	108	83.7%	60	75.9%	162	81.4%	6	66.7%	168	80.8%
• Plant nutrition and fertilisation	Yes	10	7.8%	13	16.5%	22	11.1%	1	11.1%	23	11.1%
	No	119	92.2%	66	83.5%	177	88.9%	8	88.9%	185	88.9%
• Post-harvest techniques (pre-processing, preservation, processing) (organic/ GAP standards)	Yes	5	3.9%	1	1.3%	6	3.0%	-		6	2.9%
	No	124	96.1%	78	98.7%	193	97.0%	9	100.0%	202	97.1%
• Agri- standards (Organic, VietGAP, GlobalGAP, Safe)	Yes	60	46.5%	1	1.3%	60	30.2%	1	11.1%	61	29.3%
	No	69	53.5%	78	98.7%	139	69.8%	8	88.9%	147	70.7%
• Traceability (Production Unit Code - PUC, bookkeeping - diary, VietGAP or GAP/ organic - standards)	Yes	71	55.0%	1	1.3%	70	35.2%	2	22.2%	72	34.6%
	No	58	45.0%	78	98.7%	129	64.8%	7	77.8%	136	65.4%
• IFAD	Yes	2	1.5%	-		2	1.0%	-		2	0.9%
	No	127	96.9%	79	91.9%	197	94.7%	9	100.0%	206	94.9%
2. Mango business training	Yes	23	15.3%	8	5.4%	31	11.0%	-		31	10.4%
	No	127	84.7%	140	94.6%	252	89.0%	15	100.0%	267	89.6%
• E-commerce (online marketing, e-sales, IFAD)	Yes	11	52.4%	-		11	47.8%	-		11	47.8%
	No	10	47.6%	2	100.0%	12	52.2%	-		12	52.2%
• Marketing, sale, negotiation	Yes	16	76.2%	2	100.0%	18	78.3%	-		18	78.3%
	No	5	23.8%	-		5	21.7%	-		5	21.7%
• GAP & IFAD	Yes	4	19.0%	-		4	17.4%	-		4	17.4%
	No	17	81.0%	2	100.0%	19	82.6%	-		19	82.6%
• Business economics and business management (+GAP)	Yes	13	61.9%	-		13	56.5%	-		13	56.5%
	No	8	38.1%	2	100.0%	10	43.5%	-		10	43.5%

Source: Own compilation from the surveyed data.

Unfortunately, women often have fewer opportunities to participate in training programmes that transfer scientific and technical knowledge [8-11] (also see [48]). In the survey, 60% of female household heads participated in mango production training sessions, compared to 73.5% of male household heads. None of the female participants attended business training courses, while 11% of men did. This gender disparity is consistent with broader trends in Vietnam, where women are often disadvantaged in accessing agricultural jobs and extension programmes. Consequently, women's economic contributions in farming are frequently constrained.

The average area of a farm household under mango cultivation in this study is relatively small, at 0.9 ha. The smallest area reported is 0.1 ha, while the largest is 5 ha. Mango-growing households in Dong Thap generally operate on smaller plots compared to those in Son La.

As highlighted in the introduction, key product attributes-food safety, quality standards, and traceability-should constitute the core elements of communication among stakeholders within the value chain. However, except for quality standards, survey results indicate that most mango farmers lack sufficient understanding of the diverse aspects required for export markets. Notably, farmers from Son La exhibit a slightly higher level of awareness compared to their counterparts in Dong Thap, although traceability and export market pricing remain the least understood topics across both provinces (Table 3). These findings align with the training experiences reported by mango labourers (Table 2).

Table 3. Mango farmers' awareness of market requirements (n=298).

Mango farmers' awareness (%)	Son La	Dong Thap	Average
Export market prices	37.8	53.3	45.6
Affordable prices	73.7	46.0	59.8
Importance of the stable supply quantity	34.5	43.3	38.9
Market requirements for quality standards	85.8	66.7	76.2
Market requirements for varieties	71.0	45.3	58.1
Market requirements for food safety	56.1	52.0	54.0
Market requirements for traceability	31.8	44.7	38.2
Provincial average	55.8	50.2	

Source: Own compilation from the surveyed data.

Farmers ranked market information in terms of importance as follows: (1) stable supply quantity, (2) traceability, and (3) food safety. Remarkably, 'prices' ranked fifth out of six categories, suggesting that farmers do not view pricing as a critical factor in their marketing and production decisions. This indicates that while farmers recognise the importance of market requirements, their access to such information requires significant improvement.

Limited communication with other value chain actors severely restricts mango growers' access to market-related information. Respondents overwhelmingly reported that direct, face-to-face communication is the most effective method. This approach is predominantly used to communicate with traders (65.44%), other farm workers (57.72%), and local officials (19.8%). Face-to-face communication was favoured for its clarity, friendliness, and the ability to exchange detailed information. However, less than 50% of communication on food safety and traceability requirements occurs through this method.

Digital communication tools, such as Zalo or Facebook, are also used but represent a relatively small share of overall value chain communications. There are notable differences in the perceived effectiveness of these tools between regions. In Dong Thap, only 36.7% of respondents considered e-communication effective, compared to 82.4% in Son La. Thai ethnic households, which are more prevalent in Son La, tend to use digital communication more frequently than Kinh households, potentially explaining the regional differences.

Additionally, the percentage of farmers who record and store information related to mango production and trading is low, ranging from 15.4% to 35.2%. Farmers in Dong Thap are more likely to record information compared to those in Son La. However, the use of computers or smart devices for recording purposes is minimal, at only about 1% of the total sample. While over 50% of farmers believe that recording and storing information is necessary, this practice remains uncommon in reality.

4.2. Information perceived by other mango value chain stakeholders

Each stage of the supply chain has distinct information needs (Table 4), as identified through in-depth interviews, focus group discussions, and a consultation workshop. These needs can be categorised into three primary domains:

Domain 1: Farmers' need for marketing price, volume, quality assurance standards and time scheduling information;

Domain 2: Exporters' need for yield, volume information plus quality assurance audit data for food safety, traceability, provenance compliance plus expected harvest dates;

Domain 3: Supply chain aggregators who need yield, volume information plus quality assurance audit data for food safety, traceability, provenance compliance plus expected harvest dates.

Table 4. Mango value chain actor's needs for external information.

Input suppliers	Mango farmers	Cooperatives	Collectors	Exporters	Consumers
Quantity of mango production in the market area	Market price - export Export demand volume Export product quality standards Market price - domestic	Member's potential production Post harvest and processing technique Demand by grade/ quality Production volume X time	Export product quality standards Volume demand for different mango grades by exporters Price by grade Compliance with quality assurance standards Production volume X time	Potential market demand for export mangos Expected production yield Product attributes (quality, food safety traceability) Probable yield Compliance with quality assurance standards	Product attributes (quality, food safety, traceability, provenance) Price

Source: Own compilation from the interviews, FGDs and the consultation workshop.

Mango exporters are the dominant actors in the value chain, possessing substantial knowledge of market requirements (Table 5). Exporters negotiate directly with key producers (e.g., cooperatives and large farms in Dong Thap) and multilevel collectors (e.g., district- or communal-level collectors) to reach smaller farmers, particularly in Son La. However, formal contracts that clearly outline market requirements are uncommon, especially with small-scale producers. Instead, verbal agreements are widely used, increasing the likelihood of non-compliance with market standards at the production level.

Cooperatives often play a critical role in aggregating outputs from member farmers and managing sales and market requirements with larger collectors or export companies. However, their capacity is limited; they primarily act as intermediaries rather than exporters. This limitation is particularly evident in remote areas like Son La, where export treatments (e.g., irradiation for the US and Australia, vapour heat treatment or hot water treatment for Japan and South Korea) must be performed in distant cities such as Hanoi or Ho Chi Minh City.

During field visits, a notable exception was observed in Dong Thap, where one exemplary cooperative had established annual contracts with mango exporters. This cooperative outsourced marketing activities to the exporters' teams, offering a 5-10% commission. By doing so, the cooperative gained timely access to market requirements and effectively planned its production and marketing activities.

Table 5. General requirements of the export market for mango fresh fruit.

Requirements	Meaning	Criteria relating to fresh mango product	Import assessment criteria	Compliance evidence
Food safety	Food safety refers to the handling, storing, and preparing food to prevent infection and to help ensure that food contains enough nutrients for a healthy diet.	Pesticide residues and contaminants	A set of maximum residue levels (MRLs) for pesticides	Certificate of plant quarantine
			Lead contamination and cadmium MRLs	
			Microbiological contamination (for fresh-cut mango)	
		IPM	Good agricultural practices	GAP or other certificates
		Phytosanitary	The product has been treated effectively to ensure freedom from fruit flies *Tephritidae spp* and was produced in a fruit fly free area.	Phytosanitary certificates with traceability information
Food quality standards	Food quality is the combination of food product attributes or characteristics that have significance in determining the degree of acceptability of the product to a consumer. Food standards are the mandatory national regulatory requirements that cover food safety and handling, food labelling and advertising and food composition, including contaminants, residues and additives.	Mangoes in the exported class must be of good quality and within the permissible tolerance levels as specified in the *International Standards for Fruit and Vegetables for Mangoes* [2].	In no case may the defects affect the fruit flesh, the general appearance of the produce, the quality, the keeping quality and the packaging presentation.	Classification on the packing label
Traceability	Ability to follow the movement of a food product through specific stages of production, processing, and distribution along the supply chain.	A digital traceability system with labelling in mango fruit throughout the supply chain from producers to the consumer. A farming information system is essential as well as whole-of-supply chain transparency.	A digital traceability system providing evidence of safety, authenticity and provenance ideally combined with a consumer digital app providing traceability information.	Labelling and audit data

Source: Own compilation from the literature, interviews, FGDs and the consultation workshop.

4.3. Constraints to adopting DIT for expanding export production

In various interviews and focus group discussions, many value chain stakeholders emphasised the growing importance of adopting DIT for mango exports. They also recognised its increasing relevance in meeting the rising quality standards demanded in domestic markets. However, many mango farmers were unable to perceive the benefits of applying digital technologies. A significant proportion of farmers - 71% in Dong Thap and 74% in Son La - considered this a moderate to extremely serious issue (Table 6). The survey also highlighted several barriers to DIT adoption, which were of significant concern to the majority of respondents. These barriers include: lack of availability and quality of internet connection; too costly for procurement and maintenance, service; lack of confidence in using technology of employees; difficulty accessing support and training; and concerns about privacy, security, and data security (Table 6).

Table 6. Main problems when applying digital information technology technology (n=298).

Adoption barrier(s)		Dong Thap		Son La	
		Count	*%*	*Count*	*%*
Lack of availability and quality of internet connection	0 = Not at all	22	14.7%	35	23.6%
	1 = Very minor problem	13	8.7%	32	21.6%
	2 = Minor problem	14	9.3%	21	14.2%
	3 = Moderate problem	34	22.7%	37	25.0%
	4 = Serious problem	33	22.0%	15	10.1%
	5 = Extremely serious problem	34	22.7%	8	5.4%
Too costly for procurement and maintenance, service	0 = Not at all	18	12.0%	16	10.8%
	1 = Very minor problem	8	5.3%	8	5.4%
	2 = Minor problem	18	12.0%	17	11.5%
	3 = Moderate problem	40	26.7%	30	20.3%
	4 = Serious problem	36	24.0%	35	23.6%
	5 = Extremely serious problem	30	20.0%	42	28.4%
Lack of confidence in using technology of employees	0 = Not at all	13	8.7%	8	5.4%
	1 = Very minor problem	9	6.0%	25	16.9%
	2 = Minor problem	6	4.0%	22	14.9%
	3 = Moderate problem	35	23.3%	30	20.3%
	4 = Serious problem	42	28.0%	36	24.3%
	5 = Extremely serious problem	45	30.0%	27	18.2%
Difficulty accessing support and training	0 = Not at all	18	12.0%	9	6.1%
	1 = Very minor problem	17	11.3%	24	16.2%
	2 = Minor problem	15	10.0%	24	16.2%
	3 = Moderate problem	36	24.0%	35	23.6%
	4 = Serious problem	32	21.3%	30	20.3%
	5 = Extremely serious problem	32	21.3%	26	17.6%
Concerns about privacy, security, and data security	0 = Not at all	21	14.0%	22	14.9%
	1 = Very minor problem	16	10.7%	34	23.0%
	2 = Minor problem	13	8.7%	32	21.6%
	3 = Moderate problem	53	35.3%	38	25.7%
	4 = Serious problem	26	17.3%	15	10.1%
	5 = Extremely serious problem	21	14.0%	7	4.7%
Can't see the benefits of technology	0 = Not at all	19	12.7%	7	4.7%
	1 = Very minor problem	13	8.7%	17	11.5%
	2 = Minor problem	12	8.0%	14	9.5%
	3 = Moderate problem	35	23.3%	40	27.0%
	4 = Serious problem	43	28.7%	26	17.6%
	5 = Extremely serious problem	28	18.7%	44	29.7%
Other	0 = Not at all	-		-	
	1 = Very minor problem	-		-	
	2 = Minor problem	-		-	
	3 = Moderate problem	-		-	
	4 = Serious problem	-		-	
	5 = Extremely serious problem	6	100.0%	2	100.0%

Source: Own compilation from the surveyed data

5. Discussion

5.1. The need for digital transformation

Six groups of actors are involved in the Vietnamese mango value chain, each with distinct information needs, as detailed in Table 4.

Typically, value chain actors engage in three types of exchanges, but the exchange of information is considered the most critical (Fig. 2). In this chain, the consumer acts as the leader, and their expected value or requirements should be communicated effectively and seamlessly across the value chain. All stakeholders have emphasised the importance of enhancing the information flows within the mango value chain, and the application of DIT has been recognised as a promising solution. However, improving the adoption of DIT will require tailored solutions to address the specific barriers faced by value chain actors. These proposed solutions are summarised in Table 7.

Even though digital transformation is promised as a possible pathway to improve the efficiency of the value chain, our literature review identified that small farmers in developing countries face many challenges in the digital transformation process [19-22]. In our research areas, most farmers have a positive attitude towards digital technology, with 52.01% saying they will start using it. The remaining farmers suggest, "Not sure if I have money to invest in production technology," or "It's too difficult to use production technologies." It is also worth noting that the percentage of households planning to adopt new equipment and technology for production soon is low, averaging 36.91%. This rate in Dong Thap is 48% higher than in Son La (only 1.35%), suggesting that farmers in Dong Thap are more willing to apply technology and machines than farmers in Son La.

Interestingly, female farmers desire and plan to apply technology more than male farmers. The frequent barriers they pointed out include a lack of capital to invest in technology, no need to apply automation due to small-scale production, lack of digital skills and competencies, not knowing how to optimise technology use, and fear of change because of their age. Concerns about privacy/security, data security, and lack of availability or quality of internet connections are not serious barriers for mango farmers.

5.2. Possible focus domains of digital transformation to improve the efficiency of the mango value chain

Adopting DIT could be a game-changer for Vietnam's agribusiness in general and for the mango export value chain in particular [49]. Digital devices could help actors communicate with others more easily, timely, and effectively than traditional methods such as face-to-face communication [50]. In addition, several studies have indicated that using digital technologies could lead to an increase in awareness and adoption of suitable agricultural technologies in production practices which

Table 7. Main solutions to improve the digital information technology adoption to local farmers (n=298).

Adoption solution		Dong Thap		Son La	
		Count	*%*	*Count*	*%*
1. Increase connection and improve internet quality	0 = Not necessary	14	9.3%	27	18.2%
	1 = Very little necessary	15	10.0%	28	18.9%
	2 = A little necessary	8	5.3%	9	6.1%
	3 = Necessary	16	10.7%	41	27.7%
	4 = Very necessary	49	32.7%	29	19.6%
	5 = Extremely necessary	48	32.0%	14	9.5%
2. Instructions on how to purchase and maintain the service	0 = Not necessary	9	6.0%	12	8.1%
	1 = Very little necessary	14	9.3%	26	17.6%
	2 = A little necessary	5	3.3%	9	6.1%
	3 = Necessary	35	23.3%	35	23.6%
	4 = Very necessary	42	28.0%	38	25.7%
	5 = Extremely necessary	45	30.0%	28	18.9%
3. Increase number of trainings in technology use for employees	0 = Not necessary	9	6.0%	5	3.4%
	1 = Very little necessary	15	10.0%	12	8.1%
	2 = A little necessary	2	1.3%	5	3.4%
	3 = Necessary	17	11.3%	29	19.6%
	4 = Very necessary	39	26.0%	31	20.9%
	5 = Extremely necessary	68	45.3%	66	44.6%
4. Increase number of trainings of farm management skills for workers	0 = Not necessary	6	4.0%	5	3.4%
	1 = Very little necessary	11	7.3%	20	13.5%
	2 = A little necessary	4	2.7%	2	1.4%
	3 = Necessary	24	16.0%	26	17.6%
	4 = Very necessary	33	22.0%	41	27.7%
	5 = Extremely necessary	72	48.0%	54	36.5%
5. Increase number of trainings in counter-sales skills for employees	0 = Not necessary	8	5.3%	3	2.0%
	1 = Very little necessary	15	10.0%	22	14.9%
	2 = A little necessary	5	3.3%	5	3.4%
	3 = Necessary	15	10.0%	19	12.8%
	4 = Very necessary	38	25.3%	39	26.4%
	5 = Extremely necessary	69	46.0%	60	40.5%
6. Dissemination of training on privacy, security and data safety	0 = Not necessary	12	8.0%	20	13.5%
	1 = Very little necessary	16	10.7%	27	18.2%
	2 = A little necessary	8	5.3%	7	4.7%
	3 = Necessary	24	16.0%	27	18.2%
	4 = Very necessary	29	19.3%	30	20.3%
	5 = Extremely necessary	61	40.7%	37	25.0%
7. Demonstration model of the benefits of technology	0 = Not necessary	9	6.0%	5	3.4%
	1 = Very little necessary	13	8.7%	7	4.7%
	2 = A little necessary	4	2.7%	5	3.4%
	3 = Necessary	18	12.0%	23	15.5%
	4 = Very necessary	28	18.7%	41	27.7%
	5 = Extremely necessary	78	52.0%	67	45.3%
Other	0 = Not necessary	-		-	
	1 = Very little necessary	-		-	
	2 = A little necessary	-		-	
	3 = Necessary	-		-	
	4 = Very necessary	1	100.0%	1	50.0%
	5 = Extremely necessary	-		1	50.0%

Source: Own compilation from the surveyed data.

resulting in reductions in production costs and higher efficiency [51-54]. Other research suggests that digital farm management technologies such as e-Diaries could ensure transparency, traceability, and food safety, while improving the quality of Vietnamese mangoes to meet the requirements of high-end customers [12-14].

The traceability system is a transparent mechanism to promote sustainable agriculture practices and create operational efficiency in the entire chain management [55-57]. This also creates a social impact for various stakeholders through sharing recorded and formulated information on mango production, grading, or processing. Moreover, the traceability feature is the added value for high-demand and cautious customers. End-user customers may access the relevant information for checking food safety and originality, including free pesticide test certificates, growing location, and growing methods [58].

All of these focus domains for DIT and potential impacts in the mango value chain are depicted in Fig. 3.

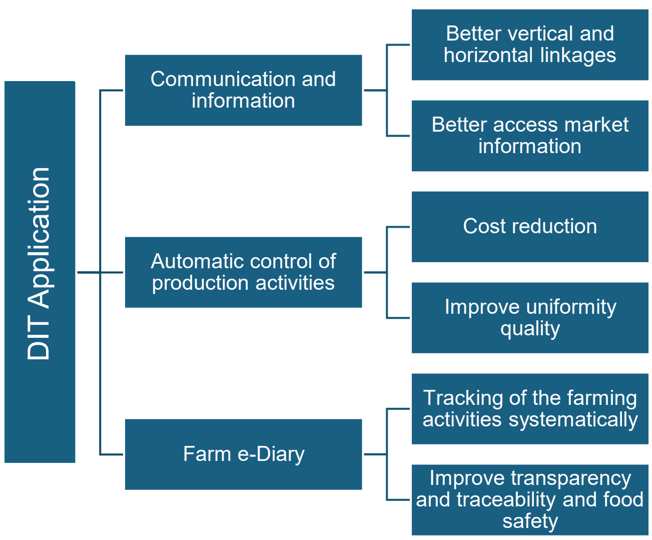

Fig. 3. Focus domains for digital transformation and potential impacts in the mango value chain. Source: Own compilation.

5.3. A pathway to digitising Vietnamese mango value chains

Digital transformation is now a prevailing trend in modern food production supply chains. To improve the mango value chain's performance, stakeholders must recognise this trend and commit to the transformation process, supported by government interventions.

The Theory of Change analysis summarised the quantitative and qualitative data collected during this project into a flow or "pathway" diagram for ease of interpretation (Fig. 4). The roles of MARD and provincial DARDs are critical in facilitating DIT adoption, particularly through institutional approaches and available resources, including financial support.

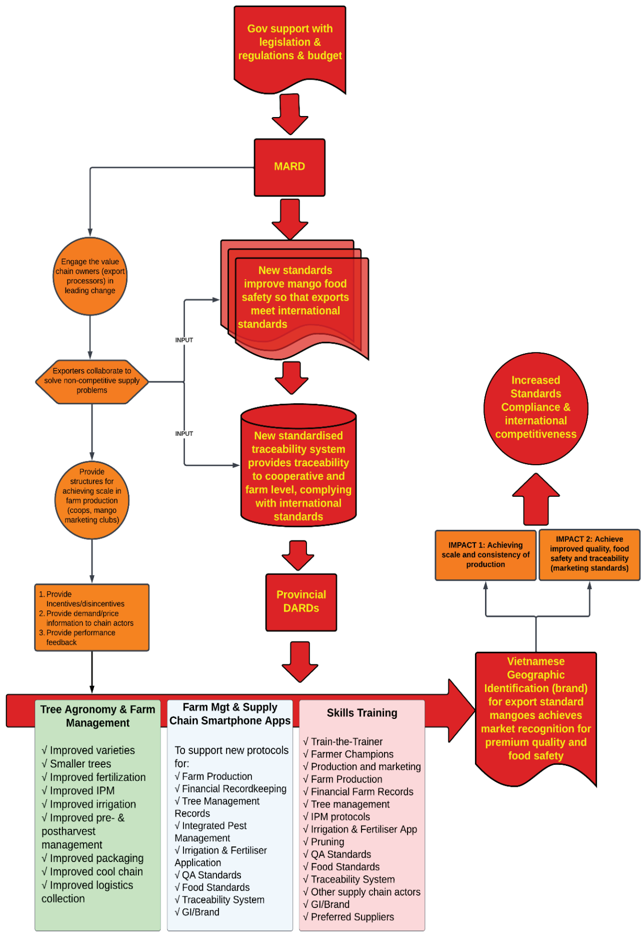

Fig. 4. Pathway to digital information technology adoption in the Vietnamese mango export industry. Source: Own compilation.

First, digital transformation should begin with improving information and communication flows, as previously discussed. A simple system to record, store, and share information should be developed to coordinate all value chain actors using low-cost digital technologies. This system must be designed to be both user-friendly and cost-effective. For instance, dominant value chain actors, such as large mango marketers or major food retailers, could consider investing in the development of a free, simple, smartphone-based app accessible to all value chain participants.

Second, extension training and capacity development programmes for farmers and other actors in the value chain should be prioritised. These programmes should focus on empowering female and younger farmers as beneficiaries and on developing basic digital skills, such as using smartphones for digital farm diary management and e-communication.

Third, the government should explore supporting the development and adoption of a digital system for tracing product originality and ensuring food safety compliance. This could involve the use of QR codes, barcodes, or item numbers. Additional details are presented in the three lower boxes of Fig. 4: tree agronomy and farm management, farm management and supply chain smartphone apps, and skills training.

6. Conclusions

Vietnam's mango value chain has significant potential to expand exports to high-income countries, but stringent customer requirements prioritise quality, food safety, and traceability. At present, the effectiveness of product, information, and governance flows within the value chain is suboptimal, particularly concerning information transfer.

To address these challenges, adopting DIT is essential for enhancing these flows. Effective dissemination of information from end consumers to farmers will facilitate better communication and improve overall efficiency. DIT has the potential to transform the value chain by enabling systematic information recording and sharing via digital platforms, thereby increasing transparency and consumer value through advanced traceability systems.

Although some digital technology applications are already in place, adoption levels remain low due to farmers' limited access to capital, inadequate technological skills, and lack of awareness of the benefits of DIT. To promote effective digital transformation, it is crucial to develop a user-friendly and cost-effective data management system, implement targeted training programmes, and introduce supportive policies mandating the use of digital technology for product traceability.

Successful coordination among value chain actors is vital for improving traceability, upholding quality standards, and ensuring food safety. This study identifies key focus areas for digital transformation and outlines a pathway for DIT adoption in the Vietnamese mango export industry, with an emphasis on governmental support and collaborative efforts among stakeholders.

CRediT author statement

Nguyen Thi Thu Quynh: Develop ideas, outline, and write the article; Duong Nam Ha: Review the literature, Collect and analyse data, and Revise the article; Vu Ngoc Tan: Review the literature, Collect and analyse data, and Revise the article; Laurie Bonney: Develop the framework, Review the literature, and Revise the article; Morgan Miles: Develop the framework, Review the literature, and Revise the article.

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COMPETING INTERESTS

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

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Voluntary insurance for rapid growth bank-led digital banking: Seeking the attention of bank management in the Vietnam financial sector

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Abstract:

Vietnam, a country where 87% of the population is under 54 years of age, appears to be the leader in the race of financial digitalisation among Southeast Asian countries. However, the psychological risk-factor has been undermining the progression-trends of bank-led e-transactions. As a result, the current growth-trends of e-transactions are slower than expected in Vietnam. Even though Fintech claims it to be a secure-service, people mostly in rural areas feel it to be the opposite. To overcome this dilemma, having voluntary insurance (VI) as a product under Akim's model in e-banking services can be instrumental. This new and growing value of the product will keep the bank growing. It can ensure risk-free e-banking services. So, the policy proposal adoption can enhance the number of e-banking-users in Vietnam. For assessing an effective price of the VI in the e-banking service market, this study uses welfare analysis for ensuring cost-effective VI products in the operation. Thus, the VI product becomes attractive to the parties involved. Having a third party as an insurance-provider in the e-banking service-market, the welfare cost evolves from inefficient pricing and will be small. Once the VI is in place, it will spread from bankers to e-banking customers. So, its growth trend, the S-curve, will capture revenue and productivity growth against time. In the beginning, the trends will be slow. But at some point, digital banking-users will begin to demand it. This expected progression will ensure a higher number of e-transactions by attracting probable customers. Therefore, the prompt efforts of policymakers can play significant roles, which can ensure a cashless Vietnamese society soon.

Keywords: **bank-led digital banking, e-banking service market, e-banking transactions, perceived risk factors, Vietnamese cashless society, voluntary insurance as a product.**

Classification numbers: **2.1, 2.2, 2.3**

1. Introduction

Today, people live in a business-mentality world with technology-driven lifestyles. In this globe, country wise, service providers supply services in competitive manners. Similarly, service receivers receive services in multi-faucets in efficient-fashions avoiding perceived risk-factors. In this modern world, time values are important to people, no matter what society or country they reside in. Accordingly, the factors of decisions particularly cost-effectiveness and expediency have led institutions, business entities, and individuals to use information technology facilitations in diverse ways. Hence, in the 21st century, customers participate in options of relative timesaving. Likewise, service-sectors such as banks modernise their services, which has resulted in today's e-banking services. These services are mobile-banking and bank-led e-banking in the financial sector where the Vietnamese financial sector is no exception. This banking-service-digitisation includes online withdrawals and deposits, mobile apps, digital bill payments, salary payments and receipts, etc.

While the digital journey globally was in its first stages, meeting customers' diverse needs, the State Bank of Vietnam, i.e., the Central Bank inspired domestic banks for adopting technology applications. As a result, it can facilitate new methods of supplying products and services using various tech distribution channels [1]. In this transformational journey, Fintech has been significant in contributing to countries such as Vietnam where both mobile banking and bank-led digital-banking services are in place. In Vietnam, about 87% of the population is under 54 years of age, which was the basis of the State Bank's inspirational decision for digital banking progress [2]. Also, as reported in January 2017 by the General Statistics Office of Vietnam, Vietnam had 47.3 millions internet users. This data statistic represents around 50% of the total population of Vietnam [3]. This progression also shows that the Internet users' growth rate is 9 to 12% yearly, which currently ranks 15th place globally. Therefore, Vietnam has a good establishment to build a digital banking system effectively. Therefore, it can drive to become a cashless society sooner rather than later.

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With this potential of digital banking development in the Vietnamese economy, the dimension of e-banking service users is endlessly increasing. For example, the users' percentage was only 7% in 2011, but it reached to 49% in 2020 [4]. As reported by the Vietnam Bankers Association [5, 6], until April of 2022, the transactions to cashless had grown by 69.7% in numbers. Here the amount had grown by 27.5% compared to that of the same period of the year 2021. Data statistics further ratifies that at present, there are 40 e-wallets in Vietnam. It further shows that the e-wallet market is in its booming stages and reached 90% of the market capacity. Two major competitors of e-wallets in the Vietnam-economy are MoMo and Moca [7].

Factor(s) undermining growth trends of e-banking transactions in Vietnam: Despite the government and bank industry's ongoing efforts for the progression of services in the e-banking market in Vietnam, the perceived risk factors, *particularly* the psychological risk factor undermines the expected growth trends of digital banking services [8-10]. This dilemma is not new globally when it comes to e-banking services.

Digital banking faces serious pitfalls, being its riskiness where psychological risk factor dominates a customer's or a probable customer's decision not to use it [7, 9-11]. In this business-driven world, customers of digital banking services compete for options for saving time. On the other hand, a bank strives to marginalise its operational expenses or costs with the goal of enhancing revenues or profits. Customers of digital banking in most cases rarely read the digital banking's terms and conditions when they sign-up for it [11]. They do not save contract copies of services, nor do they remember the number of transactions or transaction amount in his or her account. Accordingly, a customer of the e-banking service market faces perceived risk factors such as additional fees, account hacking, hidden charges, etc. All these together cause psychological repulsion to customers, where female customers are more likely to stay away compared to male customers...

Limitations of the deposit insurance system provision in banking services: The deposit insurance system, adopted in late 2005 in Vietnam, does not cover digital banking transactions. The goals of the deposit insurance system in Vietnam are threefold. They are: a) protecting bank depositors' interest and legal rights, b) bolstering and disseminating public confidence in the system of banking, and c) mediating savings by the people into the domestic system of banking in financial sector of Vietnam. Besides this, additional goals of the law albeit, not mentioned explicitly, were the essential need to boost progression of digital banking race by making a situation where everyone has a fair and equal chance of succeeding. More specifically, create a level playing field between private-sector credit institutions and state-owned banks in Vietnam and beyond [12].

With this limitation, customers, and probable customers in many countries including Vietnam face perceived risks, particularly, psychological risk. It has been undermining the potential progress of the digital banking services [1, 6, 13]. This is the reality of the Vietnamese economy even through about 66% of its population uses internet banking [1, 6]. Furthermore, on this aspect, there is no strict law or approach in practice in Vietnam to address the perceived risk factors [5].

In practice, overcoming customers' complaints, service providers sometimes protect themselves with claims of "technical or electrical problems". Under provisions, the numbers of complaints are racking up [11, 14]. These are no new in bank-led e-banking service market in Vietnam [1, 6]. Studies in literature suggest that efforts for marginalising the consequences of perceived risk factors in Vietnam, banks' responses to customers' inquiries are the things that the digital banks need to do beforehand [1]. Now it is clear that the psychological risk factor significantly undermines today's potentiality of rapid growth of digital banking in the financial sector of Vietnam [1].

The way to move forward addressing the issue: Tackling the issue of this e-banking dilemma, A.M. Rahman (2018a, b) [15, 16] first introduced in literature a new product - the VI in the e-banking service market. This proposal in literature is recognised as the Akim model. Underpinning the Akim model, the relevant policy designs can facilitate the VI product to be in today's e-banking service market. This policy approach can ensure a rapid growth trend of e-banking uses countrywide. Simultaneously, it will open doors for businesspersons who want to open new insurance companies for providing insurance services. But as of today, no country has yet introduced the VI policy in its economy. So, no bank has yet introduced the VI in digital banking services.

Accordingly, the current study takes on the mission of bringing the VI proposal to policymakers' attention in the Vietnamese economy so that the VI product under Akim's model can be introduced sooner rather than later to have a cashless Vietnamese society. It can open doors for entrepreneurs in the economy. Overall, a successful effort of authorities in the Vietnamese economy can place Vietnam as the world leader in ensuring risk-free e-banking services. Therefore, this study aims to call the attention of policymakers in Vietnam.

2. Literature review

The subject literature ratifies that the "perceived risk" impacts the decision process of using e-banking services negatively [13, 15, 16] where the Vietnam scenario is no different. As reported by the SaaS cloud banking platform Mambu in 2021, around 72% of Vietnamese banking consumers were more likely to use online and digital banking services compared to a year and a half ago [17]. Tackling these problems in the e-banking service market, the application of the Akim model [15, 16] is expected to be beneficial to participants where government efforts for policy design can ensure a cashless society in Vietnam. Besides ensuring risk-free bank-led digital services, this new product can contribute to the economy in multiple aspects.

However, our research suggests that no bank in the financial sector of a country has yet introduced the VI to protect its e-banking service market. The Central Bank has established the filing complaint desk for receiving customers' complaints since the beginning of e-banking journey. Not questioning the numbers of complaints filed, it is permissible to say that the Central Bank now recognises the policy loophole that may result in filing complaints. The Vietnamese financial sector in this aspect is no different [8]. In this business-driven world, the government prefers to enjoy cost-effective technology use in the country. Since the beginning of the year 2007, a few key banks in Vietnam were foremost emerging to be prepared to embrace its digital service as a solution for keeping and propping its revenues [8]. However, because of limitations, uncertainties, and obstacles on security issues, the e-banking sector has been affecting certain business models in Vietnam [18].

For example, as in many other countries, the bank accounts of customers in Vietnam are insured and facilitated by the Central Bank of Vietnam. Besides, deposits of depositors in Bangladesh are insured under the provision of Bank Deposit Insurance Law (2000). However, the provisions of the referred law in Bangladesh overlook the transactions of e-banking services [19]. The similar banking provisions of Vietnam are not exceptional. In Vietnam, the provision of a deposit insurance system covers only bank accounts, and bank deposits [20, 21]. However, it does not cover today's digital transactions in the e-banking service market. It faces risk factors such as psychological risk, social and privacy risk, customer dispute risk, and time value risk as well as technological interruption, etc.

This raises the question: How can Vietnamese policymakers become inspired in crafting public policies so that the banking sector is required to adopt the VI policy in the financial sector for ensuing risk-free digital transactions in the e-banking service market? This study lays out the foundations for adopting the Akim model in policy design, ensuring riskless e-banking services in Vietnam. Thus, under the deposit insurance system provisions, banks will adopt VI policy for ensuing secured digital transactions in Vietnam.

Goals of this effort: This effort advances with four precise goals. These goals are as follows:

a) To apply the Akim model in policy design by introducing VI, guaranteeing a higher growth trend of transactions in the e-banking service market in Vietnam.

b) To simplify how the VI proposal can be instrumental in Vietnam's economy using welfare analysis.

c) To illustrate the life cycle of VI after adopting it as a digital banking service in the Vietnamese economy.

d) To utilise the S-curve technique for capturing the growth trends of productivity or revenue against time in Vietnam's economy.

3. Methodology

For conceptualising the basis of the proposed new product - the VI in Vietnam's financial sector, this study uses the Theory of Consumer Choices and Behaviours [4, 9, 10, 14, 22, 23]. With an aim to provide guidance in policy design - the VI policy in the e-banking service market, this study continues with welfare analysis for adopting the VI policy. In other words, this study conducts a welfare analysis on introducing the VI product in the digital banking service market. It raises the question: What is welfare analysis?

In order to answer the question raised, first it is rational to say that the benefits of the policy of VI implementation are not limited only to the service receivers and service providers. Thus, the prospect of the VI policy implementation will be advantageous to all parties involved, where it is expected that the higher growth trends of the economy will benefit the Vietnamese. Using the S-curve in this study will ease capturing the growth trends of digital transactions, which will ease economic growth trends in the Vietnamese economy. Also, since the VI services will not be free of cost in the digital banking service market, the preference of using a welfare analysis is helpful in evaluating the impacts of a price ceiling. So, it will be helpful to evaluate the VI policy proposal for implementing it in the Vietnamese economy for the greater benefit of society.

4. The role of voluntary insurance policies in bank-led e-banking for Vietnam's economy

The State Bank of Vietnam recently announced plans to introduce new digital banks in the country to boost competition and promote financial inclusion [18]. In the year 2021, Vietnam's economy had 539.48 million transactions. It was higher than that of the previous years. In other words, in Fig. 1A, e-transaction increased by 10.48% in the year 2021, which was mainly caused by the COVID-19 pandemic. Because of drastic consumer lifestyle changes of both locals and travelers since the COVID-19 pandemic, businesses are now under pressure to adopt digital understanding and practices. Fig. 1B shows that in the year 2022, the growth trend of e-banking transactions was 5.53%.

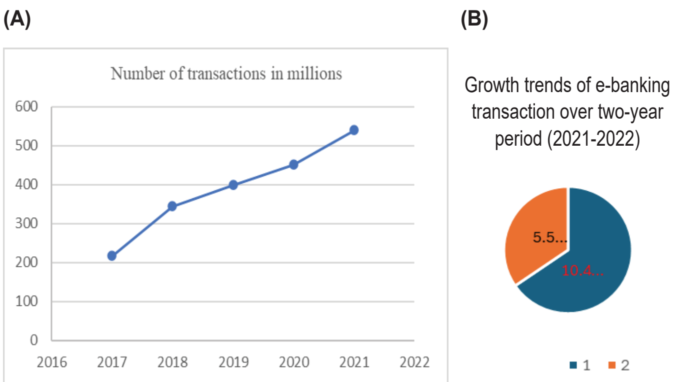

Fig. 1. (A) Trends of bank-led digital banking in Vietnam's economy (Source: Statistics Research Department, 2023); (B) Growth trends of e-transactions in % over 2021-2022 period in Vietnam. Source: Statista.com.

However, as reported this effort has been facing challenges where perceived risk factors, mostly people's psychological factors, are undermining the growth trends. People in rural areas feel it to be riskier than those in urban areas. As a promoting effort, the "Cashless Payment Day" was held in June of 2022, which was an effective way to advertise e-banking to people around Vietnam [5].

Tackling the issues that undermine e-banking progression, particularly the growth trends of digital transactions in Vietnam's financial sector, adopting the VI policies [14, 15] can be helpful. The financial sector here can introduce it as a new product in the e-banking service market, where the banks or a third party can collect premium guaranteeing tenable digital transactions in the e-banking service market.

In this e-banking service market, a customer's participation - whether buying the VI or not buying it will be voluntary underpinning the proposed provision. If and only if a customer wants the benefits of VI product, the bank will attach insurance to a customer's account. Under the policy, since banks will design the program in a way of transferring the risk from the premium payers to the premium receivers, the system will safeguard the premium payers with certainty. The premium receivers here will take measures to guarantee risk free e-banking services. This proposed policy provision can be an addendum to today's deposit insurance system in Vietnam's financial sector. In other words, it will be a supplemental provision of today's deposit insurance system laws in Vietnam's financial sector. By so doing the proposed addendum can be established with less effort.

The voluntary insurance policy: What is it? How can it work in terms of economics?

Since the perceived risk factor, particularly psychological risk performs a powerful role in setting the stage for the policy proposal, the choices of the VI can ensure customers and a secured e-banking service in today's digital world. It is rational to assume that the customers in the e-banking service market are risk-averse in choices no matter where they reside countrywide. In general, they prefer certainty to uncertainty when it comes to the decision to use the e-banking services. Fig. 2 shows the preferences of a risk-averse banking customer in e-banking service market in Vietnam. As UNICEF reported in 2021 approximately 77.1% of the Vietnamese population is below the age of 54 [24] and accordingly they may prefer to use digital banking services.

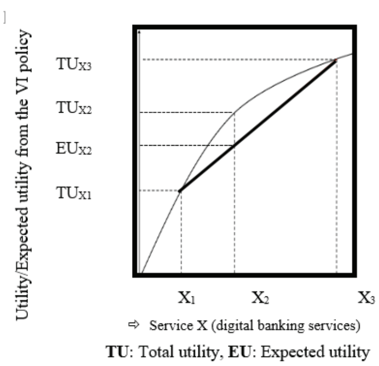

Fig. 2. Risk aversion scenario in Vietnam financial sector. Source: Statista.com.

In a world of uncertainty, in terms of economics, the actual utility that the customer receives by using e-banking services will not ever fall on the TU (X) curve. However, it will be somewhere on the chord (the bold line) in Fig. 2. The X_3 here stands for service outcome where the customer may use a certain level of services X. Here X_1 stands for a negative outcome, which indicates a customer may use less of the service X. If there is a level of uncertainty, a customer may not use X_3 units of service X. Thus, the utility that this customer receives will lie somewhere on the chord (the bold line) in Fig. 2. This chord stands as the expected utility (EU) of using service X, where it lies in the curve's concavity. The reason is that it is the average probability of whether the customer will use service X or not. As a result, a customer will not receive the TU (X_2) but the EU (X_2) of the digital banking services in Vietnam.

5. Voluntary insurance policy preferences in Vietnam's economy: Welfare analysis

In this section, we explore the benefits, which are expected to be received by the customers and by the bank(s) after adopting the VI product in e-banking service market in Vietnam.

Since both the customer and the bank itself will receive the economic benefit under the VI proposal, it is important for the bank to bring this information to customers' attention while they decide on choosing the VI or not while signing up for e-banking services. The reason is that the amount of the premium amount will go out from e-banking customer's pocket who chooses the insurance. As a result, it will guarantee a secured digital transaction where the VI will destabilise all perceived risk factors, etc. Since the premium amount is going out from customer's pocket, the risk adverse people may not choose insurance based on own fondness. It is like certain people may not even select the traditional banking services because of the account fees that a bank charges no matter where they reside on the globe.

5.1. Theoretical basis on voluntary insurance price setting: Justification for Vietnamese economy

The model: How would the VI product work in the e-banking service market in Vietnam?

Setup and notation for analysis purposes: First, consider a scenario where customers in e-banking service market face options in decision: a) signing the contract for insurance or not. Signing the contract H here offers high coverage, which guarantees absolute risk free e-banking services; b) not signing up for insurance but signing up for e-banking services say contract L and accordingly it eases access to the e-banking services. Here the customer's preference for the H depends on the amount of cost of having the H contract i.e., H = f (P) where P is the price of H contract where the probable cost resulted from perceived risk or from other factors will be covered by the insurance provider.

Simplifying further, contract L is no insurance facilitation, but it facilitates e-banking services. Here, customers are easily accessing e-banking services. And contract H charges a premium, and customers are eased using digital banking services. These are simply normalisations to relax where the VI policy is in place. In this setup a bank can manage premium just like it manages its customer's account fee(s) with the bank.

The author further assumes that the characteristics of the contracts are as given where insurance premium amount to be endogenously decided. This is because the characterisation of different insurance markets, with variation across individuals, emphasises the pricing of the contracts and not the offered coverage. This analysis is supported by the findings of a study by G.A. Akerlof (1970) [25] in literature.

Demand of insurance in the e-banking service market: Here, I assume that customers of the e-banking service market make a distinct choice whether to buy the insurance or not. Since it is taken as given that there are only two available contracts in e-banking service market and it is related to coverages, the demand is a function of relative price (p). Also, it is assumed that banks cannot offer different prices to their customers in this market. On this aspect, banks can make prices dependent on the observed characteristics. Accordingly, it is assumed that if a customer chooses to buy insurance, the customer buys it at the lowest price available in the market. So, it is sufficient to characterise the demand for insurance as a function of the lowest premium, i.e., the price (p).

Underpinning the above elaboration, a mathematical relationship can be established as such: D = f(p) where D = demand for insurance and p = premium amount or price. Since the services will be mostly digital, the premium amount will be small enough. Eventually, with proper documentation, the probable customers might be able to sign up for the VI services if they feel it to be a necessity in the future.

Supply and equilibrium in the e-banking service market: I assume that based on the VI policy, there will be N≥2 identical risks neutral insurance service providers or banks that set prices in a Nash Equilibrium. There might be both a perfect and an imperfect rivalry in the e-banking services. However, I choose here to focus on the case of the perfect competition. This is because it stands for a natural standard for welfare analysis of the efficiency cost of selection [20, 22, 25].

In multiple banks setting the same price scenario, it is assumed that individuals who decide to buy insurance at this price choose a bank randomly in preference. Here the only cost of supplying contract H to individuals is the insurable total cost (TC). The average cost (AC) curve represents the costs of the sample of individuals who choose the contract H. Symbolically, AC is TC/i where AC reduces as the (i) increases i.e., AC α (1/i) where i is the number of customers in e-banking service market.

To describe the equilibrium, it requires having two more assumptions. Firstly, it is assumed that price $\bar{p}$ exists where D ($\bar{p}$>0 and MC (p) < p and in every case the condition $p > \bar{p}$ holds up. Interpreting the equation separately, I assume, it is profitable and efficient to provide insurance to those with the highest willingness to pay for it. Secondly, it is assumed that there exists $\underline{p}$ where MC ($\underline{p}$) > $\underline{p}$ then the MC (p) > p for all the $p < \underline{p}$ [22]. In other words, the assumption is that the MC (p) crosses the demand curve only once. All these assumptions guarantee the existence and uniqueness of the equilibrium where it is characterised by the lowest breakeven price P^* = AC (P).

5.2. Welfare assessment of the H contract (the voluntary insurance-choice or voluntary insurance-preferences) in Vietnamese economy

For measuring the welfare of the H-contract, the consumer surplus (CS) measurement is rational choice and it is certainty equivalent to welfare measurement. The certainty equivalent to an uncertain outcome is the amount that would make an individual indifferent between obtaining the amount for sure and obtaining the uncertain outcome. Outcome with a higher certainty supplies higher utility to the individual [23]. This welfare assessment is rational and interesting in literature [22], because it can be measured monetarily. Here the total surplus (TS) in the e-banking service market is the sum of certainty equivalents for consumers and profits of the firm or bank that supplied insurance. In this analysis, the author ignores any income effects associated with price changes of the VI in the e-banking service market.

5.3. The voluntary insurance product choices of a customer in the e-banking service market: Graphical representation

Based on the above background, the graphical presentation of adverse choice and advantageous or beneficial selection choice is shown below.

This demonstration explains the efficiency aspects costs for each type of selection of the VI for guaranteeing risk-free e-banking services in Vietnam's financial sector.

Adverse selection in the e-banking service market: The y-axis in Fig. 3 stands for cost of H-contract. The x-axis stands for quantity i.e., the share of individuals in the market with H-contract where maximum quantity is denoted by Q_{max}. Here the demand curve denotes the demand for H-contract. Also, the average cost (AC) curve and the marginal cost (MC) curve denote the average and marginal incremental costs respectively to the insurer from coverage with the H-contract compared to the L-contract.

In the e-banking service market, the important feature of adverse selection is that people who have the highest readiness to pay for insurance are those who have the highest expected costs. The downward sloping of MC curve in Fig. 3 shows that the MC is increasing because of higher prices, which results in a decrease in quantity i.e., the number of people or individuals. So, as costs for insurance fall, the marginal individuals who select the H-contract have lower expected costs than that of the infra marginal individuals, which leads to lower average costs [4, 22, 23].

Here, the spirit of confidentiality is that the bank cannot charge individuals based on its privately known MC. But instead, it is restricted to charge a uniform price that is in equilibrium, which implies average cost pricing under the VI policy.

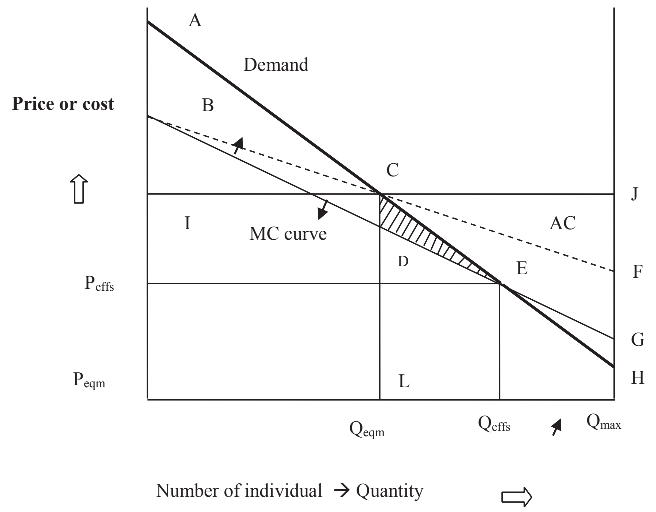

Fig. 3. Cost of adverse selection on efficiency aspect under the VI policy in Vietnam.

Since here we have AC > MC, the adverse selection creates under-insurance. This result is supported by the findings of the study authored by G.A. Akerlof (1970) [25]. This under-insurance scenario in the e-banking service market is shown in Fig. 3. Here the equilibrium of e-banking customers who buy the H-contract is Q_{eqm} (i.e., AC curve intersects the DD curve at point C in Fig. 3). Thus, efficient number settles at the point where Q_{eff} > Q_{eqm}, as shown in Fig. 3.

The area CDE (the shaded area) in Fig. 3 stands for the welfare loss, which arises because of the adverse selection in the e-banking service market in Vietnam. It indicates a loss of consumer surplus (CS) from individuals who are not insured in equilibrium. This is because their willingness to pay is less than the average cost (AC) of the insured population. However, it would be efficient for them to insure in the e-banking service market. This is because their willingness to pay exceeds the marginal cost (MC).

Elaborating this further, lets estimate and then compare the welfare under a different scenario. Suppose that the customers are mandated to sign up for the H-contract in the e-banking service-market. By doing so, it will generate welfare = area ABE - area EGH, which is shown in Fig. 3. It can now be compared to welfare at the competitive equilibrium condition, which is equivalent to area ABCD. Based on this setting, the welfare is equal to area ABE, which is an efficient allocation. It is the benefit or welfare from mandating everyone to sign up for the L-contract (normalised to zero). Here, the relative welfare ranking of these alternatives is an open empirical question. Thus, it can be studied by assessing the welfare under alternative policy interventions. It can be a part of the directions for future studies.

Advantageous selection in the e-banking service market: In literature, a theory on selection in insurance markets highlights the possibility of adverse selection, and the resultant efficiency loss from underinsurance [25]. Considering G.A. Akerlof (1970)'s theory [25], findings of several studies in literature propose that in health insurance market, insured people have higher average costs than that of uninsured individuals [26, 27]. But there exists an "advantageous selection" in the life insurance market. People with more insurance have lower average costs than those with less or no insurance at all. In literature, D.M. Cutler, et al. (2001) [26] provided evidence of the adverse choice and the advantageous selection in different insurance markets.

This theoretical framework makes it easy to define the nature and consequences of advantageous selection, which is justified by using a graphical presentation in Fig. 4. In a comparison between adverse choice and advantageous selection, it can be said that the e-banking customers who value insurance the most are those who have, on average, the lowest expected costs. It interprets the upward sloping of both the MC and the AC curves, as it is shown in Fig. 4. Market inefficiency here arises because of at least three factors. They are: a) customers vary based on incurred marginal costs; b) banks are regulated to ensure uniform pricing; and c) the equilibrium price is settled based on the average cost in this case.

However, with advantageous selection cases, the consequential market failure is one of the overinsurance (i.e., exceeds the value) rather than just underinsurance (i.e., less than true value) (i.e., $Q_{eff} < Q_{eqm}$ in Fig. 3). It was pointed out by D.D. Meza, et al. (2001) [27] in literature. It is always recognised that insurance service providers have an added incentive to reduce prices. In this scenario, the consequential welfare loss is given by the shaded area CDE, as shown in Fig. 3. Consequently, it happens because of the excess marginal cost (MC) over willingness to pay for individuals whose willingness to pay exceeds the average cost (AC) of the insured population. With this analytical framework, the welfare can also be evaluated in other situations. They are: a) mandating the H-contract where area ABE - area EGH in Fig. 3 ii) mandating the L-contract, which is normalised to zero; and b) a competitive equilibrium point where area ABE - area CDE and an efficient allocation of area ABE as shown in Fig. 3.

Summary of graphical presentation and direction for future study: Analyses evolved from Figs. 3 and 4 demonstrate that the demand curve and the cost curve are sufficient information for welfare analysis of equilibrium and non-equilibrium pricing of existing contracts in the proposed e-banking services. In this e-banking services market, the cases of different preferences and confidential information can have the same welfare implications if they have generated similar demand and cost curves.

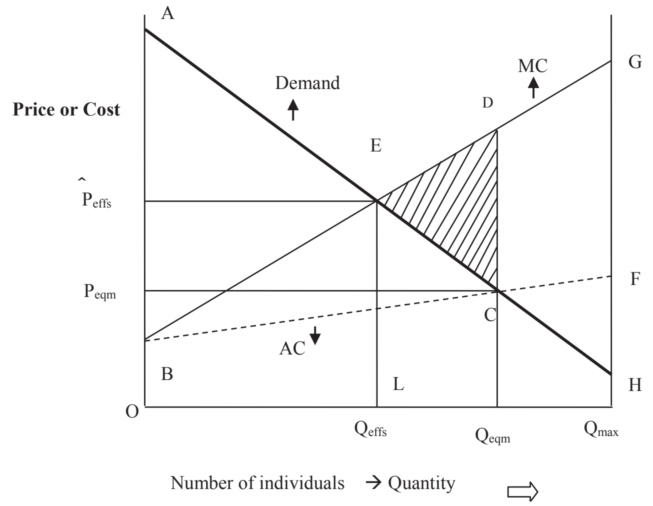

Fig. 4. Cost of advantageous selection on efficiency aspect under VI policy in Vietnam.

Estimating welfare under the framework relates to Figs. 3 and 4: Again, in the contract form in the e-banking service. market, a customer will have options choosing the insurance (H) or the L-contract, which will facilitate accessing to e-banking services. In this setup, the bank itself will be an insurance provider in e-banking operation. The bank will deduct the premium amount from the customer's bank account just like banks do deduct service fees from customers' accounts. In case a customer does not have an account with the bank, but the customer chooses insurance in aim to complete a digital transaction, the customer will bear insurance cost per transaction in the e-banking services.

Under the framework, within the preferred arrangements, this welfare approximation requires data statistics that allows for estimating the demand curve $D(p)$ and the average cost curve AC(p) in this study. Here the marginal cost (MC curve) can be backed out from these two curves. Thus, it does not require further estimation. For further clarity, it is noted here that:

$$MC\,(p) = \left[\frac{dTC(p)}{dD(p)}\right] = \left[\frac{d(AC(p) - D(p))}{dD(p)}\right] = \left[\left(\frac{dD(p)}{d(p)}\right)^{-1}\right] * \left[\frac{dAC(p) * D(p)}{d(p)}\right]$$

With the above-mentioned three curves, i.e., the D (p), AC (p), and the MC (p) in hand, welfare under various allocations can be computed as it is shown in Figs. 3 and 4 in this study.

It is well recognised that estimating any demand curve requires data statistics on prices and quantities (i.e., choices of coverages in this case) as well as the identification of price variation. This all can be used tracing out the demand curve here. In this estimation , the price variation must be exogenous to unobservable demand characteristics. For estimating the AC (p) curve in this study, the data statistics on the expected costs of people with H-contract, such as data on the next risk realisation and how it translates to insurer costs can be used. With such data statistics in hand, the same variation in prices can be used to trace out the *AC* (*p*) curve. The reason is that the expected cost here is likely to affect the demand. So, it is reasonable to say that any price variation that is exogenous to demand is also exogenous to insurable cost [22, 26]. In other words, we do not need a separate source of variation.

Thus, with price variation, no functional form assumption is needed to trace out the demand and the AC curves in this case [22, 23, 26]. For example, if the goal is to estimate the efficiency cost incurred from inefficient pricing, which arises from the selection choices, the price variation between the market equilibrium price (point C in Figs. 3 and 4) and the efficient price (point E) allow us to estimate the welfare cost of the inefficient pricing. This inefficient cost (area CDE) is associated with the selection choice without making any restrictions on the shape of the demand or AC curves. The variation of the prices that does not span these points, the area CDE can still be estimated. But it will require extrapolation.

5.4. Moral hazards that may affect the expected outcome of the voluntary insurance policy in Vietnam's financial sector

Relying on the techniques used for welfare analysis here, the moral hazard does not change the findings of our analysis here. In this study, H-contract represents full coverage. In contrast, L-contract will have no coverage but customers sign-up for using digital banking services at their own risk. So, in this setup, the probable moral hazard has no effect on the findings of this welfare analysis.

A future study connecting with moral-hazard issues can be conducted by making slight modification i.e., allowing the L-contract to include some partial coverage for ensuring a cashless Vietnamese society sooner than delaying in Vietnam.

6. The potential of voluntary insurance products and policymaker attention in shaping Vietnam's economy

6.1. Potentiality of the voluntary insurance product in Vietnamese economy

Once Vietnam policymakers and the bank-management introduce the VI product through banking provisions that authorise it in the e-banking service market, it will spread from bankers to customers in Vietnam. This life cycle of the VI product can be depicted using the S-curve.

Lifecycle of the VI product under S-curve connecting with economy of Vietnam: The S-curve in Fig. 5 charts the growth trends of revenue or productivity against time in Vietnam. In progression, as the VI product sets up itself, the growth trends in initial stages will be slow. The e-banking customers will begin demanding it, at some point. Accordingly, the growth trends will increase rapidly as time passes. These incremental changes in stages will facilitate the continuing upward trends of growth. Near the end of its life cycle, the growth trend will slow down and may even begin to decline. In these stages, no amount of new investment in that product will yield a normal rate of return [25, 28]. However, it will set up a secured bank-led e-banking service through bankers, who introduce this new product in e-banking, which can present a cashless Vietnamese society soon.

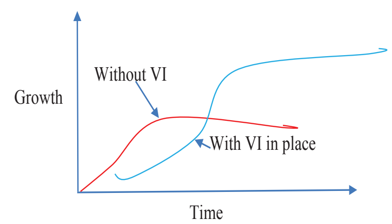

Fig. 5. Impacts of the VI product in e-banking service market in Vietnam's economy.

In this journey, the successive S-curve will come along to replace traditional banking. It will continue to drive the growth trends of digital transactions where the VI is likely to have three stages of "product life." These stages can be summed up as: 1) a starting up phase; 2) a stage of rapid increase in revenue; and 3) an ultimate declining stage. But it will never find the underlying cause of the curve. It will never produce normal returns, but it will play vital roles presenting a secure system of bank-led e-banking, which will be attracted by probable customers in Vietnam. It will position Vietnam to be a global leader in e-banking progress.

6.2. Seeking policymakers' attentions in Vietnam's economy: The goal of the current effort

This effort is for bring the issue to the attentions of policymakers and bank management in Vietnam's economy so that the proposed VI product can be in digital banking service market in Vietnam. It raises three questions. They are: Why is the VI product essential for ensuring higher growth trends of transaction of e-banking services?; Why is it important?; Why is it now?

For answering these questions, it is rational to say that transferring risk away from customers will directly help both the customers and the banks. It will attract probable customers who are on the brink of using e-banking services, but they feel it to be risky where psychological factors influence their decisions. This proposed model in practice can comfort the customers with incentives under marketing technique for increasing usages of number of digital transactions while keeping best utility of it. This incentive can be in the form of money, which can be credited to the customer's account.

Since the VI product will be a legal one, it will comfort customers in several ways such as: ensuring new values for customers, for improving society in multiple ways, and continued existence of the company in competitive market. In the process, banks, and insurance providers may offer rebates to customers based on the number of transactions in the e-banking service market, which in turn can attract more new customers. On the other hand, it can help overcome today's slowdown in growth trends of transactions in e-banking in Vietnam.

Having this VI product in place can help ensure risk free e-banking, which can guarantee elevated cashless activities in Vietnam's economy. Since the facilitations of e-banking can ensure trade in the form of currency and time value, overall, it can be helpful to its customers. Therefore, with the expectations of the benefits, customers will flock to it when they use digital transaction services. By the same token, the banking sector will be further competent, cutting down its operating costs, meeting customers' needs and then keeping up with global changes to ensure higher profits.

With these prospects in multiple facets in the e-banking service market, the financial sector of Vietnam is no exception. For sailing through today's tough competition and to sustain revenues, the Vietnamese financial sector has been more engaging than before [6]. In this journey the VI product can be instrumental in the economy in multiple aspects. Last but not least, having the VI policy in practice can place Vietnam to be recognised as world leader in the world of the e-banking service market, where policymakers or innovators will be credited for their roles.

7. Limitations and future study directions

In general, limitations of any scientific study evolve from the characteristics of techniques or methods that are used in the said study. This is because any choice(s) of techniques or method affects or influences the interpretation of the findings of the study undertaken. This scenario is no different in this study. This study is a theoretical study by nature where the Consumer Choice and Behavioural Theory and the techniques of welfare analysis are used for summarising the findings of this study.

The future study directions can be summarised as follows:

a) A comparison of welfare ranking between L-contract and H-contract is an open question, which can be answered empirically.

b) Do the customer's different preferences (either L or H) and confidential information have the same welfare implications, if they generate similar demand and cost curves?

c) Whether the amount of premium has any impact on the probability of the VI policy adoption, which can influence the growth trends of e-banking transactions in Vietnam's financial sector?

d) Conducting an empirical study where data statistics should be on customers and probable customers' opinions on the causes of slow growth trends of digital transactions services in Vietnam.

e) Conducting a test whether the insurance premium or the cost for the VI has impacts on the possibility of the VI policy adoption in financial sector of Vietnam.

8. Conclusions

In today's world, Vietnam, a country with 87% of population under 54 years of age, has appeared to be the leader in the race of digitalisation banking services among southeast Asian countries [24]. However, like in any other country, the psychological risk factor has still been negatively impacting people's attitudes towards using bank-led digital banking services. Thus, the proposed VI product adoption can be a stimulus to the efforts of meeting today's slowdown e-banking service market in Vietnam. This approach to banking services and the increasing value is what will keep the banks growing. It can ease the economy booming in Vietnam as well as facilitate the Vietnamese by creating employment opportunities and by supporting in the form of charitable giving. The findings of welfare analysis ensure effective cost of pricing of the insurance. In the case of bank as an insurance provider, adverse selection case in insurance market, welfare cost of inefficient pricing is quantitatively small. And here any helpful selection results in the opposite. Once the VI is in place, it will spread from bankers to customers. So, its growth trend (the S-curve) will capture the growth of revenue or productivity against time. This growth will be slow at the beginning stages but at some point, digital banking-users will begin to demand it, which will ensure a high growth trends of digital transactions in Vietnam. Therefore, in this journey, the efforts of policymakers and banking management in Vietnam can contribute significant roles for the benefit of its economy, which could transition to cashless society soon.

So, the question is: Can policymakers and bank management in Vietnam play vital roles for the benefit of its modern society by ensuring an effective e-banking service market? The answer to this question is Yes. The prompt efforts of the policymakers and bank management in Vietnam can play significant roles ensuring a cashless society soon. Also, the outcome of this journey can place the nation of Vietnam to be the number one in ensuring a successful and absolutely secured e-banking service market in the world.

Finally, any future study can be carried out in multiple facets including comparative study of welfare ranking between L-contract and H-contract; whether amount of premium has any impact on the probability of VI policy adoption; empirical study on customers and probable customers' opinions on the causes of slow growth trends of digital transactions in Vietnam's economy, etc.

COMPETING INTERESTS

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

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DOI: 10.31276/VMOSTJOSSH.2024.0091 **ECONOMICS AND BUSINESS** | ECONOMICS; BUSINESS AND MANAGEMENT; OTHER ECONOMICS AND BUSINESS

Challenges and adaptation strategies for Vietnam's wood export industry in the face of EU carbon border regulations

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Abstract:

Vietnam's wood export industry, while crucial to the national economy, faces significant challenges from the European Union's Carbon Border Adjustment Mechanism (CBAM). With small and medium enterprises (SMEs) comprising 90% of the sector, the industry must address high carbon emissions, external market dependence, and evolving environmental regulations to maintain competitiveness. This research analyses CBAM's impact on Vietnam's wood industry and identifies effective adaptation strategies under new environmental standards. Using an inductive theory-building approach, the study integrates economic theories on carbon pricing and international trade with empirical assessments of production emissions. Findings reveal the sector's current emissions of 220-280 kg CO_2e per cubic meter, highlighting the urgent need for technological innovation and sustainable practices. The research identifies key adaptation strategies: implementing heat pump kilns that reduce emissions by 45%, developing blockchain-based supply chain traceability, diversifying markets, and strengthening EU partnerships. These measures support the industry's commitment to reduce emissions by 45% by 2030 compared to 2020 levels. Recommendations focus on three pillars: technology adoption through cooperative frameworks for resource-limited SMEs, market diversification, and enhanced policy support for green transitions. The study contributes to understanding how developing economies' traditional industries can adapt to evolving global environmental standards while maintaining economic viability. The findings underline the importance of proactive adaptation to international environmental regulations for sustaining economic viability in developing economies. By adopting innovative technologies and diversifying markets, Vietnam's wood export industry can mitigate the adverse impacts of CBAM, ensuring long-term competitiveness and contributing to global sustainability goals.

Keywords: **carbon border adjustment mechanism, carbon emissions, small and medium enterprises, sustainability, Vietnamese wood exports.**

Classification numbers: **2.1, 2.2, 2.3**

1. Introduction

Vietnam's wood export industry has emerged as a significant contributor to the country's economy, establishing itself as one of the world's leading exporters of wood and wood products. With its rich forest resources and skilled labour force, Vietnam has capitalised on the growing global demand for furniture and other wood-based goods. In 2021, Vietnam's wood and wood product exports reached $14.8 billion, accounting for 4% of the country's GDP and marking a 19.7% increase from the previous year. However, the industry faced challenges in 2023, with exports declining to $13.4 billion [1].

The European Union (EU) has long been one of Vietnam's key markets for wood exports. From 2018 to 2022, Vietnam's wood exports to the EU-27 showed a general upward trend, with some fluctuations. In this context, the EU-Vietnam Free Trade Agreement (EVFTA), which came into effect on 1 August 2020, presents both opportunities and challenges for the industry [2].

The EVFTA, with its commitment to strong market opening and the elimination of import duties on nearly 100% of the EU's tariff lines, has opened up significant opportunities and prospects for Vietnamese wood export businesses [3]. This agreement allows companies to boost exports, diversify their product structure, and enhance the competitiveness and value of export products entering the EU market.

However, the wood export industry now faces a substantial challenge from an unexpected quarter: environmental regulations in one of its key markets. The European Union, long at the forefront of climate change mitigation efforts, is poised to implement a groundbreaking policy known as the CBAM [1]. This mechanism aims to level the playing field between EU producers subject to stringent carbon pricing and their international competitors operating under less restrictive environmental regimes [4, 5].

While CBAM directly targets sectors such as cement, iron and steel, aluminium, fertilisers, hydrogen, and electricity, it indirectly affects the wood industry [6]. The industry is closely linked to industrial production, and wood processing facilities consuming over 1,000 tons of oil equivalent (TOE) annually may be subject to greenhouse gas inventories and emission quotas [7, 8].

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For Vietnam's wood export industry, which relies heavily on energy-intensive processes and has a significant carbon footprint, the advent of CBAM presents a formidable challenge [9]. This policy threatens to erode the competitive advantage that Vietnamese wood products have long enjoyed in the European market, potentially disrupting established trade patterns and economic relationships [10].

The urgency of this situation is highlighted by industry leaders like Nguyen Liem, Chairman of the Binh Duong Wood Processing Association (BIFA), who emphasises that adapting to these new environmental standards is a matter of survival for the wood industry. The loss of orders in the textile industry to competitors like Bangladesh due to slow green transformation serves as a cautionary tale for wood exporters [11]. Therefore, this paper examines the impact of the EU's CBAM on Vietnam's wood export industry and explores the urgent need for adaptation strategies.

This research is motivated by the need to understand how CBAM, a significant regulatory shift, affects Vietnam's wood export industry and to identify effective adaptation strategies. By using an inductive theory-building approach, this study aims to provide new insights into the practical applications of carbon pricing and its implications for international trade. The research contributes to the existing body of knowledge by highlighting the specific challenges faced by a key export industry in a developing economy and proposing actionable strategies to mitigate these challenges.

The study argues that while CBAM poses significant challenges, it also presents an opportunity for the industry to innovate, improve sustainability practices, and ultimately strengthen its position in the global market [12, 13]. By analysing the current landscape, potential impacts, and possible responses, this study aims to provide insights that can guide both industry stakeholders and policymakers in navigating this complex and evolving situation.

The subsequent sections will delve into the theoretical framework underpinning carbon pricing and trade, review relevant literature, assess the current state of Vietnam's wood export industry, and propose strategies for adapting to the new regulatory environment. Through this comprehensive analysis, the article seeks to contribute to the ongoing dialogue on sustainable trade and offer practical recommendations for maintaining the competitiveness of Vietnam's wood export sector in an increasingly carbon-conscious global economy [14].

2. Theoretical framework

2.1. Carbon pricing and international trade

Carbon pricing is one of the most widely recognized market-based mechanisms to mitigate climate change, grounded in the Pigovian tax concept introduced by economist A.C. Pigou (1920) [15]. A Pigovian tax corrects the negative externalities caused by activities like greenhouse gas emissions, which cause social and environmental harm that is not reflected in the price of goods. Carbon pricing can take two primary forms: carbon taxes and cap-and-trade systems (or emissions trading schemes, ETS).

Carbon tax: This approach assigns a fixed price per ton of CO_2 emissions, increasing the cost of carbon-intensive goods and services. A carbon tax creates a direct economic disincentive for carbon emissions, encouraging producers to seek out more energy-efficient or less carbon-intensive methods of production [16].

Emissions trading system (ETS): Also known as "cap and trade", this system establishes a limit (cap) on total carbon emissions allowed within an economy or industry. Companies receive or buy emissions permits, which they can trade among themselves. The market-driven pricing of these permits creates a flexible mechanism to reduce emissions where it is cheapest [17].

Carbon pricing in the context of international trade introduces the concept of carbon leakage, where industries relocate their production to countries with less stringent climate policies to avoid carbon costs [4]. This has been a significant concern for the EU, as European producers subject to internal carbon pricing face higher production costs compared to international competitors. The CBAM is designed to address carbon leakage by imposing tariffs on imported goods based on their carbon content, ensuring that EU producers are not disadvantaged in global competition [6].

Research by F. Branger, et al. (2014) [5] shows that carbon leakage can be mitigated by such border adjustments, as they level the playing field between domestic and foreign producers. CBAM functions as a protective measure for the EU's carbon pricing policies, ensuring that imported goods face similar environmental costs as those produced within the EU.

For Vietnam's wood export industry, CBAM could impose significant additional costs. Wood processing, especially in energy-intensive stages like drying and sawing, is carbon-intensive, potentially subjecting Vietnamese wood products to CBAM-related tariffs when entering the EU market [18]. This makes carbon pricing a critical factor in shaping trade competitiveness, forcing industries to innovate and reduce emissions or risk losing market share due to higher costs.

2.2. Environmental regulations and competitiveness

The relationship between environmental regulations and industrial competitiveness is complex and has been extensively discussed in economic theory. The Porter Hypothesis, proposed by economist M.E. Porter (1995) [13], suggests that stringent environmental regulations can stimulate innovation, leading to improved efficiency and competitiveness. Porter argued that well-designed regulations incentivise firms to innovate in ways that not only meet regulatory requirements but also improve productivity, thus offsetting the costs of compliance.

However, the pollution haven hypothesis presents a contrasting perspective, suggesting that stringent environmental regulations may drive industries to relocate to countries with laxer environmental standards, which could lead to a loss of competitiveness in highly regulated regions [10].

Empirical studies provide mixed evidence. A review by S. Ambec, et al. (2013) [12] supports the Porter Hypothesis by showing that firms that innovate in response to environmental regulations can gain a competitive advantage through increased efficiency and product differentiation. Conversely, a study by A.B. Jaffe, et al. (1995) [19] found that environmental regulations tend to increase production costs, leading to short-term losses in competitiveness, especially in industries with high energy consumption.

In the context of Vietnam's wood export industry, the introduction of CBAM and other environmental regulations will likely increase operational costs. Energy-intensive processes such as sawing, kiln drying, and surface treatment are vulnerable to carbon pricing [8]. However, this challenge also presents an opportunity for the industry to invest in cleaner technologies, enhance resource efficiency, and adopt internationally recognized eco-certifications (e.g., FSC or PEFC) [18, 20]. This shift could open up premium markets and foster long-term competitiveness, aligning with the Porter Hypothesis.

2.3. Sustainable supply chain management

Sustainable supply chain management (SSCM) integrates social, environmental, and economic considerations into traditional supply chain operations, aiming to create long-term economic value while minimising environmental impact and ensuring social responsibility. This concept is based on triple bottom line (TBL) theory, introduced by John Elkington in 1994 [12], which posits that businesses must simultaneously prioritise profit, people, and the planet to achieve sustainable growth.

SSCM incorporates several theoretical frameworks, including:

Lifecycle assessment (LCA): LCA evaluates the environmental impact of products throughout their lifecycle, from raw material extraction to production, transportation, use, and disposal. In the wood industry, LCA can help identify stages of the production process with the highest carbon footprint and guide interventions to reduce emissions. Studies highlight the importance of using LCA to improve sustainability in forestry and wood products by assessing and mitigating environmental impacts [8].

Natural resource-based view (NRBV): Developed by Hart (1995) [20], this theory argues that firms can build a competitive advantage by managing natural resources sustainably. Firms that incorporate eco-friendly practices - such as sustainable harvesting, reducing energy use, and adopting renewable resources - can outperform competitors by meeting regulatory demands and consumer expectations for environmental responsibility.

In the wood export sector, SSCM can be applied through the following strategies:

Sustainable sourcing: Ensuring that wood is harvested from forests managed in compliance with sustainable forestry standards, such as those set by the Forest Stewardship Council (FSC) [18]. FSC certification guarantees that wood products come from responsibly managed forests that provide environmental, social, and economic benefits.

Energy efficiency in processing: Wood processing is an energy-intensive industry, particularly in drying, cutting, and shaping wood. Investing in energy-efficient technologies-such as solar-powered kilns or advanced drying systems-can significantly reduce emissions and help the industry comply with CBAM. A report by FAO (2010) [15] emphasises the importance of energy-efficient technologies in improving the sustainability of wood processing.

Supply chain transparency and traceability: Establishing robust systems to track the carbon content of products along the supply chain is crucial for compliance with CBAM [21]. Transparency ensures that every stage of the supply chain, from harvesting to processing, can be verified for its environmental impact. Traceability systems also support the marketing of wood products as eco-friendly, improving consumer trust and marketability.

SSCM also emphasises collaboration across the supply chain. For Vietnam's wood industry, partnerships with European buyers and regulatory bodies can help meet CBAM requirements more effectively, while building long-term resilience and sustainability in the face of evolving global environmental standards [8].

3. Literature review

The literature on the impact of carbon pricing on export industries shows that carbon pricing mechanisms can increase costs for producers, especially in energy-intensive sectors like manufacturing and heavy industries. M. Sato, et al. (2016) [17] and R. Martin, et al. (2014) [22] explain that carbon pricing can lead to "carbon leakage," where industries relocate to regions with less stringent environmental regulations to avoid these costs. However, their studies also highlight that such policies often encourage firms to innovate and adopt more energy-efficient technologies, leading to long-term competitiveness. For export industries, carbon pricing presents both risks and opportunities: while higher production costs may hurt competitiveness, companies that innovate to reduce their carbon footprint can gain a competitive edge in environmentally conscious markets.

In the wood industry, lifecycle assessments have revealed that much of the carbon footprint comes from energy-intensive processes like drying, cutting, and transporting wood products. Research by scientists points out that energy use during wood processing is one of the main contributors to greenhouse gas emissions, emphasising the need for cleaner, more energy-efficient technologies [21]. Studies by the FAO also stress the importance of sustainable forestry practices, noting that while wood itself can be a renewable resource, improper harvesting and processing techniques can undermine its environmental benefits [15]. This highlights the dual focus needed in the wood industry on both upstream (forestry) and downstream (processing) sustainability practices.

Regarding the EU's CBAM, A. Cosbey, et al. (2020) [6] and A. Mattoo, et al. (2012) [10] have explored its potential effects on developing countries. They argue that CBAM could impose significant financial burdens on industries in these regions by increasing the cost of exporting to the EU. These studies point out that without international support for technology transfer and capacity building, many developing countries could struggle to meet the EU's stringent carbon standards. This could lead to a loss of market share, particularly for industries like steel, cement, and potentially wood, where the carbon intensity of production is a key concern. However, Mattoo, et al. also emphasise the potential for CBAM to stimulate global green transitions, suggesting that countries that proactively invest in low-carbon technologies and processes may find new opportunities in environmentally regulated markets.

Successful adaptation strategies in industries targeted by CBAM, such as steel and cement, furniture were analysed to identify transferrable practices for the wood export sector. Those industries have already adapted to stringent environmental regulations offer valuable lessons. For example, the cement and steel industries in Europe have successfully reduced their carbon emissions through technological innovations and energy efficiency improvements, despite initially facing high compliance costs [16]. Similarly, the furniture industry, which is closely related to the wood sector, has adopted sustainable certification schemes (e.g., FSC certification) to meet both regulatory requirements and consumer demand for eco-friendly products [23]. These cases show that while the cost of compliance with environmental regulations can be significant, businesses that adapt by embracing sustainability and innovation often find long-term benefits in improved market access and customer loyalty.

Despite the valuable insights these studies provide, several research gaps remain. There is a noticeable lack of specific studies on the wood industry's response to carbon pricing mechanisms, particularly in Vietnam, where the industry is both economically significant and highly energy-dependent [1]. Most existing research focuses on larger, more energy-intensive industries like steel and cement, leaving the unique challenges of the wood industry underexplored. Additionally, while some studies touch on the role of international support, there is little in-depth analysis of how financial aid, technology transfer, and capacity-building efforts can support industries in developing countries, such as Vietnam's wood export sector, in meeting CBAM requirements.

In the context of Vietnam's wood export industry, these gaps are particularly relevant. The sector contributes significantly to the national economy, with exports reaching $14.8 billion in 2021 [1], but faces challenges from its high carbon footprint due to energy-intensive processes [8]. To address the gap, future research should focus on how Vietnam's wood industry can reduce its carbon emissions through renewable energy adoption, energy-efficient technologies, and sustainable forestry practices [19]. Additionally, studies should explore how international collaborations, particularly with the EU, can facilitate this transition by providing technical assistance and financial support [24]. This would not only help the industry meet the EU's carbon standards but also position Vietnam as a leader in sustainable wood production, ensuring its long-term competitiveness in global markets. Addressing these research gaps is critical for guiding both policymakers and industry stakeholders in developing strategies to align Vietnam's wood export industry with emerging environmental regulations.

Therefore, this study aims to bridge the gap by providing a detailed analysis of the specific challenges and opportunities that Vietnam's wood export industry faces under CBAM. It highlights the potential for technological innovation and sustainable practices to enhance the industry's resilience and competitiveness. By proposing actionable strategies and emphasising the need for international collaboration, the research offers practical guidance for policymakers and industry stakeholders. The study's findings contribute to a deeper understanding of how developing countries can adapt to stringent environmental regulations while maintaining economic viability.

4. Methods

4.1. Data collection

Data were collected from multiple sources, including industry reports, academic research about Vietnamese wood export industry. Lifecycle assessment (LCA) data were gathered to quantify the carbon footprint at various stages of the wood processing chain. Secondary data (existing literature and industry databases) was used. Then, strategic recommendations were developed based on both empirical data and theoretical insights from economic and environmental literature. The recommendations focus on technology adoption, market diversification, and policy support to help the industry adapt to CBAM and enhance its long-term competitiveness.

4.2. Analytical framework

The study's analytical framework integrates economic and environmental theories with a focus on carbon pricing, sustainability, and international trade. The following tools and frameworks were applied:

Lifecycle assessment (LCA): Used to quantify carbon emissions at each stage of the wood production process, including raw material extraction, processing, finishing, and transportation. This provided baseline emission data crucial for evaluating reduction strategies.

Natural resource-based view (NRBV): This framework was applied to assess the competitive advantage of sustainable practices, emphasising resource efficiency, innovation, and eco-certification.

5. Vietnam's wood export industry: Current state and challenges

5.1. Overview of the industry's economic importance

Vietnam's wood processing and export industry has emerged as a cornerstone of the nation's economy, experiencing remarkable growth over the past decade and establishing itself as a global leader in wood product manufacturing and trade. In 2021, the industry reached its peak performance with export revenues of $14.8 billion, representing a significant 19.7% increase from 2020's $12.37 billion [11]. This remarkable achievement positioned Vietnam as the world's fifth-largest wood and wood products exporter and second in Asia, trailing only behind China in regional rankings. The sector's contribution to Vietnam's GDP has been substantial, accounting for approximately 4% in 2021, underlining its crucial role in the country's economic landscape and development strategy [1].

The industry's economic significance extends far beyond export revenues, playing a vital role in employment generation and rural development. As of 2023, the sector directly employs approximately 500,000 workers across 5,400 enterprises, with indirect employment reaching nearly 1.5 million people when including related sectors such as forestry, logistics, and support services [25]. The industry's structure is particularly noteworthy, with small and medium-sized enterprises (SMEs) comprising about 90% of the total businesses, creating a robust economic ecosystem that supports local communities. The sector's supply chain extends across 4,500 communes involved in forest plantation, providing sustainable income sources for millions of Vietnamese households, particularly in rural areas where most wood processing facilities are located [2, 11].

Market diversification has been a key strength of Vietnam's wood export industry, though the United States remains the dominant market. In 2021, U.S.-bound exports reached $8.78 billion, accounting for approximately 59.3% of total wood exports, followed by the European Union ($1.53 billion, 10.3%), Japan ($1.33 billion, 9.0%), and China ($1.27 billion, 8.6%) (Fig. 1) [2, 11]. This market distribution reflects both opportunities and challenges, as strong reliance on the U.S. market has proven beneficial during periods of growth but also exposes the industry to risks during economic downturns. The European Union's position as the second-largest market has become increasingly significant, particularly as Vietnam implements the EVFTA, which has opened new opportunities while also introducing stricter environmental and sustainability requirements [25].

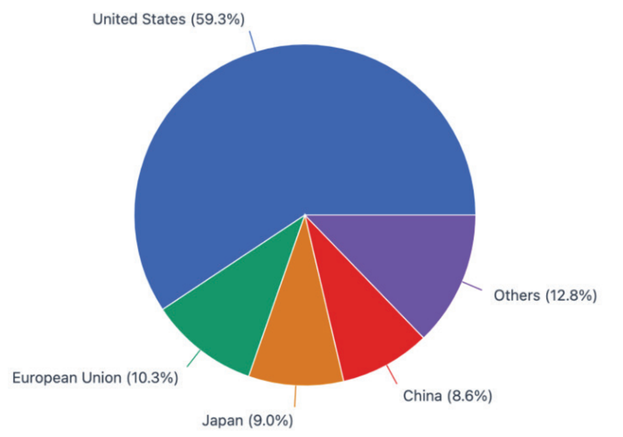

Fig. 1. Vietnam wood export market distribution (2021). Source: Vietnam Timber and Forest Product Association, Ministry of Industry and Trade.

However, the industry faced significant headwinds in recent years, with total export revenue declining to $13.4 billion in 2023, marking a 9.5% decrease from the 2021 peak. This downturn has been attributed to several factors, including global economic challenges, inflation in major markets, and stricter environmental regulations. The implementation of the EU's CBAM and the U.S. Lacey Act amendments have necessitated significant adjustments in production practices and supply chain management [1, 7]. Despite these challenges, the industry has demonstrated resilience through increased investment in technology and sustainable practices, with Vietnamese companies investing an estimated $2.8 billion in modern production facilities and environmental compliance measures between 2019 and 2023 (Fig. 2) [8, 26].

Fig. 2. Vietnam wood export performance (2019-2023). Source: Vietnam Timber and Forest Product Association, Ministry of Industry and Trade.

Looking at the industry's structural composition, large-scale manufacturers account for approximately 10% of enterprises but contribute nearly 70% of total export value [11]. These companies have been at the forefront of modernisation efforts, with average investment in technology and automation reaching $15-20 million per facility. The industry has also seen significant foreign direct investment (FDI), with accumulated FDI reaching $6.2 billion by 2023, primarily from countries such as Japan, South Korea, and Taiwan [24]. This international investment has not only brought capital but also advanced technology and management practices, contributing to the industry's overall competitiveness.

The wood processing industry's backward linkages have stimulated significant growth in Vietnam's forestry sector, with planted forest area increasing by 200,000 hectares annually. The country now maintains approximately 3.5 million hectares of production forests, providing about 70% of the raw materials needed for the industry [25]. The remaining 30% is imported, with a total import value of raw materials reaching $2.4 billion in 2023, primarily from the United States, New Zealand, and Chile. This combination of domestic and imported resources has enabled Vietnam to maintain its competitive position while working toward greater sustainability and self-sufficiency in raw material supply [11].

5.2. Carbon emissions in the wood production process

The wood production process encompasses multiple stages, each contributing significantly to the industry's overall carbon footprint. Understanding these emissions is crucial for implementing effective reduction strategies and meeting increasingly stringent international environmental standards [8, 15]. A comprehensive analysis of each production stage reveals the complex interplay between manufacturing processes and their environmental impact.

Stage 1: Forest management and raw material extraction:

The carbon emission cycle begins with forest management and logging operations, where the average carbon footprint ranges from 3.8 to 5.2 kg CO_2e per cubic meter of harvested wood [8, 15]. In Vietnam's context, where approximately 70% of raw materials come from domestic forests, the transportation of logs from forest to processing facilities adds an additional 2.1-3.5 kg CO_2e per cubic meter, depending on distance and transport method [11]. Modern harvesting equipment, such as mechanical harvesters and forwarders, typically emit between 0.9-1.2 kg CO_2e per cubic meter of wood harvested. The adoption of reduced impact logging (RIL) techniques in Vietnam has shown potential to reduce these emissions by 30-40%, although only 35% of logging operations currently employ these methods [26].

Stage 2: Primary processing and kiln drying:

The most energy-intensive phase occurs during primary processing, particularly in kiln drying operations. Contemporary wood drying kilns in Vietnam consume between 600-800 kWh of electricity per cubic meter of wood, resulting in emissions of 45-60 kg CO_2e per cubic meter when using grid electricity [26]. Traditional coal-fired kilns, still used in approximately 40% of facilities, generate significantly higher emissions of 85-100 kg CO_2e per cubic meter. The drying process, which typically takes 5-7 days for hardwoods common in Vietnamese production, accounts for roughly 35% of the total energy consumption in wood processing [11]. Recent studies by the Vietnam Timber and Forest Product Association indicate that facilities using modern heat pump kilns have achieved emission reductions of up to 45% compared to conventional methods [11].

Stage 3: Secondary processing and manufacturing:

Secondary processing, including cutting, planing, and shaping, contributes substantially to the carbon footprint. Modern woodworking machinery in Vietnamese facilities consumes an average of 300-400 kWh per cubic meter of processed wood, resulting in emissions of 25-35 kg CO_2e [8]. The manufacturing of engineered wood products, such as plywood and MDF, generates higher emissions due to additional processing requirements and the use of adhesives. Plywood production, for instance, emits approximately 120-150 kg CO_2e per cubic meter, with adhesive application and hot-pressing accounting for 40% of these emissions [5, 14]. Recent investments in energy-efficient equipment by major Vietnamese manufacturers have shown potential for reducing these emissions by 20-25% [8, 19].

Stage 4: Surface treatment and finishing:

The finishing phase, including sanding, coating, and painting, generates both direct emissions from energy consumption and indirect emissions from volatile organic compounds (VOCs). Modern finishing lines consume 150-200 kWh per cubic meter of product, resulting in direct emissions of 12-16 kg CO_2e [8, 26]. VOC emissions from finishing processes average 3.5-4.2 kg per cubic meter of finished product, with associated indirect greenhouse gas impacts. Water-based finishing systems, increasingly adopted by Vietnamese manufacturers, have demonstrated potential to reduce VOC emissions by 60-70% compared to traditional solvent-based systems [27, 28].

Stage 5: Assembly and packaging:

Final assembly and packaging operations contribute relatively lower but still significant emissions. Assembly lines in Vietnamese furniture factories typically consume 100-150 kWh per cubic meter of finished product, generating 8-12 kg CO_2e [8]. Packaging materials, primarily cardboard and plastic, contribute an additional 5-7 kg CO_2e per cubic meter of product. Recent innovations in packaging design and materials have shown potential for reducing packaging-related emissions by 25-30% [29].

Stage 6: Transportation and distribution:

The final stage involves significant emissions from product transportation and distribution. Domestic transportation from factories to ports generates 3-5 kg CO_2e per cubic meter, while international shipping adds 15-25 kg CO_2e per cubic meter for common routes to major markets like the United States and Europe [11]. The implementation of optimised logistics networks and container loading has shown potential for reducing transport-related emissions by 15-20% [8, 26].

Wood waste management and energy recovery:

Wood waste management significantly impacts the overall carbon footprint. Vietnamese wood processing facilities generate approximately 0.3-0.4 cubic meters of wood waste per cubic meter of finished product [8]. When properly utilised in biomass energy systems, this waste can offset 30-40 kg CO_2e per cubic meter of production by replacing fossil fuels. Currently, about 60% of large-scale facilities in Vietnam operate biomass energy systems, while smaller operations often sell wood waste to biomass energy producers [11].

Total life-cycle emissions and reduction initiatives:

The cumulative carbon footprint across the entire production process ranges from 220-280 kg CO_2e per cubic meter of finished wood products, varying significantly based on product type and processing methods [11, 15]. Leading Vietnamese manufacturers have implemented comprehensive carbon reduction programs, achieving total emission reductions of 25-35% through combined technological and operational improvements. These initiatives have required average investments of $2.5-3.5 million per facility but have resulted in annual operating cost savings of 15-20% through improved energy efficiency [8, 26].

Looking ahead, the Vietnamese wood industry has set ambitious targets for carbon reduction, aiming to decrease emissions by 45% by 2030 compared to 2020 levels. This goal aligns with both national environmental commitments and international market requirements, particularly the EU's CBAM [1, 7, 8].

5.3. Current sustainability practices and certifications

Vietnam's wood industry has undergone a significant transformation in its approach to sustainability and environmental certification over the past decade, driven by both international market demands and domestic environmental policies [18, 26]. The implementation of sustainable practices and acquisition of internationally recognised certifications has become increasingly crucial for maintaining market access and competitive advantage in the global wood products trade.

Forest Stewardship Council (FSC) certification has emerged as the cornerstone of sustainable forest management in Vietnam, with certified forest area growing from 157,000 hectares in 2018 to approximately 350,000 hectares by 2023 [18]. This growth represents a compound annual growth rate (CAGR) of 17.4% in certified forest area. The economic impact of FSC certification has been substantial, with certified products commanding a premium of 15-25% in international markets. Among the certified forest areas, 78% are managed by state-owned enterprises, while the remaining 22% are operated by private companies and smallholders [1, 25].

The Vietnam Timber Legality Assurance System (VNTLAS) has played a pivotal role in ensuring timber legality and traceability [21]. As of 2023, 2,847 companies have registered under VNTLAS, representing approximately 65% of all wood processing enterprises in the country. The system has helped reduce illegal timber in the supply chain by an estimated 47% since its implementation in 2019. Companies participating in VNTLAS have reported an average 28% improvement in market access to high-value destinations such as the European Union and United States [1, 25].

The Programme for the Endorsement of Forest Certification (PEFC) has gained traction as an alternative certification scheme, particularly among larger enterprises [20]. By 2023, 156 Vietnamese companies had obtained PEFC Chain of Custody certification, marking a 65% increase from 2020. These certified companies have reported average revenue increases of 23% following certification, primarily due to improved access to environmentally conscious markets [11].

Investment in sustainable practices has varied significantly across the industry. Large-scale manufacturers, representing about 10% of total enterprises, have invested heavily in sustainability initiatives, with average expenditure reaching $2.5-3.5 million per facility on environmental improvements between 2020 and 2023 [8, 26]. These investments have focused on energy-efficient equipment (45% of total investment), waste management systems (30%), and certification compliance (25%). The results have been noteworthy, with certified companies reporting average energy consumption reductions of 27% and waste reduction of 35% compared to pre-certification levels.

Renewable energy adoption in the wood processing sector has shown promising growth, though still limited in scope [23]. By 2023, 215 large and medium-sized facilities had installed solar power systems, with a total capacity of 180 MW, representing approximately 15% of the industry's total energy consumption. Biomass energy systems, utilising wood waste from processing operations, have been implemented in 423 facilities, generating an equivalent of 250 MW of thermal energy and reducing waste disposal costs by an average of 45% [8, 26].

Small and medium-sized enterprises (SMEs) face significant challenges in implementing sustainable practices and obtaining certifications [14]. The average cost of FSC certification for an SME ranges from $15,000 to $25,000, with annual maintenance costs of $5,000-8,000, representing 3-5% of their annual revenue. To address this challenge, the government has implemented support programs, providing financial assistance to 387 SMEs for certification processes in 2023, with a total investment of $12.5 million [25].

Water management practices have also seen significant improvement, with certified facilities reducing water consumption by an average of 32% through closed-loop systems and water treatment technologies [8]. Investment in water management infrastructure averaged $180,000 per facility among larger manufacturers, with payback periods ranging from 2.5 to 3.5 years through reduced water costs and compliance penalties.

The industry's commitment to sustainability has extended to supply chain management, with 65% of certified companies implementing comprehensive supplier evaluation systems based on environmental criteria [12, 14]. These systems have led to a 40% increase in the use of certified raw materials and a 55% improvement in supply chain transparency. The average cost of implementing such systems ranges from $50,000 to $100,000 per company, with annual operating costs of $15,000-25,000 [8, 26].

Looking ahead, the Vietnam Timber and Forest Product Association has set ambitious targets for 2025, including increasing FSC-certified forest areas to 500,000 hectares, achieving 80% VNTLAS registration among active exporters, and reducing the industry's carbon footprint by 35% compared to 2020 levels [11]. These goals are supported by a government commitment of $150 million in funding for sustainability initiatives over the next three years, focusing on certification support, technology upgrade grants, and training programs [25].

5.4. Discussion

Impact of CBAM on Vietnam's wood export industry: The introduction of the EU's CBAM represents a significant regulatory shift that poses both challenges and opportunities for Vietnam's wood export industry. CBAM aims to mitigate carbon leakage by imposing tariffs on imported goods based on their carbon content, ensuring that EU producers are not disadvantaged by stringent domestic carbon pricing. This regulatory framework could increase the cost of Vietnamese wood products in the EU market, potentially eroding their competitive edge.

Challenges:

• Increased costs: The primary challenge lies in the potential cost increase for Vietnamese wood exports due to the imposed tariffs. The industry, particularly its small and medium-sized enterprises, may struggle to absorb these costs without significant financial strain.

• Compliance: Achieving compliance with CBAM requirements necessitates substantial upgrades in production processes to reduce carbon emissions, which involves significant capital investment. Many SMEs may lack the financial resources or technical expertise to implement these changes effectively.

• Market access: The stricter environmental regulations could impact market access, especially for companies unable to meet the new standards. This could lead to a decline in export volumes to the EU, affecting overall industry revenues.

Opportunities:

• Incentive for innovation: CBAM serves as a catalyst for the industry to adopt more sustainable practices and invest in cleaner technologies. This transition, although challenging, could improve the industry's long-term sustainability and competitiveness.

• Market positioning: By aligning with global sustainability standards, Vietnam's wood products could enhance their appeal in environmentally conscious markets. This could potentially open up new market opportunities beyond the EU.

To address the challenges posed by CBAM, the industry must prioritise the adoption of advanced technologies and sustainable practices:

Technological innovations:

• Heat pump kilns: Implementing heat pump kilns can significantly reduce carbon emissions during the kiln drying process. These kilns are more energy-efficient, reducing emissions by up to 45% compared to traditional methods. This technology not only lowers the carbon footprint but also enhances energy efficiency, resulting in cost savings.

• Blockchain-based supply chain traceability: Developing blockchain-based systems for supply chain traceability can improve transparency and ensure compliance with environmental standards. These systems enable accurate tracking of carbon emissions throughout the supply chain, facilitating better reporting and verification processes.

Sustainability practices:

• FSC and PEFC Certifications: Achieving certifications like FSC and PEFC can enhance the credibility of Vietnamese wood products in international markets. These certifications assure buyers of the sustainable and legal origins of the wood, boosting marketability.

• Renewable energy adoption: Investing in renewable energy sources, such as solar and biomass, can reduce reliance on fossil fuels and lower overall emissions. This transition not only aligns with global sustainability goals but also reduces operational costs in the long run.

• Water-based finishing systems: Adopting water-based finishing systems can significantly reduce volatile organic compound (VOC) emissions, improving air quality and worker safety. These systems are increasingly preferred in environmentally conscious markets.

6. Conclusions and policy implications

6.1. Conclusions

Recap of key challenges: Vietnam's wood export industry, a cornerstone of the nation's economy, faces a complex array of challenges that threaten its continued growth and global competitiveness. The implementation of the European Union's CBAM looms as a significant hurdle, potentially eroding the competitive advantage Vietnamese wood products have long enjoyed in the European market [5]. This challenge is compounded by the industry's current carbon-intensive practices, with total life-cycle emissions ranging from 220-280 kg CO_2e per cubic meter of finished wood products [15]. The industry's heavy reliance on energy-intensive processes, particularly in kiln drying operations which consume between 600-800 kWh of electricity per cubic meter of wood, underscores the urgent need for technological upgrades and process improvements [19, 26].

Moreover, the industry's structure, dominated by small and medium-sized enterprises (SMEs) which comprise about 90% of the total businesses, presents unique challenges in implementing large-scale environmental upgrades [1]. These smaller operations often lack the capital and technical expertise necessary for significant technological investments, making industry-wide adaptation to stricter environmental standards a formidable task. The recent decline in export revenues, from a peak of $14.8 billion in 2021 to $13.4 billion in 2023, further highlights the industry's vulnerability to global economic fluctuations and changing regulatory landscapes [1].

The industry also grapples with raw material sourcing challenges, with 30% of materials still being imported [1]. This reliance on imports not only impacts the carbon footprint through transportation emissions but also exposes the industry to supply chain disruptions and price volatilities in the global timber market. Furthermore, the varying adoption rates of sustainable practices across the industry, such as the limited implementation of reduced impact logging techniques in only 35% of logging operations, indicate a pressing need for standardisation and widespread adoption of best practices [25].

Potential adaptation strategies: In response to these challenges, several potential adaptation strategies emerge as critical pathways for the industry's sustainable growth and competitiveness. Foremost among these is the urgent need for technological innovation and modernisation across all stages of the wood production process [8]. The adoption of advanced kiln drying technologies, such as heat pump kilns which have shown potential for emission reductions of up to 45%, represents a significant opportunity for energy efficiency improvements [26]. Similarly, the expansion of biomass energy systems, currently utilised by about 60% of large-scale facilities, offers a dual benefit of waste management and carbon footprint reduction [8].

Enhancing supply chain sustainability through increased adoption of Forest Stewardship Council (FSC) certification and improved traceability systems presents another crucial strategy [19]. The implementation of blockchain-based traceability systems, as piloted by the Vietnam Forest Certification Office, has demonstrated promising results in improving traceability accuracy and reducing verification time [21]. These improvements not only address regulatory compliance concerns but also position Vietnamese wood products more favourably in environmentally conscious markets [27].

Market diversification emerges as a key strategy to mitigate risks associated with regulatory changes in specific markets [1]. While the United States remains the dominant market, accounting for 59.3% of wood exports in 2021, expanding presence in markets such as Japan, China, and other emerging economies can provide a buffer against potential market share losses in the EU due to CBAM implementation [1].

Investment in research and development, particularly in areas such as low-emission adhesives for engineered wood products and water-based finishing systems, offers pathways for significant emission reductions in manufacturing processes [11]. Collaborative efforts between industry, academia, and government research institutions will be crucial in driving these innovations forward.

Long-term outlook for Vietnam's wood export industry: The long-term outlook for Vietnam's wood export industry is cautiously optimistic, contingent upon the successful implementation of adaptation strategies and supportive policy frameworks [1]. The industry's demonstrated resilience, evidenced by investments of $2.8 billion in modern production facilities and environmental compliance measures between 2019 and 2023, suggests a strong foundation for future growth [1]. The ambitious target set by the industry to decrease emissions by 45% by 2030 compared to 2020 levels aligns with global sustainability trends and positions Vietnamese products favourably in an increasingly environmentally conscious market [26].

The continued implementation of the EU-Vietnam Free Trade Agreement presents significant opportunities for market expansion and product diversification, provided the industry can meet the stringent environmental and sustainability requirements [18, 7]. The growing global demand for sustainably sourced wood products, coupled with Vietnam's established reputation for quality and craftsmanship, creates potential for the industry to transition into higher-value, eco-friendly product segments [27].

However, the realisation of this positive outlook hinges on the industry's ability to navigate the complex interplay of technological adaptation, regulatory compliance, and market dynamics [12]. The success of large-scale manufacturers in modernisation efforts, with average investments of $15-20 million per facility in technology and automation, sets a benchmark for the industry [11]. The challenge lies in extending these advancements across the entire sector, particularly to the numerous SMEs that form the backbone of the industry [8].

6.2. Recommendations

For Vietnamese wood export businesses: Vietnamese wood export businesses must prioritise investments in energy-efficient technologies and cleaner production processes [8]. This includes upgrading to modern kiln drying technologies, implementing biomass energy systems, and adopting water-based finishing solutions [26]. Companies should also focus on achieving international certifications, such as FSC, to enhance their products' marketability in environmentally conscious markets [18, 20].

Smaller enterprises should explore collaborative models, such as forming cooperatives or industry clusters, to pool resources for technology investments and shared facilities [11]. This approach can help overcome the financial barriers to adopting advanced, low-emission technologies.

Businesses should also invest in workforce training and development, focusing on skills related to sustainable production practices, carbon accounting, and international environmental standards compliance [27]. Engaging with international partners for knowledge transfer and capacity building can accelerate this process.

For the Vietnamese government: The Vietnamese government plays a crucial role in facilitating the industry's transition [27]. Policymakers should consider expanding and simplifying access to financial incentives for green technology investments, particularly for SMEs [23]. This could include low-interest loans, tax breaks for investments in emission-reduction technologies, and grants for research and development in sustainable wood processing techniques.

Developing a comprehensive roadmap for the industry's green transition, aligned with national environmental goals and international commitments, is essential [28]. This should include clear milestones, support mechanisms, and regulatory frameworks to guide the industry's evolution.

The government should also prioritize international negotiations, particularly with the EU, to secure favourable terms under CBAM and explore possibilities for mutual recognition of environmental standards and certifications [6, 8]. Strengthening domestic forestry management to increase the supply of sustainably sourced timber can reduce reliance on imports and improve the industry's overall sustainability profile [1].

For international cooperation and support: International cooperation will be crucial in facilitating Vietnam's wood industry transition [26]. Bilateral and multilateral agreements should focus on technology transfer, capacity building, and financial support for emission reduction initiatives. International organisations and development agencies can play a key role in providing technical assistance and funding for pilot projects in sustainable wood processing and forest management [20].

Collaborative research initiatives between Vietnamese institutions and international partners should be encouraged to develop innovative, low-emission technologies tailored to the specific needs of Vietnam's wood industry [11]. This could include joint research programs, exchange of experts, and shared laboratories for testing and developing new materials and processes.

6.3. Future research directions

The dynamic nature of global climate regulations and their impact on international trade necessitates ongoing research to inform industry strategies and policy decisions [4]. A priority area for future research is a comprehensive quantitative assessment of CBAM's impact on Vietnam's wood industry [18]. This should include detailed economic modelling of various CBAM implementation scenarios, considering factors such as different carbon price levels, potential exemptions, and the industry's adaptation pace. Such research would provide valuable insights for both policymakers and industry stakeholders in developing targeted mitigation strategies.

Comparative studies with other affected sectors or countries could offer valuable lessons and best practices for Vietnam's wood industry [17]. Research comparing the adaptation strategies and outcomes in sectors such as steel, cement, or aluminium, which are directly targeted by CBAM, could provide insights into effective policy measures and technological solutions [16]. Similarly, studying the responses of other wood-exporting countries, particularly those with similar economic structures to Vietnam, could inform more effective national strategies.

Lastly, research into the long-term sustainability of the global wood trade under evolving climate regulations is crucial [12]. This should encompass analysis of shifting consumer preferences towards sustainable products [27], the potential emergence of new wood-based materials with lower carbon footprints [11], and the impact of reforestation and afforestation efforts on global wood supply chains [15, 16]. Additionally, exploring the potential for circular economy principles in the wood industry, such as advanced recycling technologies and waste-to-energy solutions, could uncover new avenues for sustainability and competitiveness [11, 23].

COMPETING INTERESTS

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

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The impact of knowledge management on innovation in small and medium enterprises in Vietnam

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Abstract:

This article aims to examine the impact of knowledge management processes - acquisition, creation, sharing, storage, and utilisation - on innovation within small and medium enterprises (SMEs) in Vietnam. Using a quantitative approach, we collected primary data from SME managers via a structured questionnaire and employed multiple regression analysis to test our hypotheses. The findings indicate that all knowledge management processes positively influence innovation, with knowledge sharing exerting the most significant impact. This highlights the crucial role of facilitating knowledge exchange among employees and external stakeholders in driving creativity and improving business performance. Based on these findings, the study offers practical recommendations for SME managers, emphasising the need to develop structured knowledge-sharing systems, invest in knowledge storage mechanisms, and effectively leverag existing expertise to promote innovation. Furthermore, policymakers are encouraged to create supportive environments that enable SMEs to effectively implement knowledge management strategies. By strengthening these processes, Vietnamese SMEs can enhance their innovation capacity and achieve long-term sustainability in an increasingly competitive market.

Keywords: **innovation, knowledge management, quantitative analysis, small and medium enterprises, Vietnam.**

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

1. Introduction

In Vietnam, SMEs constitute a significant proportion, accounting for 97 percent of the total number of enterprises. They contribute to nearly 41.24 percent of the total capital and generate 42.11 percent of job opportunities. Moreover, the SME sector plays a crucial role in fostering sustainable growth, ensuring social security, and alleviating poverty. Therefore, enhancing competitiveness to facilitate these organisations' positive and sustainable development is imperative. Despite a growing awareness of the importance of innovation, the reality reveals that the innovation capabilities of SMEs in Vietnam have not yet reached their expected potential. A common characteristic of SMEs is their limited access to capital and resources, which makes it challenging to pursue innovation activities that require substantial financial investments, such as technology upgrades. Consequently, it is imperative to research to identify pre-existing factors, such as knowledge management, that can enhance innovation activities for SMEs.

Recent studies indicate that knowledge management influences innovation [1-4]. Knowledge management is defined as the process of selecting, zoning, storing, classifying, sharing, and communicating information that is essential for an organisation's business operations, to enhance its efficiency and competitiveness [4]. Enterprises can apply knowledge management to fill gaps in knowledge, combine internal and external knowledge, and make the organisation's knowledge base more usable for innovation. Empirical studies examining the influence of knowledge management processes on innovation often focus on the context of large-scale enterprises, firms operating in the high-technology sector, and those that actively implement professional knowledge management processes and strategies, considering the application of knowledge management to innovation as a source of competitive advantage [1, 5, 6] but tend to overlook the context of small and medium-sized enterprises. Several previous studies have shown that SMEs lack a comprehensive knowledge management system, and if they are implemented, their knowledge management process is often simpler than that of large-scale enterprises [7]. However, this does not imply that the application of knowledge management has little impact on the innovation activities of these organisations.

In Vietnam, most studies exploring the impact of knowledge management on innovation in enterprises focus solely on understanding the individual impact of one or a few knowledge management processes on innovation [6]. In contrast, various global studies have shown that multiple knowledge management processes influence innovation in enterprises [4]. Furthermore, the identification of knowledge management processes in these studies are often inherited from previous research without evaluating their suitability within the context of SME research in Vietnam. Therefore, identifying and assessing knowledge management processes existing within Vietnamese SMEs and their influence on innovation activities would offer a comprehensive understanding of knowledge management

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and innovation within this sector. Drawing on the theoretical and practical imperatives previously discussed, this research evaluates the impact of knowledge management on innovation in SMEs. Additionally, it seeks to offer actionable governance recommendations tailored to the unique context of Vietnamese SMEs.

The remainder of the paper is structured as follows: It begins with the relevant literature and previous studies about knowledge management processes, as well as other previous studies that link knowledge management with innovation. Then the methodology is presented, followed by testing the proposed hypotheses in the data analysis section. Finally, the authors discuss the findings, conclusions, and policy recommendations.

2. Theory and hypotheses

According to the resource-based view theory [8], the internal environment of an organisation is the key factor explaining its superior performance. Consequently, organisations should concentrate on valuable, rare, and hard-to-replicate resources such as reputation, innovation capacity, knowledge, and improvisational ability. The knowledge-based view theory is seen as an evolution of the resource-based view theory. This theory places knowledge at the forefront as an essential, scarce, and valuable resource within a firm. Knowledge is the core element that delineates the boundaries of enterprises, and knowledge management processes, including acquisition, storage, replication, transfer, and creation of knowledge within the organisation, are of paramount importance. Based on the resource-based view theory and knowledge-based view theory, numerous empirical research studies have shown the positive impact of knowledge management on innovation within businesses [1-5]. The process of innovation in enterprises involves multiple steps, including ideation, assimilation, and implementation of new ideas or novel approaches. Interestingly, these processes align closely with knowledge management practices within organisations.

The crucial roles of knowledge management in innovation are identified in the research of [9]. These roles include sharing and encoding tacit knowledge, a type of knowledge that competitors find difficult to imitate. Knowledge management creates a favourable environment for the innovation process within organisations. Moreover, it provides tools, processes, and platforms that make knowledge readily available and accessible. Innovation and creativity are perceived as processes synthesising available knowledge in diverse ways. Therefore, knowledge management ensures that the knowledge gathered from both internal and external sources can be utilised as inputs for the innovation process.

The management research overview indicates that knowledge management's influence on innovation is commonly structured along the lines of knowledge management processes. These knowledge management processes highlighted in studies include knowledge acquisition, knowledge storage, knowledge sharing, knowledge creation, and knowledge utilisation.

Knowledge acquisition processes are intended to obtain useful knowledge by creating it or absorbing it from internal/external sources [10]. This can be done by hiring new individuals, renting external knowledge, creating a research and development unit that is dedicated to capturing new knowledge, and having employees who can acquire new knowledge quickly and have the openness to learn new skills, thereby promoting innovation in the organisation [3]. In conclusion, the following hypothesis is proposed.

Hypothesis 1: Knowledge acquisition positively affects innovation in SMEs.

Knowledge creation processes refer to the activity of developing new and useful ideas and solutions related to different aspects of an organisation, such as improving product quality, changing technological processes, and changing process management. The positive influence of knowledge creation on innovation outcomes in enterprises has also been demonstrated in many studies [11-13]. In conclusion, the following hypothesis is proposed.

Hypothesis 2: Knowledge creation positively affects innovation in SMEs.

Knowledge storage processes are designed to facilitate the retention and manipulation of knowledge [5, 11]. Knowledge storage helps future generations access knowledge and reduces the risk of organisations losing knowledge when employees retire or quit. However, another study showed that knowledge storage has no significant effect on innovation [6] because knowledge storage primarily focuses on ensuring document accessibility rather than generating new knowledge. The subjects of this study are SMEs characterised by high employee turnover rates. Consequently, the research anticipates that knowledge storage will have a significantly positive impact on innovation and creativity within these enterprises. In conclusion, the following hypothesis is proposed.

Hypothesis 3: Knowledge storage positively affects innovation in SMEs.

Knowledge sharing processes are the exchange of knowledge and experience within an enterprise and between an enterprise and external organisations. Many studies demonstrated that knowledge sharing has a positive effect on innovation outcomes in enterprises [4, 13]. Encouraging knowledge sharing among employees and departments reduces individual learning time, enhances teamwork, and contributes to generating new knowledge. Knowledge sharing also helps businesses mitigate risks associated with workforce fluctuations, especially unexpected departures of experienced staff. In conclusion, the following hypothesis is proposed.

Hypothesis 4: Knowledge sharing positively affects innovation in SMEs.

Knowledge utilisation processes are concerned with applying knowledge to create value for enterprises. The positive influence of knowledge utilisation on innovation outcomes in enterprises has also been demonstrated in many studies [12, 14]. This process involves applying knowledge and information to the organisation's operational and business processes to yield clear innovation outcomes, such as product innovation, service innovation, and the creation of new procedures and regulations. In conclusion, the following hypothesis is proposed.

Hypothesis 5: Knowledge utilisation positively affects innovation in SMEs.

Building on the abovementioned theoretical analysis, this article posits a theoretical framework for the impact of knowledge management processes on innovation among Vietnamese SMEs, as shown in Fig. 1. This model shows the independent variables (knowledge processes), the dependent variable (innovation), and the proposed relationship between them. Knowledge processes include knowledge acquisition, knowledge creation, knowledge storage, knowledge sharing, and knowledge utilisation.

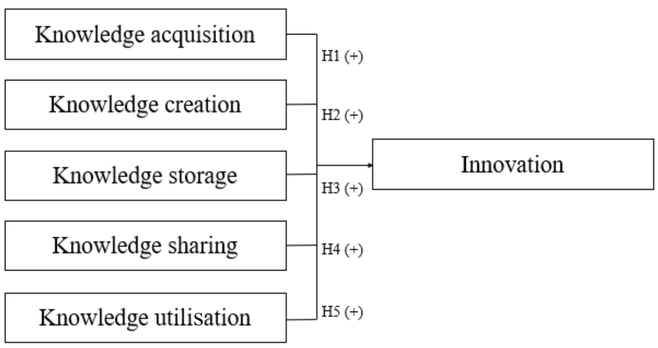

Fig. 1. Research model.

3. Methods

The research aims to explore the impact of knowledge management on innovation in SMEs in Vietnam. Knowledge management involves integrating various processes related to organisational knowledge to enhance productivity, profitability, and development capability. Innovation is defined as a firm's activities in improving existing products or developing new ones; it also involves enhancing current operating processes or creating new ones to improve performance relative to key competitors and the business itself in previous years. The study considers knowledge management and innovation at the organisational level and does not focus on individual-level research. The major elements of this research are established based on preceding literature, both theoretically and empirically.

Knowledge acquisition processes (ACQ) are intended to obtain useful knowledge by creating it or absorbing it from internal/external sources. Accordingly, knowledge acquisition has been measured using five questions adapted from B.Y. Obeidat, et al. (2016) [4].

Knowledge creation processes (CRE) involve developing new and useful ideas and solutions relevant to different aspects of an organisation. Knowledge creation has been measured using four questions adapted from J.B. Barney (1991) [8].

Knowledge storage processes (STO) are designed to facilitate the retention and manipulation of knowledge [5, 11]. Accordingly, knowledge storage has been measured using four questions adapted from T. Andreeva, et al. (2011) [11].

Knowledge sharing processes (SHA) involve the exchange of knowledge and experience within an enterprise and between an enterprise and external organisations. This variable has been measured using five questions identified from T. Andreeva, et al. (2011) [11].

Knowledge utilisation processes (UTI) are concerned with applying knowledge to create value for enterprises. Knowledge utilisation has been measured using five questions adapted from B.Y. Obeidat, et al. (2016) [4].

In this study, innovation (IN) will be considered as the dependent measure since it has been recognised as a direct result of knowledge management effectiveness and one of the main objectives for knowledge-creating companies to obtain competitive advantages. Accordingly, innovation has been measured by eight questions which are adapted from M.J. Donate, et al. (2011) [5].

To explore the relationship between the independent variables (KM processes) and the dependent variable (innovation), these variables were measured using a five-point Likert scale ranging from not applied at all = 1 to fully applied = 5. Reliability and validity analyses were conducted; descriptive analysis was used to describe the characteristics of the sample and the respondents to the questionnaires, alongside the independent and dependent variables. The data analysis methods used to test the research hypotheses include Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and multiple regression analysis.

The research sample size was determined based on the number of observed variables and the research scope, typically requiring a minimum of 5-10 times the number of observed variables for factor analysis and regression analysis [15]. In this study, with 22 observed variables in the model, a minimum sample size of 220 businesses was required, based on the 1:10 ratio. The research employed a convenience sampling approach, a non-probability sampling technique involving selecting elements based on their availability and suitability for the research objectives. The selected businesses had to meet the following criteria: firstly, adhere to the definition outlined in the Government's Decree No. 39/2018/ND-CP issued on March 11, 2018; secondly, have a minimum of 3 years of operational history.

Two months after the survey commencement, the authors collected 358 responses, achieving a response rate of 67.04%. The lower-than-expected number of surveys collected can be attributed to several factors, including some businesses being unreachable via email or phone, certain businesses having relocated, and some businesses being unwilling to participate in the questionnaire. Most of the enterprises that did not receive questionnaires were primarily micro-enterprises. The authors conducted a survey screening process, eliminating invalid questionnaires, such as those with missing essential information or lacking more than 10% of the required data. In the end, 332 out of the 358 questionnaires met the criteria for data entry and analysis, resulting in a retention rate of 92.74%. The authors also conducted a check for duplicate entries and found that all 332 observations were entirely independent, with no duplications.

Regarding the survey area, the authors made efforts to collect data in line with the initial expectations. However, the number of valid survey questionnaires suitable for analysis was sufficient to meet the minimum expected data requirement (332 questionnaires). Nevertheless, the allocation of collected questionnaires was overall reasonably well-balanced and acceptable for processing and analysis.

As indicated in Table 1, the demographic profile of the respondents for this study shows that they are typically males (70.48%), bachelor's degrees (63.55%), and about 41.87% percent of them have 6 to 10 years of experience. The information regarding the survey respondents indicates that the collected data is highly valuable for research. The interview participants are mature in age, possess a high level of expertise, have extensive work experience in the business sector, and demonstrate a profound understanding of management issues within enterprises.

Table 1. Description of the respondent's demographic profiles.

Category	Frequency	(%)
Gender		
Male	234	70.48
Female	98	29.52
Total	332	100.00
Qualification		
High school	89	26.81
College/University	211	63.55
Postgraduate	32	9.64
Total	332	100.00
Experience		
3 to less than 5 years	126	37.95
6 to less than 10 years	139	41.87
More than 10 years	67	20.18
Total	332	100.00

Source: Authors' calculation.

As indicated in Table 2, the number of years of operation of businesses showed a statistically insignificant difference. The authors divided it into three categories: 3-5 years, 6-10 years, and >10 years, with businesses operating for 3-5 years accounting for 37.65%, those operating for 6-10 years at 30.72%, and those with more than 10 years of operation comprising 31.63% of the sample. In terms of business sectors, within the survey sample, 23 businesses were operating in the Agriculture, Forestry, and Fisheries sector, accounting for 6.93%; 72 businesses in Industrial & Manufacturing, representing 21.69%; and 237 businesses in Commerce and Services, making up the remaining 71.38%.

Table 2. Description of the SME demographic profiles.

Category	Frequency	(%)
Labor scale		
<10	89	26.80
10-50	169	50.90
51-100	42	12.66
101-200	19	5.72
201-300	13	3.92
Total	332	100.00
Years		
3 to less than 5 years	125	37.65
6 to less than 10 years	102	30.72
More than 10 years	105	31.63
Total	332	100.00
Business field		
Agriculture, forestry, seafood	23	6.93
Industrial production	72	21.69
Commerce, Services	237	71.38
Total	332	100.00

Source: Authors' calculation.

4. Results

To evaluate the knowledge management situation in small and medium-sized enterprises in Vietnam, the study utilised mean scores and standard deviations for the following dimensions: knowledge acquisition, knowledge creation, knowledge storage, knowledge utilisation, knowledge sharing, and innovation. As indicated in Table 3, the average values of the responses regarding the knowledge management processes fluctuate around 4, which is significantly higher than the neutral point of 3. This indicates that the survey participants have a relatively high level of agreement with the survey questions. The survey results suggest that the current state of innovation is at an above-average level (average = 3.83; standard deviation = 0.426). Among these, the aspect that received the highest rating is "Development of new products". This suggests that Vietnamese SMEs are currently showing a keen interest in their innovation activities. However, innovation activities have not yet gained strong momentum, as businesses do not consider them strategically significant for their operations. This is reflected in the relatively lower scores for aspects related to the active improvement of existing products and the creation of new products.

Table 3. Mean and standard deviation of the study's variables.

Variable	Mean	SD
Knowledge acquisition	***4.26***	***0.50***
We hire new employees as a source for acquiring new knowledge	4.22	0.68
We encourage employees to acquire knowledge from different sources	4.29	0.67
We provide an open environment to help our employees acquire new knowledge	4.24	0.63
We actively observe and adopt the best practices in our sector	4.24	0.64
We list and define the knowledge we possess as well as any unavailable knowledge	4.30	0.65
Knowledge creation	***4.19***	***0.61***
Our organisation frequently comes up with new ideas about our products and/or services	4.25	0.72
Our organisation frequently comes up with new ideas about our working methods and processes	4.17	0.79
If a traditional method is not effective anymore our organisation develops a new method	4.19	0.72
Our organisation uses existing know-how in a creative manner for new applications	4.17	0.71
Knowledge storage	***3.91***	***0.60***
Our organisation does a lot of work to refine, organise, and store the knowledge collected	4.14	0.69
Our organisation possesses many useful patents and licenses	4.09	0.70
In our organisation, we are used to documenting in writing lessons that are learned in practice	3.74	0.78
In our organisation, we make sure that the most important experiences gained are documented	3.69	0.79
Knowledge sharing	***3.63***	***0.83***
In our organisation, information and knowledge are actively shared within units	3.45	1.00
In our organisation, employees and managers exchange a lot of information and knowledge	3.48	1.04
Our organisation shares a lot of knowledge and information with strategic partners	3.81	0.93
Our employees are systematically informed of changes in procedures, instructions, and regulations	3.79	0.95
Knowledge utilisation	***4.06***	***0.63***
There are incentive and benefit policies for new ideas and suggestions in utilising existing knowledge	4.11	0.83
Workflow diagrams are required and used in performing tasks	4.08	0.75
The firm effectively manages different sources and types of knowledge	4.04	0.76
The firm utilises available knowledge to improve services provided to its customers	4.04	0.77
The firm applies available knowledge to improve its performance	3.99	0.75
Innovation	***3.83***	***0.47***
Development of new production methods and procedures	3.83	0.57
Development of improvements for existing methods and procedures	3.82	0.53
Introduction of more new (or improved) methods and procedures than its major competitors	3.82	0.55
Introduction of more new (or improved) methods and procedures than three years ago	3.82	0.57
Development of new products	3.86	0.51
Modification and/or improvement of existing products	3.85	0.59
Introduction of more new (or improved) products than its major competitors	3.82	0.57
Introduction of more new (or improved) products than three years ago	3.85	0.52

Source: Authors' calculation.

Table 4. Item-total statistics.

Variables	Scale mean if item deleted	Scale variance if item deleted	Corrected item - total correlation	Cronbach's alpha if item deleted
Knowledge acquisition - Alpha = 0.831				
ACQ1	17.07	4.212	0.612	0.800
ACQ2	17.00	4.139	0.670	0.783
ACQ3	17.05	4.396	0.601	0.803
ACQ4	17.05	4.309	0.625	0.796
ACQ5	16.99	4.275	0.626	0.796
Knowledge creation - Alpha = 0.848				
CRE1	12.52	3.573	0.677	0.811
CRE2	12.60	3.316	0.694	0.805
CRE3	12.58	3.543	0.699	0.801
CRE4	12.61	3.599	0.677	0.811
Knowledge storage - Alpha = 0.821				
STO1	11.52	3.616	0.618	0.787
STO2	11.58	3.592	0.620	0.786
STO3	11.92	3.242	0.674	0.761
STO4	11.98	3.202	0.670	0.764
Knowledge sharing - Alpha = 0.869				
SHA1	11.08	6.302	0.741	0.824
SHA2	11.05	5.907	0.799	0.800
SHA3	10.72	6.867	0.684	0.847
SHA4	10.74	6.838	0.665	0.854
Knowledge utilisation - Alpha = 0.875				
UTI1	16.15	6.277	0.714	0.846
UTI2	16.18	6.648	0.705	0.847
UTI3	16.22	6.506	0.737	0.840
UTI4	16.22	6.573	0.701	0.848
UTI5	16.27	6.818	0.660	0.858
Innovation - Alpha = 0.904				
IN1	26.83	8.874	0.710	0.890
IN2	26.84	9.142	0.675	0.894
IN3	26.84	9.001	0.693	0.892
IN4	26.84	8.874	0.710	0.890
IN5	26.80	9.185	0.701	0.892
IN6	26.81	8.720	0.734	0.888
IN7	26.84	8.954	0.678	0.893
IN8	26.81	9.254	0.660	0.895

Source: Authors' calculation.

Reliability analysis involves assessing the degree of consistency among multiple measurements of a variable, while validity analysis pertains to the extent to which a scale or set of measures accurately represents the construct it is intended to measure, aligning with the researcher's intended measurement goals. In our case, we focused on measuring the reliability of the instrument using Cronbach's alpha coefficient. All indicator values or dimensional scales must exceed the recommended threshold of 0.60. As indicated in Table 4, the results present

Cronbach's alpha for both the independent and dependent variables. All Cronbach's alpha coefficients for the tested variables exceed 0.60, indicating the reliability of the composite measure. Furthermore, the items selected to measure the independent and dependent variables were validated and adapted from previous research. Therefore, our approach to enhancing scale validity involved using a previously validated instrument developed by other researchers. Additionally, the questionnaire items underwent review by four professors from the Business Administration departments at two universities in Hanoi. The feedback provided during the pre-test phase contributed to improved content validity for the instrument.

All measurement scales and observed variables met the Cronbach's alpha reliability test. The initial dataset was randomly divided into two independent groups: the first, comprising 166 samples, was used for EFA; the second, also with 166 samples, was used for CFA.

To confirm the validity of the EFA, standard pre-analysis procedures were performed. The Bartlett's Test of Sphericity revealed a highly significant correlation within the correlation matrix ($p<0.001$). The Kaiser-Meyer-Olkin measure (KMO=0.799), which satisfies the condition $0.5\leq KMO\leq 1$, indicatesd the suitability of factor analysis. The extracted variance =67.547% and eigenvalues=1.591>1 indicate that 67.547% of the variance of each factor is explained by the observed variables of the factor. The Promax rotation method was employed to more accurately reflect the data structure and facilitate easier observation. The analysis results indicate that all observed variables have factor loading coefficients greater than 0.5, which is suitable for a sample size of less than 350 (Table 5).

Table 5. Rotated component matrix.

	Component				
	1	*2*	*3*	*4*	*5*
UTI3	0.851				
UTI2	0.813				
UTI1	0.801				
UTI4	0.795				
UTI5	0.764				
ACQ4		0.777			
ACQ2		0.764			
ACQ3		0.763			
ACQ5		0.740			
ACQ1		0.736			
SHA2			0.912		
SHA1			0.897		
SHA3			0.754		
SHA4			0.713		
STO2				0.826	
STO3				0.813	
STO4				0.800	
STO1				0.771	
CRE3					0.810
CRE4					0.808
CRE2					0.781
CRE1					0.767
Extraction method: Principal component analysis Rotation method: Varimax with kaiser normalisation					

Source: Authors' calculation.

The CFA method was used to examine the suitability of the theoretical model with the research data and to test the convergence, discriminant, and reliability of the model. Through the CFA method, the chi-squared value was adjusted for degrees of freedom (Cmin/df)=1.135<5; TLI index and CFI comparability index >0.9; RM-SEA index=0.029<0.05. The calculation results show that the model's indicators are satisfied, and the model is accepted with the research data, indicating that the measurement model fits well with the actual data.

Table 6. Correlation matrix and discriminant value.

	CR	AVE	MSV	MaxR(H)	UTI	SHA	ACQ	CRE	STO	IN
UTI	0.887	0.612	0.158	0.889	0.782					
SHA	0.881	0.649	0.384	0.882	0.067	0.806				
ACQ	0.817	0.473	0.138	0.822	0.034	0.180†	0.688			
CRE	0.854	0.595	0.249	0.855	0.115	0.182	0.152	0.771		
STO	0.796	0.495	0.167	0.802	-0.074	0.062	0.189†	0.245	0.704	
IN	0.889	0.501	0.384	0.891	0.398	0.620	0.372	0.499	0.408	0.708

Note: CR: Composite reliability, AVE: Average variance extracted, MSV: Maximum shared variance, MaxR(H): Maximum reliability.
Source: Authors' calculation.

Indicators commonly used to assess reliability and accuracy in CFA analysis include factor loadings (FLs), composite reliability (CRs), and average variance extracted (AVE) of factors. The results show that the value of CRs is higher than 0.6. However, the AVE value of the knowledge acquisition scale is less than 0.5, so it is necessary to return to the original CFA model (Table 6). In the EFA analysis of this scale, observed variables with low loading factors (ACQ1; ACQ5; STO2) were identified and subsequently removed. After removing these observed variables from the original CFA model, the CFA model still ensures a fit with the chi-squared value adjusted for degrees of freedom (Cmin/df)=1.126<5; TLI index and relevant index for comparison CFI=0.981>0.9; RM-SEA index=0.028<0.05 and CR values>0.6, AVEs are higher than 0.5 and discriminant performance is satisfied if the square root value of AVE is greater than the correlation coefficient between the scales measured and the value of AVE is greater than the MSV satisfying the requirements. Therefore, it can be confirmed that the scales in the research model have both convergent and discriminant values to continue testing the hypotheses. Through the results of CFA analysis, the authors conclude that the independent and dependent variables are consistent with the theoretical model and research data, and the research concepts are reliable, convergent, and discriminant (Table 7).

Table 7. Correlation matrix and discriminant value after adjustment.

	CR	AVE	MSV	MaxR(H)	UTI	SHA	ACQ	CRE	STO	IN
UTI	0.887	0.612	0.158	0.889	0.782					
SHA	0.881	0.649	0.384	0.882	0.067	0.806				
ACQ	0.750	0.501	0.185	0.753	0.068	0.176	0.708			
CRE	0.854	0.595	0.249	0.855	0.115	0.183	0.128	0.771		
STO	0.796	0.527	0.169	0.773	-0.083	0.066	0.238	0.229	0.726	
IN	0.889	0.501	0.384	0.891	0.398	0.620	0.430	0.499	0.411	0.708

Note: CR: Composite reliability, AVE: Average variance extracted, MSV: Maximum shared variance, MaxR(H): Maximum reliability.
Source: Authors' calculation.

This research primarily seeks to investigate the impact of knowledge management processes on innovation in Vietnamese SMEs. Therefore, the multiple regression analysis method was used to investigate the impact of knowledge management processes on innovation in SMEs.

Table 8 indicates that there is a positive correlation between knowledge management processes and innovation in Vietnamese SMEs, which means that the independent variables and dependent variables change in the same direction. The value of R^2 reflects the proportion of variation in innovation variables that could be referred to by the five knowledge management processes. This is to say that 68.8 percent of the variation of "Innovation in SMEs" is explained by five knowledge management processes, while the remaining 31.2% is likely influenced by other factors and random error. The Durbin-Watson index d=1.876 (ranging from $1<d<3$) concludes that there is no autocorrelation of residuals. The F-ratio for the data was 146.889, which is significant at $p<0.05$ (sig=0.0000). Therefore, the model is consistent with the actual data. In other words, overall, the independent variables are linearly correlated with the dependent variable with a 99% confidence level. The VIF coefficients of the independent variables are all less than 2, suggesting no multicollinearity problem among the independent variables (Table 9).

Table 8. Model summary.

Model	R	R^2	Adjusted R^2	Std. Error of the estimate	Durbin-Watson
1	0.832	0.693	0.688	0.23782	1.876
a. Predictors: (Constant), F_UTI, F_STO, F_ACQ, F_SHA, F_CRE					
b. Dependent variable: Innovation					

Source: Authors' calculation.

Table 9. Coefficients.

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	*Std. Error*	*Beta*			*Tolerance*	*VIF*
1	(Constant)	0.203	0.158		1.284	0.200		
	F_ACQ	0.093	0.026	0.116	3.592	0.000	0.911	1.097
	F_CRE	0.153	0.023	0.219	6.772	0.000	0.900	1.111
	F_STO	0.169	0.022	0.251	7.785	0.000	0.906	1.104
	F_SHA	0.255	0.016	0.497	15.431	0.000	0.910	1.099
	F_UTI	0.250	0.021	0.371	12.056	0.000	0.996	1.004
a. Dependent variable: Innovation								

Source: Authors' calculation.

Knowledge management processes have a significant impact on enterprise innovation outcomes. This finding aligns with the outcomes of previous research [4]. Ref. [9] emphasised that creating, acquiring, sharing, and using knowledge enhance employees' skills related to innovation. At the organisational level, when a company promotes collaboration among employees and across departments to enhance knowledge sharing, it subsequently boosts innovation.

The independent variables show a high ability to explain the variation of the dependent variable. In terms of their impact on innovation outcomes, the ranking from highest to lowest influence is as follows: (1) knowledge sharing; (2) knowledge utilisation; (3) knowledge storage; (4) knowledge creation; (5) knowledge acquisition. Thus, knowledge sharing has the strongest motivating role with $\beta = 0.497$ (p-value = 0.000) (Table 10).

Table 10. The degree of impact of the independent variables.

	Beta	%	The degree of impact
(F_ACQ)	0.116	7.98	5
(F_CRE)	0.219	15.06	4
(F_STO)	0.251	17.26	3
(F_SHA)	0.497	34.18	1
(F_UTI)	0.371	25.52	2
Total	1.454	100	

Source: Authors' calculation.

The estimated results show that knowledge acquisition has a positive influence on innovation in SMEs ($\beta=0.116$; p-value=0.000). The continuous collection of relevant internal and external information and knowledge activities of enterprises (including tacit and explicit knowledge) affects the innovation results of enterprises. When businesses have access to effective sources of information, it becomes easier for them to amalgamate this information to come up with new ideas. Research findings suggest that enterprises with well-trained employees in the company will be a better source of knowledge than hiring new employees to collect such specialised knowledge. The experience of existing staff in handling company processes, consulting case types, and work practices can contribute to better innovation opportunities within the company than hiring new employees who are unfamiliar with the company's environment or business processes. However, hiring/inviting experts to work is definitely beneficial to the innovation outcomes of the business, as new personnel will bring new ways of thinking and can stimulate the creation of new ideas [10].

The estimated results show that knowledge creation has a positive effect on innovation in SMEs (β=0.219; p-value=0.000). This conclusion is consistent with previous studies by [9, 12, 16]. Knowledge creation and innovation outcomes are closely linked, as the creation of new knowledge provides the foundation for the development of innovative actions of all types in organisations.

The research results support the hypothesis that knowledge storage positively affects innovation in SMEs (β=0.251; p-value=0.000). Knowledge storage has a positive influence on innovation because it helps maintain the integrity of knowledge over time, facilitating rapid access to knowledge [17]. A. Majchrzak, et al. (2004) [18] also have a similar opinion when claiming that knowledge encryption has a significant and positive impact on fundamental innovation in enterprises.

Other studies demonstrated that knowledge storage has no significant effect on innovation [6, 19]. These studies argue that knowledge storage focuses on making documents accessible to everyone rather than fostering the creation of new knowledge. In the current study, which centres on SMEs with a high turnover rate, knowledge storage significantly influences innovation.

The estimated results show that knowledge sharing positively affects innovation in SMEs (β=0.497; p-value=0.000). This result is consistent with the findings of previous studies that knowledge sharing has a positive influence on innovation in SMEs [4, 18, 20]. The limitation of knowledge sharing at the individual level is that knowledge holders are unwilling to share most of the knowledge they possess, potentially due to the fear of losing their competitive advantage or diminishing their benefits. Therefore, at the organisational level, it becomes imperative for managers to establish a structured knowledge-sharing process. This process ensures that personnel within the organisation can access knowledge swiftly and comprehensively. Additionally, it is essential to create an environment that fosters information sharing among individuals and across units.

The research results confirm that knowledge utilisation positively affects innovation (β=0.371; p-value=0.000). This result is similar to the study of [12, 14, 20, 21]. Knowledge utilisation involves applying existing knowledge to solve specific tasks, thereby creating value for the business, such as innovating products, services, procedures, and regulations.

5. Conclusions and policy recommendations

This study has contributed new insights to prior research on innovation in SMEs in Vietnam. It helps SME managers to have a more comprehensive view of innovation. Firstly, SMEs are not scaled-down versions of large enterprises. SMEs often lack the financial resources to effectively carry out all knowledge management processes. Therefore, these organisations need to identify which activities are necessary and align them with the practical situation of the enterprise to balance the organisation's resources and make appropriate choices for activities. The results of hypothesis testing indicate the degree of influence of knowledge management processes on innovation activities in the following order of impact, from highest to lowest: (1) knowledge sharing, (2) knowledge utilisation, (3) knowledge storage, (4) knowledge creation, and (5) knowledge acquisition. Consequently, this study recommends that SMEs prioritise resource allocation for knowledge management processes in the mentioned order. Secondly, SME managers should gain a clear understanding of how knowledge management activities impact their enterprise's efficiency. They should also consider potential obstacles and limitations when implementing knowledge management. This understanding will provide them with a clear direction for learning how to apply these practices effectively to their business. Thirdly, SMEs can leverage informal control measures as a competitive advantage. The informality of these measures grants SMEs flexibility and swift responsiveness, a characteristic not typically found in larger enterprises. Fourthly, SMEs should formulate strategies aligned with their organisation's sustainable development goals. It is important to recognise that SMEs differ significantly from large-scale enterprises and require tailored approaches. Fifthly, SMEs should actively engage in socio-professional organisations to exchange knowledge with peers in the same industry. Additionally, they should strengthen collaborations with universities and vocational education institutions to tap into external resources for innovation purposes.

The study provides several recommendations to enhance policies related to innovation and creativity as follows. Firstly, the government should enact practical policies to oversee and guide the advancement of science and technology for SMEs in Vietnam. Establishing a technology market would enable SMEs to readily access and acquire new knowledge, ultimately leading to improved innovation outcomes. Secondly, the government should boost investments in education and training to cultivate a skilled and knowledgeable workforce proficient in new technologies. Thirdly, the government can institute programs aimed at fostering collaboration among SMEs, agents, and suppliers to enhance the added value of their products and services.

This study has some limitations. Firstly, the authors opted for convenience sampling, which is a non-probability sampling method where elements for the research sample are chosen conveniently. Future studies should consider using random sampling methods to enhance the accuracy and reliability of the research findings. Secondly, this study solely assessed the impact of each independent knowledge management process on the innovation outcomes of enterprises, without addressing the influence of knowledge management on other organisational outputs such as business performance. From the results of this study, subsequent studies can address other organisational outputs.

CRediT author statement

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COMPETING INTERESTS

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

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Do tourists' experiences have impacts on behavioural intentions? A case study in Hoi An ancient town, Vietnam

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Abstract:

Tourist experiences are gaining increasing attention due to their essential role in shaping visitor satisfaction and contributing to the overall success of tourism destinations. This study aims to explore how multidimension of tourists' experiences influence their behavioural intentions, to develop and to test a framework in Hoi An ancient town, Vietnam which is located in the central coastal province of Quang Nam and recognised as a UNESCO world cultural heritage site. Based on data collected via an online survey, the findings from 361 tourists who visited Hoi An city in the past year reveal that different aspects of tourist experiences - such as emotional, sensory, behavioural, social, and cognitive factors - have a significant impact on behavioural intentions, particularly in terms of word-of-mouth (WOM) and revisit intentions. Additionally, revisit intention is found to be positively influenced by tourists' WOM intention. The study also offers insights into how enhancing tourists' experiences can foster positive behavioural outcomes, encouraging their intentions to revisit and promote Hoi An city as a travel destination.

Keywords: **behavioural intentions, return intention, tourists' experiences, word-of-mouth intention.**

Classification numbers: **2.2, 2.3**

1. Introduction

Customer experience has become a foundational element in modern marketing strategies, especially in service-oriented industries such as tourism. In recent years, experiential marketing has gained prominence by emphasising emotionally engaging and memorable encounters that influence customer satisfaction, loyalty, and behavioural outcomes [1, 2]. For destinations competing in the global tourism marketplace, offering exceptional customer experiences is essential - not only to differentiate themselves but also to stimulate positive WOM and revisit intentions [3, 4]. As a result, this concept has garnered significant interest from researchers [4].

Tourists' experiences at a destination shape their memories of the visit [5]. Moreover, when deciding whether to revisit a destination, individuals rely heavily on their memories of past travel experiences. However, not all experiences play an essential role in post-trip traveller behaviour. Research suggests that only unforgettable or memorable experiences significantly influence future decision-making [6]. These experiences provide lasting cognitive and emotional benefits that tourists value, acting as a connection between the traveller and the destination [7]. Positive emotions and moods from previous trips, such as feelings of joy, can strongly impact an individual's future decisions and behaviours, making them one of the strongest predictors of tourists' behavioural intentions.

Previous research often highlights the emotional and cognitive aspects of customer experience, using models like PAD (pleasure, arousal, dominance) to measure affective reactions [7]. However, the concept of customer experience, particularly tourist experience, is still relatively new, and there are currently few empirical studies directly related to it. Furthermore, tourism experiences are complex constructs that are challenging to define and measure, especially as they vary across individual tourists. Recent research has focused on developing scales to measure tourism experience components and examining their impact on tourist behavioural intentions in different service contexts [8]. However, most studies have centred on tourist destinations in Western or developed countries [9], posing a significant limitation for developing tourism strategies in Eastern countries or regions where the tourism industry is still emerging. Moreover, there is still a need for a deeper understanding of how customer experience influences tourists' behavioural outcomes. Specifically, how positive customer experiences translate into WOM intention and revisit intention remains underexplored. Many studies focus either on customer satisfaction or service quality, but fewer have examined the direct pathways linking experiential value to post-visit behaviours such as WOM and revisiting decisions. As L. Becker, et al. (2020) [10]'s research emphasised, the increasingly complex nature of consumer behaviour requires more holistic approaches to understanding experience-based outcomes in tourism settings.

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To address these research gaps, this study examines the relationships between customer experience, WOM intention, and revisit intention in the context of Hoi An ancient town, Vietnam - one of Southeast Asia's most iconic cultural destinations. Hoi An ancient town, located in Quang Nam province of Central Vietnam, is a UNESCO World Heritage Site celebrated for its unique blend of cultural heritage, historical architecture, and vibrant local traditions. Once a bustling international trading port from the 15th to the 19th century, Hoi An bears the imprints of diverse cultural influences, including Chinese, Japanese, and European, which are reflected in its preserved wooden shophouses, temples, and iconic Japanese Covered Bridge. Today, Hoi An stands as one of Vietnam's most popular tourist destinations, drawing both domestic and international visitors seeking authentic cultural experiences. The town offers a rich sensory environment through lantern-lit streets, traditional crafts, local cuisine, and riverfront scenes, making it an ideal setting for studying customer experience in tourism. Its heritage value, combined with a strong emphasis on sustainability and community-based tourism, also positions Hoi An as a model for experiential tourism development in Southeast Asia. As highlighted in hospitality and tourism literature, delivering a positive customer experience is vital given the experiential foundation of the industry. In the tourism sector, customer experience is considered a key determinant of visitor satisfaction and engagement. Therefore, this study seeks to explore customer experience within the context of Hoi An, aiming to further develop and broaden the understanding of this concept.

The main objectives are to: (1) Investigate the impact of customer experience on tourists' WOM and revisit intentions, and (2) Determine the role of WOM in this relationship. By doing so, the study contributes to the academic literature by expanding the concepts of customer experience, advancing the model related to customers' experience, WOM, and their revisit intention. Framed within the unique cultural and sensory environment of Hoi An ancient town, the research offers a localised lens that enriches theory and addresses the Western bias in prior studies. Practically, it provides destination managers with clear guidance on which aspects of the visitor experience to prioritise in order to foster stronger advocacy and repeat visitation. Ultimately, these insights support the development of sustainable, experience-driven tourism strategies in Vietnam and similar emerging markets.

2. Literature review

2.1. Tourist experience and its dimension

Tourist experience has been widely studied in tourism research due to its crucial role in shaping customer satisfaction, destination loyalty, and WOM recommendations. Researchers have emphasised that the tourist experience is complex and multidimensional, influenced by both internal and external factors. According to V.W.S. Tung, et al. (2011) [11], tourist experience is an individual's subjective evaluation derived from emotional, cognitive, and behavioural responses during events related to their tourism activities before, during, and after the trip. It encompasses a range of psychological processes, including anticipation, engagement, and reflection, which contribute to the overall perception of a journey.

A tourist experience is an immediate or ongoing subjective reaction of an individual to an activity, context, or event outside their usual environment [12]. M. Godovykh (2024) [12] demonstrated that the tourist experience consists of four main components: emotions, cognition, sensory perception, and thinking, detailing the travel experience for the pre-visit, on-site, and post-visit stages. Emotions play a crucial role in shaping a tourist's overall satisfaction, as positive emotional responses enhance memories and influence future travel decisions. Meanwhile, cognition involves how tourists process and interpret their surroundings, affecting their perception of service quality, cultural encounters, and personal learning experiences.

Additionally, A. Walls, et al. (2011) [13] described the tourist experience as a multidimensional construct resulting from the interaction between tourists' internal factors (emotions and cognition) and external factors such as people (e.g., staff), physical surroundings, and cultural context. The presence of friendly and knowledgeable staff, the quality of service encounters, and the ambience of a destination can significantly influence a tourist's perception. In this study, based on previous research, the model suggests that customers' experience comprises emotional, sensory, cognitive, behavioural, and social experiences [10].

2.1.1. Emotional experience

Emotional experience is defined as an emotional response [14]. Emotional responses range from minor mood changes to intense emotions in reaction to stimuli. Many theories agree that emotional responses often include happiness (joy), surprise, anger, sadness, and fear [15]. P.R. Shaver, et al. (1996) [15] categorised six primary emotions: joy, love, surprise, anger, sadness, and fear. For example, emotional responses may include feeling welcomed at a hotel or admiring a city's architecture.

2.1.2. Sensory experience

Sensory response is a reaction related to the five senses: sight, touch, hearing, taste, and smell [16]. Sensory experience refers to tourists' experiences based on these specific senses such as touch, smell, taste, hearing, and sight [17]. Additionally, hedonism is an aspect of the tourist experience, relating to multisensory, imaginative, and emotional factors perceived by tourists. Specifically, hedonism is defined as "pleasurable sensations that excite oneself" [6].

2.1.3. Cognitive experience

Cognitive experience involves thinking and reasoning processes, encouraging tourists to engage in cognitive activities often through surprise, attraction, provocation, curiosity, and problem-solving stimulation [16]. Cognitive experience is associated with terms such as thinking, intellect, reasoning, knowledge, skills, and memory [18]. Cognitive feedback (complaints and compliments) helps businesses identify root causes and specific opportunities for improvement. K.N. Lemon, et al. (2016) [19] suggest that satisfaction can also be considered a cognitive aspect of the tourist experience.

2.1.4. Behavioural experience

Behavioural experience refers to the process of directly or indirectly witnessing, performing, or participating in the actions and activities of others or oneself. It involves specific behaviours, participation, actions, and practices of tourists [20]. Behavioural experience encompasses physical actions, bodily experiences, and behaviours. This means that behaviours in travel experiences may include spending time at a destination and engaging in specific activities. Behavioural experience also involves reactions that encourage customers to adopt a certain lifestyle or behaviour [21].

2.1.5. Social experience

Social experience relates to how stimuli affect tourists' social relationships or emotions in relation to others [21]. It involves the social aspects of tourists' experiences, implying social interactions in the presence of others during their journey. According to Social Learning Theory [22], social interaction allows tourists to observe and communicate with others. Furthermore, tourists frequently update their knowledge and adapt during the experience as part of a social learning process. This can enrich their understanding of different cultures and adjust their behavioural responses to the local culture.

2.2. Behavioural intention

Behavioural intention is formed from tourists' past service experiences [23]. It refers to the likelihood of tourists making key decisions [24], particularly the decision to return. If tourists have high satisfaction or good service experiences, their likelihood of returning increases, and vice versa. According to D.A. Baker, et al. (2000) [25], behavioural intention refers to tourists' intention to revisit a destination within a year and their willingness to visit regularly. Meanwhile, C.F. Chen, et al. (2010) [26] offer a multidimensional definition, stating that tourists' revisit intention is an essential part of behavioural intention, along with WOM intention. The level of behavioural intention is reflected in the intention to revisit a tourist destination and the willingness to recommend it to others. R.T. Ratnasari, et al. (2021) [27] also agree that behavioural intention includes the intention to visit in the future, speak positively about, give positive feedback and recommend a destination to others.

2.2.1. Revisit intention

Revisit intention stems from behavioural intention. According to N. Stylos, et al. (2017) [28], revisit intention refers to the willingness to plan a future visit to a previously visited destination. The core of revisit intention lies in the efforts of individuals who have had actual service experiences at a destination [29]. Hence, it is said that revisit intention is directly related to travel experiences. Favourable past experiences at a destination can create positive impressions, leading to a desire to return.

2.2.2. Word-of-mouth intention

Word-of-mouth intention stems from tourists' behavioural intentions toward a destination. WOM is an important and influential source of information in decision-making processes [30]. C.H.S. Liu, et al. (2016) [31] define WOM as the intention to share information and personal experiences about a service with others, significantly influencing consumers' purchasing decisions. Specifically, in the tourism context, WOM greatly affects tourists' decisions regarding a destination.

2.3. Research model and hypothesis

2.3.1. The influence of emotional experiences on behavioural intentions

Emotional experience is defined as an emotional response [14, 32]. Emotions are important antecedents of tourism experiences that lead to satisfaction and future behavioural intentions. D. Padgett, et al. (2017) [14] argue that to understand tourists' decision-making processes, it is necessary to consider their emotional responses throughout their actual experiences. Several studies have indicated that tourists' emotional experiences have a positive relationship with future behavioural intentions [33]. Previous research has also consistently agreed that emotional experiences lead to positive emotions that stimulate visit intention, positive WOM, and revisit intention [34].

Additionally, in a tourism context, experiences that bring joy are likely to positively correlate with behavioural intentions such as positive WOM and revisit intention. G. Fullerton (2005) [35] demonstrated that emotional experiences positively influence WOM intentions and are among the strongest factors impacting tourists' sharing behaviour. Based on these studies, the author proposes the following hypotheses:

H1a: Tourists' emotional experiences have a positive impact on their word-of-mouth intention.

H1b: Tourists' emotional experiences have a positive impact on their revisit intention.

2.3.2. The influence of cognitive experience on behavioural intention

Tourists' cognitive experiences are considered fundamental to destination competitiveness and sustainability, as they can significantly impact future destination choices. If destinations provide a memorable or satisfying experience, tourists are more likely to return [7, 32]. Revisit intention originates from tourists' perceptions of their travel experiences. Cognitive experiences significantly influence behavioural intentions and have a positive effect on revisit intention [6].

Numerous previous studies have empirically demonstrated that cognitive experience positively influences WOM intention. S. Marschall (2012) [36] emphasises that memory affects the perception of tourism experiences, and positive memories of a destination increase the likelihood of revisits and positive WOM [34]. S.C. Martínez, et al. (2010) [37] found that when tourists' expectations are met, their revisit intention and willingness to share positive experiences with family and friends increase.

Based on these findings, the author proposes the following hypotheses:

H2a: Tourists' cognitive experiences have a positive impact on their WOM intention.

H2b: Tourists' cognitive experiences have a positive impact on their revisit intention.

2.3.3. The influence of sensory experience on behavioural intentions

Sensory experience encompasses the five senses: hearing, sight, smell, touch, and taste, all of which influence behavioural intentions [38]. C.Y. Wang, et al. (2010) [5] found that vibrant destination imagery positively affects tourist satisfaction and future destination choices, specifically their revisit intention. Similarly, when tourists experience a beautiful and romantic atmosphere, their revisit intention increases [39].

Moreover, research by I.K.W. Lai, et al. (2021) [39] indicates that a tourist satisfied with a destination's cuisine may be willing to share their positive experience on social media during and after their trip. More broadly, for tourism destinations, visual appeal plays a crucial role in predicting tourist behaviour, including WOM intention and revisit intention. Based on these studies, the author proposes the following hypotheses:

H3a: Tourists' sensory experiences have a positive impact on their WOM intention.

H3b: Tourists' sensory experiences have a positive impact on their revisit intention.

2.3.4. The influence of behavioural experience on behavioural intention

In the tourism context, behavioural experience refers to tourists' physical experiences, including adjustments to their actions, habits, and lifestyles [21, 32]. Tourists' behavioural experiences are a key factor in determining their revisit decisions. According to I.K.W. Lai, et al. (2021) [39], tourists who participate in multiple engaging programmes or activities at destinations are more likely to revisit. When tourists engage in local activities, immerse themselves in an appealing environment, or enjoy performances, they gain meaningful experiences. As a result, they are more likely to engage in positive WOM by posting or sharing content via online platforms such as Facebook, Zalo, and Instagram. R.M. Ahmad (2019) [40] also found that tourists' behavioural experiences positively influence their behavioural intentions (revisit intention and WOM intention). Based on these findings, the author proposes the following hypotheses:

H4a: Tourists' behavioural experiences have a positive impact on their WOM intention.

H4b: Tourists' behavioural experiences have a positive impact on their revisit intention.

2.3.5. The influence of social experience on behavioural intention

Social experience plays a crucial role in understanding and interpreting tourists' experiences [41]. It includes human interactions, social contexts, and relationship dynamics. H. Choo, et al. (2014) [42] conducted research in the tourism field and argued that social interaction influences behavioural intentions through satisfaction.

Previous studies have consistently agreed that the social experience aspect is a significant factor affecting motivation, satisfaction, and revisit intention [43]. Additionally, the social aspect of the experience is a strong motivator that encourages participants to return and recommend the experience to others. Tourists value social relationships as they positively influence revisit intention and WOM intention [43]. Based on these studies, the author proposes the following hypotheses:

H5a: Tourists' social experiences have a positive impact on their WOM intention.

H5b: Tourists' social experiences have a positive impact on their revisit intention.

2.3.6. Word-of-mouth intention and revisit intention

Word-of-mouth is of great importance in providing customers and tourists with essential information about products or services, thereby significantly influencing their purchasing decisions or business choices. In the tourism and travel sector, WOM can substantially affect tourists' travel decisions and their likelihood of revisiting a destination [44]. M. Damayanti, et al. (2017) [45] conducted research on how WOM can increase tourists' interest in visiting and revisiting a tourism destination, finding that it serves as a crucial resource for travel planning. Notably, WOM positively influences future behaviours, such as the intention to revisit. Based on these findings, the following hypothesis is proposed:

H6: WOM intention has a positive impact on tourist revisit intention. The proposed research model is presented in Fig. 1.

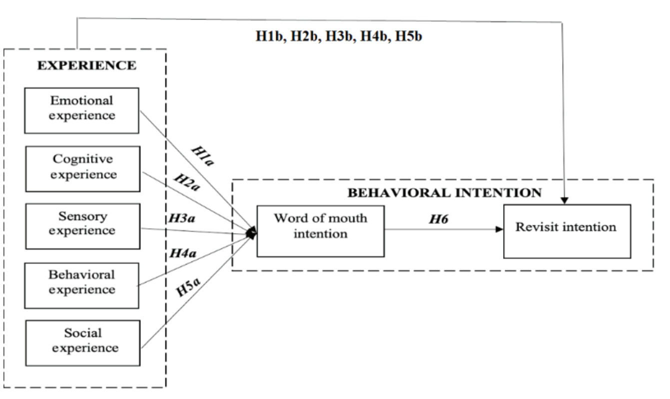

Fig. 1. A proposed research model.

3. Research methodology

Figure 2 illustrates the research procedure followed in this study, which encompasses identifying research gaps and objectives, reviewing relevant literature, developing research instruments, conducting a pilot study, collecting data, analysing data using SPSS (Statistical Package for the Social

Sciences), and presenting research findings, discussions, and conclusions. While the previous sections outline the research gaps, objectives, and the development of the research model and hypotheses, the subsequent sections provide detailed descriptions of the remaining steps.

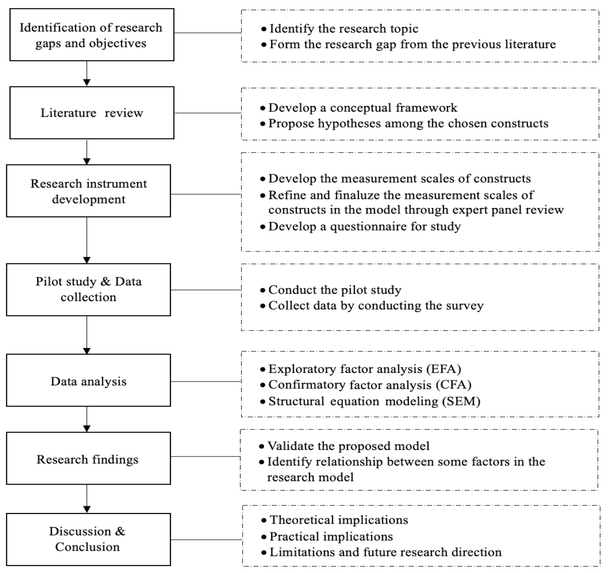

Fig. 2. The research procedure.

3.1. Research instrument

Quantitative analysis is employed using the questionnaire method. Based on the synthesis of the literature review, the indicators for tourist experience and behavioural intention were selected. The WOM intention scale, denoted as WI (including six variables), is adapted from N. Quynh, et al. (2021) [46] and B. Lin, et al. (2023) [47]. The revisit intention scale, denoted as RI (including six variables), is derived from B. Lin, et al. (2023) [47] and R.A. Rather (2020) [32].

The emotional experience scale, denoted as EF (including six variables), and the cognitive experience scale, denoted as CO (including four variables), are adapted from the research of R.A. Rather (2020) [32]. The social experience and sensory experience scales, denoted as SO and SE, respectively (each including five variables), are derived from the research of B. Lin, et al. (2023) [47]. The behavioural experience scale, denoted as BE (including three variables), is adapted from R.A. Rather (2020) [32].

These scales were translated into Vietnamese, resulting in a questionnaire that includes both English and Vietnamese versions for each item. The scales were then analysed and refined through in-depth interviews with five tourism academic experts before being finalised. This process ensured that the scales were clear and suitable for the tourism context of Hoi An, as illustrated in Table 1. The final adjusted scales were used in the study's survey. Hence, the questionnaire consists of two parts. The first part collects demographic information about the respondents; the second part includes screening questions such as "Have you visited Hoi An?" and "When was your last visit?" and asks respondents to rate their opinions about their experience and behavioural intention. A seven-point Likert scale, ranging from "completely disagree" to "completely agree," was employed for measurement. A pilot study with a sample of 50 tourists visiting Hoi An city was then conducted to check the reliability of the chosen measurement scales. The results indicated that the content validity and reliability of the research instrument were adequate.

Table 1. List of variables.

Factors	Encoding	Variables
Emotional experience	EF1	I had interesting experiences at the tourist attractions I visited in Hoi An city.
	EF2	The tourist attractions I visited in Hoi An city made me feel happy.
	EF3	The tourist attractions I visited in Hoi An city made me feel proud.
	EF4	I felt comfortable and delighted when experiencing the tourist attractions I visited in Hoi An city.
	EF5	I truly felt welcomed by the staff, tour guides, and local people when visiting the tourist attractions in Hoi An city.
Cognitive experience	CO1	The tourist attractions in Hoi An city prompted me to reflect deeply on them.
	CO2	The tourist attractions I visited in Hoi An city stimulated my curiosity to learn more about them.
	CO3	I was able to experience new things at the tourist attractions I visited in Hoi An city.
	CO4	I am willing to provide feedback on the tourist attractions I visited in Hoi An city.
Social experience	SO1	I talked with my travel companions while visiting tourist attractions in Hoi An city.
	SO2	I strengthened relationships and built strong friendships with my travel companions through experiences and activities at the tourist attractions in Hoi An city.
	SO3	I received recommendations about tourist attractions, food, and entertainment venues in Hoi An city from others (e.g., tourism staff, and travel companions).
	SO4	I enjoyed interacting with others while experiencing tourist attractions in Hoi An city.
	SO5	When travelling in Hoi An city, I wanted to build new relationships.
Sensory experience	SE1	The food at the tourist attractions in Hoi An city was extremely delicious and beautifully presented.
	SE2	The tourist attractions I visited in Hoi An city were visually impressive and stimulating.
	SE3	The colours of the designs and architecture at the tourist attractions I visited in Hoi An city were ancient and unique.
	SE4	The music performed at festivals/events (e.g., folk music performances, and traditional music performances) at the tourist attractions I visited in Hoi An city was pleasant to listen to.
	SE5	The atmosphere at the tourist attractions I visited in Hoi An city was fresh and pleasant.
Behavioural experience	BE1	I often participated in activities (e.g., taking photos, trying local specialities, relaxing experiences, playing games, etc.) when visiting tourist attractions in Hoi An city.
	BE2	Whenever I travel, I usually choose tourist attractions in Hoi An city.
	BE3	I spent more time experiencing tourist attractions in Hoi An city compared to other destinations.
Revisit intention	RI1	If given the opportunity, I will revisit the tourist attractions I visited in Hoi An city in the future.
	RI2	The tourist attractions I visited in Hoi An city are my top choice compared to other destinations.
	RI3	I want to revisit the tourist attractions in Hoi An city I visited to explore the diverse local cuisine in the future.
	RI4	I will plan to revisit Hoi An city's tourist attractions in the near future.
	RI5	I will visit the tourist attractions in Hoi An city I have been to again during my next vacation.
	RI6	I am willing to spend time and money to revisit the tourist attractions in Hoi An city I have visited.
WOM intention	WI1	When asked on social media, I will share positive things about the tourist attractions I visited in Hoi An city.
	WI2	I want to spread good words about the tourist attractions I visited in Hoi An city on social media platforms.
	WI3	I want to post pictures of the tourist attractions I visited in Hoi An city on social media platforms.
	WI4	I will speak positively about the tourist attractions I visited in Hoi An city and its signature dishes to others.
	WI5	I want to recommend the tourist attractions I visited in Hoi An city and its signature dishes to others.
	WI6	I intend to encourage my family and friends to visit the tourist attractions I have been to in Hoi An city.

3.2. Data collection

The target sample comprised tourists who had visited Hoi An city within the past year. An online self-administered survey was conducted using a non-probability convenience sampling method to gather data from extensive social media networks related to Hoi An city. Survey questionnaires, created on Google Forms, were distributed via Facebook and Zalo. The questionnaire was posted on domestic tourism fan pages, travel association groups, and Zalo communities. The criteria for selecting groups of Hoi An tourists for the survey were: (1) The number of members was at least 1,000; (2) The groups' descriptions focused on exchanging experiences related to Hoi An city; and (3) The language used for discussions in the groups was either English or Vietnamese. After identifying suitable groups, the link to the questionnaire was attached to an invitation posted in these groups. Weekly reminder invitations were also posted to encourage participation. To further expand participation, the survey was sent directly via Facebook Messenger to group members. A total of 370 responses were collected from August to November 2024; however, only 361 valid responses were used for data analysis.

After data collection, responses were processed using SPSS and SmartPLS software. Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM) methods were utilised in analysing the collected data using SPSS.

4. Research results

4.1. Characteristics of respondents

The demographic analysis (Table 2) of the sample in the table below reveals that the majority of respondents are female, accounting for 51.2% (185 individuals), while males account for 48.8% (176 individuals). The largest age group (47.6%) is under 25, indicating a young demographic, followed by those aged 25-35 (20.8%), 36-50 (14.4%), and over 50 (17.2%). Regarding income levels, those earning below 6 million VND and those earning between 6-10 million VND each make up 33.8% of the total. Meanwhile, individuals with an income exceeding 10 million VND constitute 32.4%.

Table 2. Socio-demographic profile (n=361).

		n	%
Gender	Male	176	48.8
	Female	185	51.2
Age	Under 25 years old	172	47.6
	From 25-35 years old	75	20.8
	From 36-50 years old	52	14.4
	Over 50 years old	62	17.2
Income	Under 6 million VND	122	33.8
	From 6-10 million VND	122	33.8
	Over 10 million VND	117	32.4
Marital status	Married	126	34.9
	Single	235	65.1
Travel frequency	1 time/year	203	56.2
	2-3 times/year	102	28.3
	More than 3 times/year	56	15.5

In terms of marital status, over 65% of the respondents are single, while 34.9% of the sample are married. Regarding travel frequency, most people travel once a year (56.2%), while 28.3% travel 2-3 times annually, and 15.5% travel more than three times.

4.2. Assessment of measurement model

4.2.1. Exploratory factor analysis (EFA)

The analysis results show that all scales have Cronbach's alpha coefficients greater than 0.7, indicating that the measurement scales are usable. The total item correlations are all greater than 0.3; thus, no variable is eliminated from the scale. All scales are retained to ensure internal consistency (Table 3).

Table 3. Results of exploratory factor analysis.

Rotated component matrix							
	Component						
	1	*2*	*3*	*4*	*5*	*6*	*7*
WI2	.804						
WI1	.674						
WI3	.621						
WI5	.592						
WI4	.572						
WI6	.552						
EF5		.784					
EF4		.661					
EF2		.620					
EF1		.591					
EF3		.577					
SE2			.819				
SE1			.774				
SE3			.672				
SE4			.590				
SO3				.764			
SO1				.703			
SO2				.671			
BE3					.755		
BE2					.724		
BE1					.709		
CO2						.767	
CO1						.717	
CO3						.604	
RI1							.678
RI3							.640
RI2							.502
Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization.							
a. Rotation converged in 6 iterations.							

Source: Results extracted from SPSS.

Regarding the EFA analysis, the results of the KMO coefficient and Bartlett's test indicate that the KMO (Kaiser-Meyer-Olkin) value is 0.906, satisfying the condition 0.5<KMO<1. This demonstrates that the actual data is suitable for EFA. Using Bartlett's Test to assess the correlation between observed variables shows that Bartlett's Test has a significant value of 0.000, which is less than 0.05. Therefore, the observed variables are correlated with each other within each factor group.

Moreover, the results indicate that after running EFA, seven main factors were identified. The Total Variance Explained table shows that the factor analysis extracted seven factors from the observed variables, with the extracted variance of 66.034%, which exceeds 50%, thus meeting the requirements.

The analysis results show that the factor loading coefficients of the observed variables in the Rotated Factor Matrix have reached values greater than 0.5, meeting the requirements, and no variables were eliminated. Therefore, the scales are deemed suitable for the next analysis process.

4.2.2. Confirmatory factor analysis (CFA)

To test the reliability and validity of the model, 361 valid responses were analysed using CFA with AMOS 24. Some goodness-of-fit indices include CMIN/df=3.177 (≤5), CFI=0.857 (≥0.8), GFI=0.835 (≥0.8), and RMSEA=0.078 (≤0.08). Fig. 3 demonstrates that the model fits the data well and satisfies the criterion for unidimensionality [48].

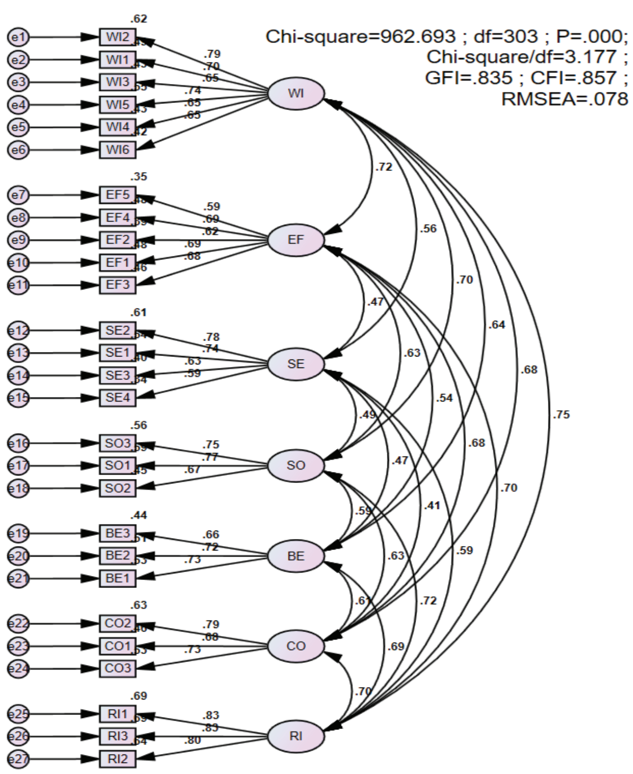

Fig. 3. Confirmatory factor analysis results of the scale (standardised). Source: Results extracted from SPSS.

Before proceeding to structural model analysis, multicollinearity and the validity of the constructs were assessed to ensure the robustness of the measurement model.

4.2.3. Multicollinearity

When testing the relationship between all dependent variables - BE, SE, EF, SO, CO - and the independent variable WI, the adjusted R^2 is 0.542, meaning that 54.2% of the variation in WI is explained by the five independent variables: BE, SE, EF, SO, and CO. The Durbin-Watson statistic is 1.953, which falls within the acceptable range of 1 to 3, indicating that there is no autocorrelation in the regression model. The results of the analysis of variance show that the F-value has a significance level of Sig=0.000 (<0.05), indicating that the regression model fits the collected data well and that all included variables are statistically significant at the 0.05 level.

The results in the Table 4 indicate that the VIF values of all independent variables are less than 3, suggesting that the model does not suffer from multicollinearity.

Table 4. Multicollinearity test between BE, SE, EF, SO, CO and WI.

Coefficients[a]								
Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	*Std. error*	*Beta*			*Tolerance*	*VIF*
1	(Constant)	.361	.185		1.947	.052		
	EF	.264	.047	.255	5.577	.000	.615	1.626
	CO	.164	.041	.187	4.001	.000	.589	1.697
	SO	.210	.041	.232	5.085	.000	.619	1.615
	SE	.147	.039	.154	3.735	.000	.754	1.327
	BE	.135	.039	.151	3.450	.001	.672	1.487
a. Dependent Variable: WI								

Source: Results extracted from SPSS.

When testing the relationship between all dependent variables - BE, SE, EF, SO, CO - and the independent variable RI, the adjusted R^2 is 0.583, meaning that 58.3% of the variation in RI is explained by the six independent variables: BE, SE, EF, SO, CO, and WI. The Durbin-Watson statistic is 1.996, which falls within the acceptable range of 1 to 3, indicating that there is no autocorrelation in the regression model. The results of the analysis of variance show that the F-value has a significance level of Sig=0.000 (<0.05), indicating that the regression model fits the collected data well and that all included variables are statistically significant at the 0.05 level.

The results in the Table 5 show that the VIF values of all independent variables are less than 3, indicating that the model does not suffer from multicollinearity.

Table 5. Multicollinearity test between BE, SE, EF, SO, CO and RI.

Coefficients[a]								
Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	*Std. error*	*Beta*			*Tolerance*	*VIF*
1	(Constant)	-.244	.199		-1.228	.220		
	EF	.189	.053	.164	3.587	.000	.566	1.768
	CO	.142	.045	.146	3.187	.002	.564	1.773
	SO	.161	.046	.160	3.539	.000	.577	1.733
	SE	.152	.043	.143	3.555	.000	.725	1.379
	BE	.185	.042	.185	4.350	.000	.651	1.537
	WI	.237	.057	.213	4.195	.000	.458	2.185

a. Dependent Variable: RI

Source: Results extracted from SPSS.

4.2.4. Convergent and discriminant validity

The construct validity was tested through convergent validity and discriminant validity using standardised factor loading and average variance extracted (AVE). The composite reliability (CR) of the constructs ranges from 0.744 to 0.850, meeting the required threshold of ≥0.70, which indicates that the measurement scales are reliable.

Regarding convergent validity, an AVE score greater than 0.5 is considered an acceptable level. However, according to C. Fornell, et al. (1981) [49], if the AVE is less than 0.5 but the composite reliability exceeds 0.6, the construct can still be considered to have adequate convergent validity. Therefore, the model meets the criteria for convergent validity.

The AVE ranges from 70.3% to 77.2% (≥50%) (Table 6). Additionally, the square roots of the AVE are the highest values in their respective rows and columns. Moreover, the AVE of each construct is greater than its maximum shared variance (MSV). Hence, the model also satisfies the criteria for discriminant validity [49].

Table 6. Convergent and discriminant validity.

	CR	AVE	MSV	MaxR(H)	1	2	3	4	5	6	7
1	0.850	0.487	0.566	0.857	**0.698**						
2	0.791	0.432	0.518	0.795	0.720***	**0.658**					
3	0.781	0.474	0.343	0.798	0.560***	0.466***	**0.689**				
4	0.771	0.530	0.512	0.777	0.696***	0.630***	0.495***	**0.728**			
5	0.744	0.493	0.483	0.747	0.637***	0.544***	0.472***	0.592***	**0.702**		
6	0.780	0.542	0.490	0.788	0.681***	0.685***	0.406***	0.634***	0.613***	**0.736**	
7	0.862	0.676	0.566	0.863	0.752***	0.703***	0.586***	0.716***	0.695***	0.700***	**0.822**

Source: Results extracted from SPSS.

4.3. Structural equation modelling (SEM)

The study employs SEM to assess the relevance of the research model and to test the relationships within the model. The results of the SEM analysis, with degrees of freedom (df)=303, Chi-square=962.693, and Chi-square/df=3.177 (<5), indicate that the model fits the observed data well, with an RMSEA of 0.078 (<0.08) (Fig. 4).

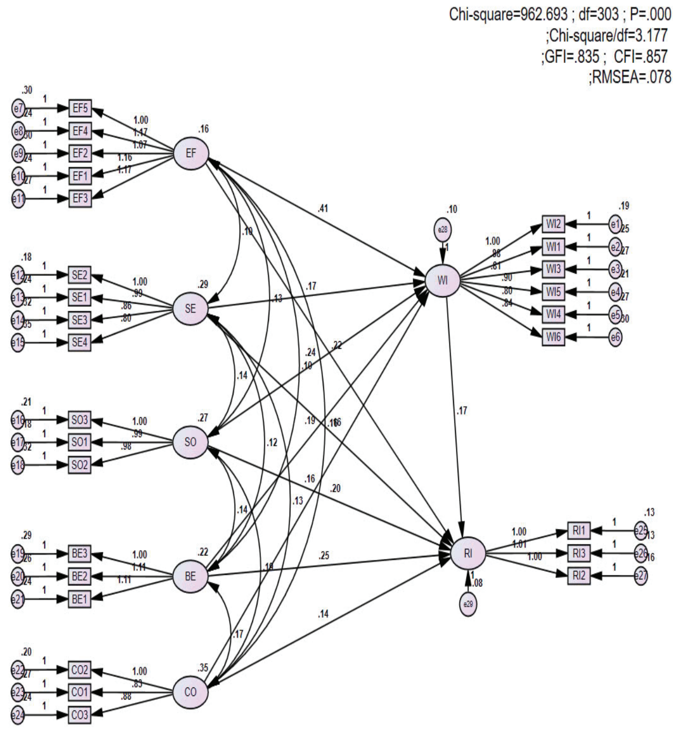

Fig. 4. Results of structural equation modelling (SEM). Source: Results extracted from SPSS.

With 95% confidence, all model hypotheses were accepted (p-value<0.05). Specifically, affective experience, cognitive experience, sensory experience, behavioural experience, and social experience all have positive effects on WOM intention and revisit intention. Moreover, WOM also has positive impacts on the intention to revisit a tourism destination. The results are presented in Table 7.

Table 7. The relationship between concepts in the research model.

Regression weights						Standardised regression weights
Relationship	*Estimate*	*SE*	*CR*	*P*	*Result*	*Estimate*
WI <= EF	0.410	0.112	3.674	0.000	Accept	0.298
WI <= SE	0.171	0.060	2.876	0.004	Accept	0.165
WI <= SO	0.243	0.083	2.913	0.004	Accept	0.225
WI <= BE	0.189	0.085	2.211	0.027	Accept	0.160
WI <= CO	0.160	0.078	2.049	0.04	Accept	0.168
RI <= EF	0.220	0.106	2.087	0.037	Accept	0.164
RI <= SE	0.156	0.056	2.775	0.006	Accept	0.154
RI <= SO	0.200	0.079	2.538	0.011	Accept	0.190
RI <= BE	0.247	0.081	3.059	0.002	Accept	0.215
RI <= CO	0.144	0.072	1.997	0.046	Accept	0.155
RI <= WI	0.169	0.083	2.028	0.043	Accept	0.173

Source: Results extracted from SPSS.

5. Discussion and implications

This study develops a conceptual framework and measurement scales to examine the experiential factors that shape tourists' behavioural intentions in Hoi An city. Through data collection and analysis, five primary experiential dimensions - emotional, social, behavioural, sensory, and cognitive experiences - were identified as key influencers of tourists' revisit intentions and their willingness to engage in WOM recommendations. Moreover, the study confirms that WOM intention plays a significant role in influencing revisit intention, reinforcing the interconnected nature of these experiential factors. These insights contribute to the theoretical understanding of how tourists' experiences translate into behavioural outcomes.

The study highlights that strong sensory experiences significantly enhance both revisit intention and positive WOM, aligning with prior research by C.Y. Wang, et al. (2010) [5], D. Agapito, et al. (2013) [50], and I.K.W. Lai, et al. (2021) [39]. This also demonstrates that multi-sensory stimuli indirectly boost post-visit behaviours. However, in Hoi An's heritage-town context, our findings reveal a novel, direct pathway from sensory experience to WOM intention, independent of satisfaction. Hoi An provides visitors with a rich multi-sensory journey - its vibrant yellow-walled houses, colourful lanterns glowing at night, the fragrant aroma of fresh herbs and spices, and the distinctive flavours of local delicacies. The city's atmosphere is further enriched by live folk music performances and traditional market sounds. These coordinated sensory stimulations not only elevate overall satisfaction but also directly motivate tourists to share their experiences, creating lasting memories that increase their likelihood of revisiting and recommending Hoi An as a must-visit destination.

Emotional experiences strongly impact revisit intention and WOM, consistent with previous studies by H. Han, et al. (2013) [33], G. Fullerton (2005) [35], and J. Nawijn, et al. (2015) [51]. Prior research by S. Hosany, et al. (2009) [52] and G. Prayag, et al. (2013) [53] also emphasised the role of high-arousal emotions such as excitement and joy in driving emotional attachment in mass-tourism settings. In contrast, our findings reveal that the lower-arousal emotions of tranquillity and nostalgia - uniquely evoked by Hoi An's lantern-lit ancient streets and serene riverside ambience - deepen emotional bonds even more powerfully. Tourists visiting Hoi An often experience a spectrum of feelings: strolling through historic lanes can evoke nostalgia, joy, and peace, while interactions with friendly locals further enhance emotional depth. Hoi An's romantic ambience, combined with its historical charm and hospitable environment, leaves travellers with a profound sense of fulfilment and attachment that not only encourages them to return but also motivates them to share their experiences with others.

Positive cognitive experiences also play a crucial role in shaping tourists' revisit decisions and WOM intentions by fostering curiosity, learning, and deeper engagement with the destination, as shown in the research of J.H. Kim, et al. (2010) [6], H. Zhang, et al. (2018) [7], and P.R. Shaver, et al. (1996) [15]. Previous research, including T. Kolar, et al. [54] and H. Ramkissoon, et al. (2012) [55], demonstrated that guided educational activities - such as museum tours and interpretive briefings - enhance satisfaction and loyalty through knowledge acquisition. However, our findings extend these insights by revealing that Hoi An's hands-on cultural workshops - including lantern-making, traditional cooking classes, and pottery sessions - not only enrich visitors' understanding of the region's culture and history but also exert a disproportionately strong effect on WOM intentions, surpassing their impact on revisit intentions. In addition, exploring bustling local markets allows tourists to discover the city's culinary diversity - new tastes, aromas, and direct interactions with vendors and artisans - which further deepens cognitive engagement and creates highly shareable experiences that drive positive WOM.

The study confirms that active participation in various activities significantly boosts both revisit intention and WOM behaviour, including the research of R.M. Ahmad (2019) [40], B. Schmitt (1999) [21], and R.A. Rather (2020) [32]. This research demonstrated that tourists who engage in immersive cultural experiences, such as watching traditional performances, savouring authentic street food, or having custom-made garments tailored by Hoi An's skilled artisans, are more likely to form strong personal connections with the destination. Furthermore, the widespread use of social media allows travellers to document and share their experiences instantly, amplifying positive WOM. These shared experiences, whether through personal conversations or digital platforms, encourage future visitors to explore Hoi An, reinforcing the town's appeal as a dynamic and culturally rich travel destination.

Social interactions, whether with locals or fellow tourists, deepen visitors' emotional ties to Hoi An and enhance their revisit intention, bearing resemblance to the research of I. Alnawas, et al. (2016) [43]. Engaging in activities such as participating in traditional festivals, dining at communal-style restaurants, or joining guided heritage tours fosters meaningful cultural exchanges. These interactions provide a deeper appreciation of the city's traditions, strengthening the overall travel experience. Moreover, positive social encounters not only create lasting impressions but also play a crucial role in WOM promotion, as travellers tend to recommend destinations where they have formed valuable connections. This interpersonal dimension further contributes to tourists' willingness to return.

Structural equation modelling results indicate that WOM significantly influences tourists' intention to revisit a destination, aligning with previous research in travel and leisure tourism, such as the studies by R. Filieri, et al. (2014) [44] and M. Damayanti, et al. (2017) [45]. As tourists frequently rely on personal recommendations, online reviews, and social media content when planning their trips, positive WOM serves as a powerful marketing tool for Hoi An. Visitors who have had remarkable experiences are more inclined to share their stories via platforms like Facebook, Instagram, and travel blogs. This organic promotion generates heightened interest in the destination, attracting first-time visitors while reinforcing the desire of past visitors to return.

Beyond its role in attracting new tourists, WOM also strengthens revisit intention by reinforcing positive memories associated with the destination. When travellers receive enthusiastic recommendations about Hoi An's renowned culinary scene, bespoke tailoring services, or vibrant cultural events, they often develop a longing to relive those experiences. Research suggests that destinations offering unique and emotionally engaging encounters benefit from strong revisit behaviour fuelled by WOM. In the context of Hoi An, the ability to deliver memorable, authentic, and shareable experiences makes WOM a powerful factor in sustaining tourism growth. As a result, Hoi An remains an attractive destination for global travellers, ensuring its continued appeal and competitive edge in the tourism industry.

5.1. Theoretical implications

The findings of this study have important theoretical implications, particularly in the context of customer experience as a multidimensional construct. While existing research has explored various facets of customer experience, few studies have measured and examined its multidimensional nature, especially in the context of developing countries. This gap in the literature is significant, as it limits our understanding of how different dimensions of tourist experience (emotional, sensory, behavioural, social, and cognitive) interact to shape behavioural intentions. By addressing this gap, the study contributes to a more comprehensive framework for understanding the complexities of tourist behaviour.

Additionally, the study extends the application of L. Becker, et al. (2020) [10]'s theoretical experience model in the tourism domain, demonstrating that the different aspects of travel experiences have a tangible impact on tourists' behavioural intentions, such as WOM and revisit intentions. This enhances the theoretical understanding of how experiential factors influence decisions in the tourism context, particularly in regions where tourism research is still evolving. The findings suggest that incorporating a multidimensional view of customer experience can offer more nuanced insights into the factors driving tourist behaviour and can inform future theoretical developments in tourism studies.

The research also provides a comprehensive understanding of how tourists' experiences play a critical role in fostering positive WOM and increasing customers' intention to revisit. This research also demonstrates the relationship between WOM and customers' revisit intention, particularly in developing countries such as Vietnam. Finally, this study created and validated a new model that includes customers' experiences (sensory, behavioural, emotional, social, and cognitive experiences) along with WOM and customers' intention to revisit the destination. This has made a significant contribution to the current research on tourism customer behaviour and can serve as a reference point for further investigations in this field.

5.2. Practical implications

Based on the results, tourists are more likely to revisit and engage in positive WOM when they have meaningful emotional, social, behavioural, sensory, and cognitive experiences. The results provide practical recommendations for Hoi An city tourism management:

Firstly, destination managers should continue to maintain and enhance the strengths of Hoi An's natural landscape and environment. Encouraging investment in tourism development projects, protecting, conserving, and developing tourism resources, and implementing advanced waste treatment technologies are crucial. Moreover, supporting environmentally friendly tourism models, such as eco-tourism, can enhance tourists' emotional experiences, thereby increasing their intention to return and share positive information about Hoi An city.

Secondly, Hoi An is a destination rich in traditional culture and historical values. Therefore, raising awareness of local culture and history among residents and improving the organisation of tourism services should be prioritised. Investments in cultural programmes, events, and festivals should be encouraged to promote and convey Hoi An's cultural heritage to visitors, enhancing their cognitive experiences.

Furthermore, tourism managers should focus on preserving, regularly restoring, and maintaining ancient architecture and historical sites to provide tourists with a comprehensive cultural experience. Collaborations with cultural organisations to host traditional music performances and artistic events can create a vibrant and colourful atmosphere. Developing unique and innovative business ideas to enhance tourists' behavioural experiences is also essential. For instance, organising recreational activities such as "basket boat spinning" or "pottery-making with artisans" can provide engaging experiences. Creating opportunities for tourists to interact and connect with one another and with locals should also be encouraged. Additionally, investing in cultural and artistic festivals, as well as friendship exchange events, can help strengthen social bonds, allowing visitors to gain deeper insights into local culture and Vietnamese culture as a whole. These initiatives contribute to enhancing tourists' sensory, behavioural, and social experiences.

Finally, destination managers should recognise the importance of feedback and WOM, especially electronic WOM, in attracting new and returning customers. Practitioners should utilise WOM in developing strategies to maximise revenue as well. The fact that good experiences can induce positive WOM, which in turn facilitates customers returning to a tourism destination to experience it again, should be emphasised.

6. Limitations and future research directions

Although this study provides insights into how different aspects of experience influence behavioural intentions, some limitations remain.

Firstly, the data were collected after the tourists' visits, relying on memories from different time periods. To minimise inconsistencies between recalled experiences and on-site experiences, future research should collect data immediately after tourists complete their visits to the destination.

Secondly, the study employed a convenience sampling method, which limits the generalisability of the results. Moreover, this research was conducted in the context of Hoi An city and may not represent other tourist destinations in Vietnam. Differences in geographical locations, environmental conditions, and regional cultures may influence the findings. Future studies should expand the research scope to include multiple tourist destinations across Vietnam.

7. Conclusions

This study highlights the critical role of tourists' experiences - such as emotional, sensory, cognitive, behavioural, and social experiences - in shaping tourists' revisit intentions and WOM behaviours in Hoi An city. The findings confirm that positive experiences significantly influence tourists' likelihood of returning and recommending the destination. WOM also emerges as a key mediator, reinforcing the impact of memorable experiences on future travel behaviour. Theoretically, this research contributes a validated multidimensional framework to better understand tourist behaviour, particularly in developing country contexts. Practically, it offers valuable insights for tourism managers to enhance visitor experiences through cultural engagement, environmental preservation, and interactive activities. By prioritising meaningful and shareable experiences, Hoi An city can strengthen its appeal and sustain tourism growth. Future research should expand this model across different destinations to improve generalisability and explore real-time data collection for deeper insights.

CRediT author statement

Thi Bich Thuy Nguyen: Conceptualisation, Data collection and analysis, Writing, Reviewing and Editing; Tran Bao Tran Nguyen: Methodology, Writing, Reviewing, Editing; Ngoc Thao Vy Nguyen and Thi Hang Do: Conceptualisation, Writing, Reviewing.

COMPETING INTERESTS

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

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The impact of digital transformation on human resource management: Survey evidence in Vietnam

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Abstract:

The digital economy is regarded as a long-term developmental orientation for many countries globally. The Fourth Industrial Revolution has introduced significant changes in the design and operation of human resource management. Vietnam is among the countries with substantial potential in accessing, exploiting, and applying digital transformation within human resources. This research aims to evaluate the impact of digital transformation on human resource management. To analyse this impact, the author assessed the relationship between digital transformation and human resource management factors. The proposed research model includes one dependent variable and three independent variables, referencing previous studies: human resource development, talent management, and work performance. The research method combines qualitative approaches through in-depth discussions with experts and quantitative methods based on multivariate regression analysis. Survey data, including 500 employees and managers in the human resources sector in Vietnam, utilised a 5-level Likert scale. The research results indicate a positive impact of digital transformation on human resource management. Furthermore, the impact on work performance is the strongest, followed by talent management, and finally, human resource development. This research is valuable not only in raising organisational awareness about digital transformation but also in providing a deeper understanding for human resource management policymakers on how to approach digital transformation in organisational operations.

Keywords: **digital transformation, human resource development, human resource management, performance management, talent management, work performance.**

Classification numbers: **2.2, 7**

1. Introduction

In addition to economic, political, and socio-cultural factors, the leadership team, business goals, and level of competition, technological environment factors greatly influence the business situation and growth potential of an organisation [1]. For Vietnam, the trend of economic globalisation has created numerous opportunities to acquire advanced technology and access large markets, while also presenting significant challenges and competitive pressures from abroad that businesses may struggle to overcome without prior preparation [2, 3].

Human resource management is considered a key issue for digital transformation. Following the COVID-19 pandemic, businesses have increased their efforts to enhance the application of digital technology in production and business activities. Currently, the number of businesses in Vietnam applying digital technology to business activities in general, and human resource management in particular, is increasingly improvingremains limited. According to a recent survey by CPA Australia on a group of accounting and finance professionals working in different markets, 74% of Vietnamese enterprises have established a digitalisation strategy as part of their organisational plan, higher than the average of 63% in the Asia-Pacific region [4]. The target set by the Prime Minister aims for Vietnam to develop 100,000 digital technology businesses with 1.5 million workers by 2030.

In a recent report outlining goals for 2025 and a vision for 2030, many provinces and cities, including Ho Chi Minh city, identified the application of digital technology in daily life as a breakthrough to create a favourable and transparent environment for the activities of people and businesses. Typically, the use of document management software and various types of work records on digital platforms is expected to become more prevalent. The application for managing residential areas and work records at the People's Committees of wards (G-office) will be pioneering in handling local administrative work. It is evident that Vietnam's embrace of Industry 4.0 and digital transformation is significantly impacting both the social and economic landscape of the country [5, 6].

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This research aims to provide an objective perspective on the impact of digital transformation on issues related to human resource management. Within the scope of this article, the authors will focus on answering two questions: (1) Does digital transformation impact human resource management? (2) How does digital transformation affect aspects related to human resource management, including human resource development, talent management, and work performance? The study is divided into six parts. The theoretical basis is presented after the introduction. Part 3 builds the model and research hypotheses. Part 4 describes 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, clarifying the role of digital transformation in the development of the country in general and the field of human resource management in particular.

2. Theoretical basis

2.1. Relationship between digital transformation and human resource management

The digital economy represents the process of digital transformation at the national level [7]. Every field, business, individual, and the Government can utilise digital technology to achieve breakthroughs in productivity and outstanding work efficiency [8, 9]. Businesses are increasingly adopting digital-centric models, whether selling digital products and services directly or providing the physical products and infrastructure that support them [10].

Digital transformation extends beyond merely converting to digital businesses; it involves fundamentally changing how a business operates by leveraging digital technology [11]. It is about using technology to improve efficiency, create new value for customers, and gain a competitive advantage [12]. New technology applications, such as artificial intelligence (AI), digital service connection platforms, blockchain, the Internet of Things (IoT), and electronic identity platforms, are used to change work processes, operating methods, and labour culture in businesses [13].

Digital transformation originates from the digitisation of data and processes, equipping organisations with the agility to thrive in an ever-evolving technological environment. It is driven by the need to digitise data and processes, empowering organisations to keep pace with the dynamic technology landscape. Digital transformation is changing the world of work, affecting technology and the relationships between workers, machines, and work organisation [14].

Human resources are the central factor determining the strength, competitiveness, and sustainable development of each country. Globalisation and international integration necessitate a focus on analysing and forecasting human resource needs, along with a thorough understanding of the scale, structure, and quality of the current workforce. Human resources are also central to the organisation, primarily responsible for designing the organisational structure. Human resource management in organisations targets three goals: social goals, organisational goals, and individual goals [15].

Human resource development is a set of systematic and proactive activities aimed at improving the knowledge, skills and capabilities of all employees in an organization. Talent management is an integrated, strategic process to attract, develop, retain and motivate highly capable employees who are considered the organisation's talents. Work performance is the level of work performance of an individual, group or organization, measured against established standards and goals. The three concepts of Human resource development, Talent management and Work performance are closely related and mutually supportive in an organisation's human resource management strategy [16].

Moreover, the growing digital human resources play a key role in the total social labour force. Therefore, developing digital human resources is inevitable in the process of restructuring labour for each country [17]. There is a unity between digital human resources and high-quality human resources in terms of qualifications, skills, qualities, and professional ethical values [18]. Examining the relationship between digital transformation and human resource management, J. Wilcox, et al. (2023) [19] suggest it can be divided into six stages of digital business transformation: (1) Business as Usual, (2) Present and Active, (3) Formalised, (4) Strategic, (5) Converged, and (6) Innovative and Adaptive [19, 20]. To clearly see the impact of digital transformation on human resource management in the past and present, the comparison is shown in Table 1.

Table 1. Digital HR between old rules and new rules.

Old rules	New rules
Human resources departments focus on process design and harmonisation to establish standard human resources practices.	Human resources departments focus on optimising employee productivity, engagement, teamwork, and career growth.
Human resources selects a cloud vendor and implements out-of-the-box practices to achieve scale.	Human resources builds innovative, company-specific programmes, develops apps, and leverages the platform for scale.
Human resources technology teams concentrate on ERP implementation and integrated analytics, emphasising "ease of use".	Human resources technology team moves beyond ERP to develop digital capabilities and mobile apps, focusing on "productivity at work".
Human resources centres of excellence focus on process design and process excellence.	Human resources centres of excellence leverage AI, chat, apps, and other advanced technologies to scale and empower employees.
Human resources programmes are designed for scale and consistency worldwide.	Human resources programmes target employee segments, personae, and specific groups, providing them with journey maps relevant to their jobs and careers.
Human resources focuses on "self-service" as a means to scale services and support.	Human resources focuses on "enablement" to assist individuals in completing work more effectively and productively.
Human resources develops an employee "self-service portal" as a technology platform that facilitates easy access to transactional needs and programmes.	Human Resources builds an integrated "employee experience platform using digital apps, case management, AI, and bots to support ongoing employee needs.

Source: Deloitte University Press [21].

2.2. The impact of digital transformation on human resource management

The impact of digital transformation on human resource development: Training and development are among the innovative methods through which digitalisation introduces a new phase of transformation [22]. Corporate human resources departments face challenges in developing HR practices that ensure a balance between work and increasingly positive emotional, cognitive, and behavioural life experiences. Therefore, it is necessary to consider designing new strategies to develop human resource development systems in the future [23]. Simultaneously, investing in human resource development is a critical factor for businesses to successfully transition into digital operations [24]. To thrive in the digital age, businesses need to prioritise human resource development programmes that equip employees with the necessary digital skills. Alongside technological advancements, successful digital transformation hinges on effective human resource development that fosters a culture of digital adoption within the workforce.

H_1: Digital transformation has a positive impact on human resource development.

The impact of digital transformation on talent management: Issues related to talent management must focus on human resource training [25]. Today, the digital workforce needs to be equipped with specialised knowledge and skills in digital technology [26]. Many human resource management professionals are beginning to innovate and redesign digitalised work methods and organisational structures. Digitalisation has also allowed tasks to be organised differently, as information is no longer tied to paperwork or physical locations, thus facilitating and organising work, and most importantly, focusing on improving efficiency [27]. Additionally, we face challenges and need to implement solutions focusing on skills training, updating technology, and changing employment policies to encourage labour and utilise talented individuals [28]. Effective training goes beyond skill development. It fuels employee motivation and fosters a culture of innovation, critical for success in the digital transformation era. By effectively implementing training, organisations empower employees with new skills and knowledge, boosting their motivation to contribute meaningfully to digital transformation efforts. Well-implemented training programmes equip employees with the skills and experience needed to not only contribute but also thrive during digital transformation [29].

In Vietnam, the shortage of skilled staff at all levels, especially the management and professional levels, has been a limitation. In the recent assessment report of the General Statistics Office of Vietnam (GSO) on Vietnam's labour market in 2023, it is estimated that the proportion of trained workers with degrees and certificates in 2023 is 27.0%, an increase of 0.6 percentage points compared to the previous year. However, there is still a significant lack of qualified staff, especially digital human resources [30]. For example, Vietnam currently has about 30 operating companies with more than 5,000 semiconductor engineers but may need up to 20,000 people in the next five years and 50,000 in the next ten years [31].

H_2: Digital transformation has a positive impact on talent management.

The impact of digital transformation on work performance: Leveraging technology is an inevitable strategy to ensure a balance between embracing innovation and work performance in any organisation [32]. Technology plays a crucial role in enabling organisations to strike a balance between embracing innovation and optimising work performance. In today's competitive landscape, applying digital technology strategically is key to driving innovation and maintaining good performance [33]. The advancement of technology in the global workplace is now having a profound impact on the role of human resources management.

On the other hand, digital transformation completely changes the way businesses operate, improving work performance and bringing value to customers [34]. By embracing digital transformation, businesses can achieve standardised operations across all departments. This standardisation fosters sustainability, productivity, efficiency, and security, ultimately leading to a significant boost in work performance [35, 36].

H_3: Digital transformation has a positive impact on work performance.

3. Research model and hypothesis

Based on N.K. Betchoo's previous research (2016) [37], the author established a research model for the topic of assessing the impact of digital transformation on human resource management in Vietnam. Specifically, the research model is as shown below (Fig. 1):

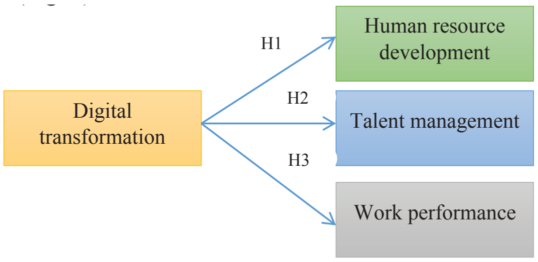

Fig. 1. Research model. Source: Author's research model.

Three research questions were posed in this study:

Research question 1: How does digital transformation affect human resource development?

Research question 2: How does digital transformation affect talent management?

Research question 3: How does digital transformation affect work performance?

Based on the proposed research model, the author sets out three research hypotheses:

H_1: Digital transformation has a positive impact on human resource development.

H_2: Digital transformation has a positive impact on talent management.

H_3: Digital transformation has a positive impact on work performance.

4. Research methods

4.1. Research data

Qualitative research involves constructing mock models, developing figures, and adjusting scales. The research was conducted using the group discussion method by soliciting the opinions of 10 experts in Vietnam, including 3 human resource directors and 7 human resource department heads within the company. The discussions were conducted through face-to-face interviews in March 2024. Specifically:

Step 1: The author conducts a discussion with expert group. This group discussion utilises a table model summarising related research. To consider and evaluate the impact of digital transformation on human resource management, the author selected a proposed scale including three variables: (1) human resource development, (2) talent management, and (3) work performance.

Step 2: The author provides an in-depth interview table with the measurement scales of the variables to determine the observed variables and select them for inclusion in the official survey questionnaire. Then, the expert group answered the questions in the interview panel and selected appropriate scales. The independent variables after conducting the second survey are as follows: Human resource development includes 4 observed variables; Talent management includes 4 observed variables; Work performance includes 4 observed variables.

From the qualitative research results combined with the theoretical basis, the author calibrated the scale and coded the research factors as follows: Human resource development: HD; Talent management: TM; Work performance: WP; Digital transformation: DT.

4.2. Research scale

The study's scale was inherited and developed from the original scale of N.K. Betchoo (2016) [37]. The author conducted in-depth interviews with expert group in the human resources industry and adjusted it to suit the research model of the observed variables at the following calibration scale table (Table 2).

Table 2. Research scale of observed variables.

	Original observed variable	Adjusted observed variable	Encode
Human resource development	Digital revolution develops my ICT knowledge at work.	Digital transformation helps develop my information and communication technology knowledge at work.	HD1
	Digital revolution develops my cognitive skills at work.	Digital transformation helps develop my cognitive skills at work.	HD2
	Digital revolution assists me in continuous professional development.	Digital transformation supports my continuous professional development.	HD3
	Digital revolution enhances my career advancement at work.	Digital transformation helps improve my career advancement at work.	HD4
Talent management	Digital revolution makes me creative at work.	Digital transformation helps me be creative at work.	TM1
	Digital revolution broadens my talent at work.	Digital transformation helps expand my talents at work.	TM2
	Digital revolution brings change and transformation in me compared to the past.	Digital transformation brings a change in me compared to the past.	TM3
	Digital revolution qualifies me for a higher position at work.	Digital transformation helps me get a higher position at work.	TM4
Work performance	Digital revolution improves my productivity at work.	Digital transformation helps improve my productivity at work.	WP1
	Digital revolution enhances my customer service at work.	Digital transformation enhances my customer service at work.	WP2
	Digital revolution adds value to the work that I handle.	Digital transformation adds value to the work I do.	WP3
	Digital revolution enhances my responsiveness and adaptation to flexible and productive work.	Digital transformation helps improve my ability to respond and adapt at work.	WP4

Source: Author's research scale.

In addition, when conducting in-depth interviews with expert group in the human resources industry, the author also synthesised opinions to establish a scale for the observed variable "Digital transformation", as follows (Table 3):

Table 3. Research scale of observed variable "Digital transformation".

	Observed variables	Encode
Digital transformation	I plan to apply digital transformation to solve tasks in the near future.	DT1
	I predict human resource management will apply digital transformation in the coming future.	DT2
	My use of digital transformation will most likely happen soon.	DT3

Source: Author's compilation.

The research questionnaire utilised a 5-level Likert scale: 1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Totally agree. The scale includes 12 observed variables for 3 quality components, which form an independent variable scale comprising human resource development: 4 variables; talent management: 4 variables; work performance: 4 variables, and 1 dependent variable scale for digital transformation: 3 variables.

4.3. Research methods

Data processing method: After adjusting to complete and obtain the official scale, the author proceeds to collect research data. Out of a total of 545 surveys collected through the software, the author counted a survey sample of 500 as suitable for the study (Table 4).

Table 4. Detailed response data.

	Original survey number	Number of records returned after survey	The number of infringing copies is excluded	Number of copies used for final statistics
Total	545	543	43	500

Source: Author's calculations.

Data used in the study was collected with a sample size of 500 through a direct survey questionnaire combined with Google forms software. Details of survey data are in Table 5 below.

Table 5. Description of sample.

Description	Number	Percentage (%)
Gender		
Male	208	41.6
Female	292	58.4
Age		
18-24	31	6.2
25-29	164	32.8
30-40	283	56.6
Over 40	22	4.4
Position in company		
Employees	383	76.6
Managers	117	23.4
The company apply digital transformation in human resource management activities		
Yes	326	65.2
No	174	34.8
Is the company you work for applying digital transformation in human resource management activities?		
Yes	326	65.2
No	174	34.8

Source: Author's calculations.

Based on the research data collected, the author exported the results file from Google Forms software for synthesis and processing using Microsoft Excel 2010. After obtaining complete data, the author conducted descriptive statistics through SPSS 23 software. Additionally, the study analysed the reliability coefficient using Cronbach's alpha, EFA exploratory factor analysis, and Pearson correlation analysis.

Verification methods: The author tests the suitability of the regression model through ANOVA analysis of variance (if Sig.>0.05, there is no difference in variance; conversely, if Sig.<0.05, there is a difference in variance) [38]. The study also tests for multicollinearity (correlation between independent variables) using the tolerance value or the variance inflation factor (VIF). If VIF>10, it indicates a multicollinearity phenomenon [39]. Additionally, the study employs the Durbin-Watson test to assess autocorrelation in the model's residuals. This test statistic ranges from 0 to 4. Ideally, a value close to 2 (typically between 1 and 3) suggests no significant autocorrelation. Values closer to 0 indicate positive autocorrelation, while values exceeding 3 suggest negative autocorrelation [40]. Finally, the author conducted T-test and ANOVA to test the difference in the level of influence of factors affecting human resource management according to demographic variables. Through testing, the author will determine the difference in variance, the presence of multicollinearity, and conduct multiple regression analysis to evaluate the appropriateness of the research model. When determining the level of influence of factors, those with larger beta coefficients are considered to have a higher level of influence than other factors in the research model.

5. Research results

5.1. Cronbach's alpha reliability test

After applying the SPSS processing scales and testing Cronbach's alpha, the processing results are given in Table 6.

Table 6. Summary of scale reliability analysis results.

Factor	Number of initial observed variables	Number of remaining observed variables	Cronbach's alpha
Human resource development	4	4	0.810
Talent management	4	4	0.839
Work performance	4	4	0.940
Digital transformation	3	3	0.930
Total	15	15	

Source: Author's calculations.

The scales used in the research model all have reliability greater than 0.6, indicating that all observed variables are eligible for use in the analysis step. All observed variables show that the total correlation coefficient is greater than 0.3. Exploratory factor analysis results indicate that the KMO coefficient is ≥0.5 and the significance level of the Bartlett test is ≤0.05. After evaluating the reliability of the scale using Cronbach's alpha coefficient, the total number of variables included in the final analysis was 15.

5.2. Pearson correlation analysis

The hypothesis H0 of this test assumes that there is no correlation between the two variables (i.e., the coefficients are not statistically significant). We will consider, with 99% confidence, whether the P-value (Sig. level of significance) is<0.05. If Sig.<0.05, then we have sufficient basis to reject the hypothesis H0, indicating that the correlation coefficient between the two variables is significant. Conversely, if Sig.>0.05, we accept the hypothesis H0, meaning the linear correlation coefficient between the two variables is not meaningful. The Pearson correlation coefficient matrix is analysed to examine the correlation between variables [41]. The results are shown in Table 7.

Table 7. Pearson correlation between research variables.

		HD	TM	WP	DT
HD	Pearson correlation	1			
	Sig. (2-tailed)				
TM	Pearson correlation	0.641**	1		
	Sig. (2-tailed)	0.000			
WP	Pearson correlation	0.558**	0.552**	1	
	Sig. (2-tailed)	0.000	0.000		
DT	Pearson correlation	0.504**	0.599**	0.808**	1
	Sig. (2-tailed)	0.000	0.000	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations.

Based on Table 7, which shows the correlation between variables, the results from the Pearson correlation test indicate that the level of correlation between the variable DT and the variables HD, TM, and WP has a Sig.<0.05, specifically 0.000. Additionally, there is a positive correlation between the variable DT and the variables in the model: HD, TM, and WP. The average correlation coefficients between these variables are 0.504, 0.599, and 0.808, respectively.

5.3. Multiple regression analysis

The Durbin-Watson test coefficients for the tests all yield results in the range 1<d<3, indicating that the model hypothesis of no autocorrelation is accepted [40]. Additionally, for the multiple regression model to be considered an overall model, it is necessary to examine the F-test in the ANOVA analysis. Testing the F statistic value, with Sig.=0.000<0.05 from the ANOVA analysis, shows that the constructed multiple linear regression model is suitable for the data set and can be used [38]. The model has F-test values for HD, TM, and WP margins of 67.454, 111.019, and 372.152, respectively, with all Sig.=0.000<0.05, thus rejecting the hypothesis H0 that the overall coefficient of determination R-square=0 [42]. The multiple regression model is suitable for the data set and can be used.

The regression results in Table 8 show that the significance levels corresponding to the variables HD, TM, and WP are less than 0.05. Therefore, with a significance level of 5%, it can be concluded that the variable DT has an impact on the variables HD, TM, and WP. The study did not exhibit multicollinearity, as the VIF of all tests was less than 2 [39].

Table 8. Regression results.

Model	Unstandardised coefficients		Standardised coefficients	t	Sig.	Durbin-Watson	F-test
	B	*Std. Error*	*Beta*				
HD	0.509	0.062	0.504	8.213	0.000	1.975	67.454
TM	0.724	0.069	0.599	10.537	0.000	1.839	111.019
WP	0.792	0.041	0.808	19.291	0.000	1.966	372.152

Source: Author's calculations.

Testing for differences by demographic composition: Considering Leneve's test, ANOVA (sig.>0.05) or Welch's test (sig.<0.05) of demographic components, including: gender, age, job position and digital transformation application at the company, the results showed that there was no difference between the groups at the 5% statistical significance level. Therefore, the author determined that there was no impact on the dependent variable.

5.4. Discussion of results

Through the regression results, the research presents the following hypothesis testing results as shown in Table 9.

Table 9. Results of testing research hypotheses.

Symbol	Hypothesis	Result
H_1	Digital transformation has a positive impact on human resource development.	Accept
H_2	Digital transformation has a positive impact on talent management.	Accept
H_3	Digital transformation has a positive impact on work performance.	Accept

Source: Author's statistics.

Thereby, the study found answers to two questions. First, digital transformation has a significant impact on human resource management, and the results show that this relationship is statistically significant. Second, digital transformation positively impacts human resource management, specifically in human resource development, talent management, and work performance. The level of impact of digital transformation on these factors is arranged in the following order:

- Work performance factor with a standardised coefficient β=0.808. The standardised beta coefficient of the work performance factor has a positive sign, reflecting the positive relationship between digital transformation and work performance in human resource management.

- Talent management factor with a standardised coefficient β=0.599. The standardised beta coefficient of the talent management factor has a positive sign, reflecting the positive relationship between digital transformation and talent management in human resource management.

- Human resource development factor with a standardised coefficient β=0.504. The standardised beta coefficient of the human resource development factor has a positive sign, reflecting the positive relationship between digital transformation and human resource development in human resource management.

Although there are differences in research space and time, the research results align with previous studies by N.K. Betchoo (2016) [37], which found that digital transformation positively impacts human resource management. In particular, issues related to human resource management, such as human resource development, talent management, and work performance, need to be implemented appropriately to improve the organisation's work efficiency.

6. Conclusions and policy implications

The research objective is to evaluate the impact of digital transformation on human resource management. The author analyses and evaluates the relationship between digital transformation and human resource management factors, including human resource development, talent management, and work performance. By combining qualitative research methods through in-depth discussions with experts and quantitative research methods based on multivariate regression analysis, the research shows a positive impact between digital transformation and human resource management. Additionally, the impact of digital transformation on work performance is the strongest, followed by talent management and finally human resource development.

First, for each locality, raising awareness about digital transformation is extremely necessary. Reality shows that the application of digital transformation in human resource management in Vietnam is still not consistent across localities. In big cities like Hanoi, Da Nang, and Ho Chi Minh city, raising awareness about technology applications, specifically digital transformation applications in work, is essential to be more proactive and access technology faster, thereby increasing efficiency and value at work. In remote areas, traditional human resource management is still heavily formalised, not focusing on work performance; at the same time, digital transformation is a relatively new method in these localities. Therefore, agencies and local governments need to have policies to encourage individuals and businesses to apply digital transformation in human resource management in the coming time. To do this in a long-term and sustainable way, it is necessary to raise awareness of individuals and businesses about digital transformation, helping them see the benefits that digital transformation brings, such as improving work performance, managing and retaining talent, or consolidating and developing future human resources.

Second, in the context of the rapid industrial revolution 4.0, human resources in Vietnam must constantly learn and hone knowledge and skills, especially digital technology. For digital transformation to bring value in human resource management, it is necessary to have people who are knowledgeable and have strong knowledge of applying technology to work. The role of universities in particular and educational agencies in Vietnam in general is extremely important. Equipping students and learners with knowledge, skills, and attitudes in digital transformation is something that needs to be improved in the near future. Therefore, schools need to change their approach and apply more technology in teaching so that learners gradually get used to applying digital technology in life and work.

Third, there needs to be motivation from the government in applying digital transformation to the economy in general and human resource management in particular. In addition to encouraging businesses to apply digital transformation, recently, Decision No.749/QD-TTg dated June 3, 2020, of the Prime Minister on relevant agencies and branches to consider and decide on the issue of research and development of a Project on training and developing human resources for digital transformation in Vietnam until 2025, with an orientation to 2030, ensuring compliance with the tasks and solutions set out in many policies in Vietnam's vision of innovating digital human resource management in the coming time [43]. At the same time, human resource managers must understand and apply digital technology application systems to ensure effective management of digital transformation in business. In other words, there must be effective synergy between the deployment and use of digital technologies to exploit the benefits in human resource management. Therefore, for agencies and departments, policies in the coming time need to have more support for businesses, specifically through training and guidance. For human resource managers in each business, clear processes and mechanisms should be established in digital transformation based on three aspects: work performance, talent management, and human resource development.

The study still has some limitations. First, the sample data were collected conveniently without distinguishing between employees, specialists, or managers working in the human resources field, which to some extent may lead to differences. Second, although empirical evidence shows that the research model can explain and provide interesting insights into the impact of digital transformation on human resource management in Vietnam, the results do not fully explain the impact of digital transformation on human resource management. Specifically, the study only examined the impact of digital transformation on three factors: human resource development, talent management, and work performance. In reality, there are many impacts that digital transformation brings to the field of human resources in general and human resource management in particular, such as the impact of digital transformation on employee training through online learning (E-learning) or how digital transformation affects employee motivation, which have not been mentioned in this study. Therefore, future research can consider implementing or expanding variables to make the research topic more comprehensive.

COMPETING INTERESTS

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

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Improving the quality of education in Korean Studies and Korean Language through the analysis of graduates' employment outcomes

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Abstract:

Approximately 50% of universities in Vietnam offer formal education in Korean Studies and Korean Language and Culture, with a significant concentration of prominent institutions in this discipline located in the southern region, particularly in Ho Chi Minh city. However, studies on the employment outcomes of graduates majoring in Korean-related disciplines are scarce, especially in the context of Ho Chi Minh city. Existing research often lacks comprehensive analyses that integrate the perspectives of both employers and graduates, alongside actionable recommendations for enhancing instructional standards in specific disciplines within training institutions. This study provides an overview of the employment landscape for graduates specialising in Korean Studies from universities and colleges in Ho Chi Minh city in recent years. Additionally, it incorporates the perspectives of employers who recruit graduates from Korean-related majors and the feedback of alumni who have undergone training in these disciplines, offering insights for improving the quality of education and alignment with labour market needs.

Keywords: **employment, graduates, graduates employment in Ho Chi Minh city, Korean Languages and Cultures students, Korean studies students.**

Classification numbers: **3.1, 3.2, 3.3**

1. Introduction

The 2023 Policy Forum on Youth Employment released preliminary statistics on the employment status of Vietnamese youth, particularly those aged 15-24. In the first quarter of 2023, the youth unemployment rate stood at 7.61%, which was 3.38 times higher than the national average of 2.25%, with one in ten young people unemployed. Nevertheless, the forum noted that the number of young workers remains three times higher than that of older groups, highlighting the critical role of youth in the workforce. The forum also warned that youth unemployment poses a significant challenge to the Vietnamese economy [1].

Despite this, employment prospects for graduates specialising in Korean Studies and Korean Language and Cultures remain promising, bolstered by robust Vietnam-Korea cooperation. Over the past decade, this partnership has expanded across various sectors. In 2022, Korea invested over 80 billion USD in Vietnam, maintaining its position as the country's largest foreign investor. That same year, the two nations elevated their relationship to a Comprehensive Strategic Partnership, creating new avenues for collaboration [2]. Consequently, graduates with expertise in Korean Studies or Korean Languages and Cultures enjoy access to numerous attractive career opportunities.

Regarding the academic landscape, 2022 statistics indicate that 51 universities in Vietnam offer programmes in Korean Studies and Korean Language and Cultures, with expectations for continued growth. More than half of these institutions are located in the southern region, reflecting a rapid expansion in training facilities [3]. This surge suggests a substantial pool of graduates entering the job market both now and in the coming years. Therefore, it is essential to investigate the employment outcomes of graduates in Korean Studies and Korean Languages and Cultures, particularly in the southern region, to assess the strengths and weaknesses of existing training programmes and ensure alignment with labour market demands.

2. Literature review

Recent research on graduates' employment status has primarily explored job opportunities and causes of unemployment, categorised by industries such as economics, engineering, and education. Studies often examine the employment conditions and skills required for specific disciplines at particular universities. For instance, P.T.N. Khuyen, et al. (2016) [4] analysed the employment status and essential skills of business administration graduates from Can Tho University. Similarly, D.H. Thang (2021) [5]'s research, along with the 2023 employment status survey report from the

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International University, Vietnam National University, Hanoi, provided insights into the job suitability of graduates from Trade Union University and the International University [6].

Research by N.V. Canh, et al. (2021) [7] assessed the employment outcomes of Dong Thap University graduates one year after graduation. Their findings revealed that the majority of university students (70-90%) secure employment, with those achieving outstanding grades demonstrating a higher likelihood of finding jobs. Graduates are more likely to work in the private sector than in the public sector, and between 40 and 60% find jobs related to their fields of study. Employability is influenced by various skills, including teamwork, self-management, communication, sales, leadership, and IT proficiency.

In a 2015 poll conducted by the National Association of Colleges and Employers (NACE), recruiters from major U.S. companies, such as IBM, Seagate Technology, and Chevron, identified the top ten skills they sought in graduates, including data analysis, job-specific knowledge, software proficiency, report writing, sales ability, planning and organisation, collaboration, decision-making, verbal communication, and influencing skills [8]. By 2023, however, the focus had shifted towards competencies such as analytical thinking, creative thinking, curiosity, lifelong learning, and technological expertise, as highlighted in the World Economic Forum's Future of Jobs Report [9]. Additionally, Pearson's 2023 research identified leadership, teamwork, communication, attention to detail, and customer service as in-demand "soft skills" [10]. NACE's 2023 poll emphasised problem-solving, teamwork, written communication, work ethic, and adaptability as crucial attributes for graduates [11].

Studies on Korean Studies and Korean Language education in Vietnamese universities have primarily addressed the current state and potential improvements in these fields. K.L. Bui, et al. (2014) [12] highlighted the increasing demand for Korean language education in Vietnam, which has led to collaborations with the Korean government to establish Sejong Centres, with 11 centres operational by 2014. However, a key challenge remains the shortage of highly qualified instructors, particularly those with doctorates.

T.T. Huong (2020) [13]'s research observed that while most Korean Studies programmes are concentrated in Ho Chi Minh city, universities in the northern region place greater emphasis on Korean Language and Culture. Ho Chi Minh city-based programmes tend to prioritise job training and study abroad opportunities over academic research. Generally, Vietnamese universities focus heavily on Korean language education, with graduate employment rates consistently exceeding 90%. However, these institutions rely primarily on textbooks from Korean universities and lack theoretical texts addressing "Korean from a Linguistics Perspective" or broader "Korean Studies" topics.

C.T.H. Bac, et al. (2022) [14] study on Korean Studies courses at the University of Foreign Languages, Vietnam National University, Hanoi, found that all students, irrespective of their training system (high-quality, standard, or pedagogical), are required to enrol in Korean Studies courses. Korean Studies majors undertake a greater number of these courses compared to other students, such as those specialising in translation. Many non-Korean Studies students reported that the course content was excessively advanced for their skill levels.

A study by L.T.V. Ha, et al. (2022) [15] explored the impact of COVID-19 on employment for graduates from Korean-related majors in Hanoi, revealing a sharp decline in job placements during the pandemic. This research attributed unemployment to insufficient training and job mismatches but focused primarily on the pandemic period (2020-2021), without addressing long-term trends. D.T. Hang, et al. (2017) [16] investigated the employment status of Korean Language graduates, finding that 54.8% were employed in electronics manufacturing, which highlighted a discrepancy between students' preferred and actual job sectors. However, this study was based primarily on student perspectives rather than those of employers.

This review identifies a significant research gap regarding the employment outcomes of Korean Studies graduates, particularly in the southern region and Ho Chi Minh city. Existing studies lack a robust connection between employment analyses and the improvement of training programmes. Furthermore, the semi-structured interview method, involving both graduates and employers, has not been widely employed. Most research relies on questionnaires and descriptive statistics.

To address this gap, the current study aims to investigate the employment status of Korean Studies and Korean Language graduates in Ho Chi Minh city. Additionally, interviews with recruiting companies will provide a deeper understanding of employer needs and expectations. As Vietnam-Korea relations continue to grow and the number of graduates in Korean-related fields increases - over 50% of universities offering these majors are located in the southern region, particularly in Ho Chi Minh city, this research seeks to bridge the gap between university training and employer demands. It aspires to offer practical insights and serve as a valuable resource for training institutions both locally and nationally.

3. Research objectives and methods

The purpose of this study is to provide recommendations for modernising the curriculum and improving the quality of education for Korean Studies and Korean Language and Culture majors. The research focuses on graduates from Ho Chi Minh city between 2014 and 2019 (four-year regular programmes) and examines their employment outcomes from 2018 to 2023. Data were collected through surveys of hiring companies and recent graduates, focusing on criteria such as office skills, soft skills, and foreign language proficiency that influence job-search success. The research team also conducted semi-structured interviews with these groups. The findings will be compared with the current training programmes to propose improvements to education quality and enhance employment opportunities in the field.

This study addresses three key objectives:

1. Surveying the employment status of students majoring in Korean-related fields at universities in Ho Chi Minh city.

2. Conducting semi-structured interviews with students and employers regarding current career outcomes, training orientations, and recruitment needs.

3. Analysing employment trends among these graduates to identify discrepancies between training programmes and stakeholder expectations, and proposing adjustments to curricula and teaching methods to improve education quality and strengthen the professional capacity of teaching staff.

A mixed-methods research approach was adopted, integrating both quantitative and qualitative data collection within a theoretical framework to assess the employment outcomes of university graduates. The methodology, commonly employed by universities nationwide, included a questionnaire survey to collect quantitative data and semi-structured interviews to gather qualitative insights. These interviews explored students' perspectives on their university training and captured the views of both employers and students regarding plans to improve the quality of education to meet labour market demands. Purposive sampling and snowball sampling techniques were utilised to effectively identify and engage relevant participants.

This study is underpinned by Consensus Theory [17], which emphasises the importance of collaboration among stakeholders, faculty, universities, and policymakers to foster societal harmony and leverage education as a tool for socio-economic development. Additionally, it incorporates the framework proposed by M.J. Alam, et al. (2024) [18], which advocates for aligning academic programmes with labour market demands through industry collaboration, skill development, and active stakeholder engagement. By integrating these approaches, the study examines the relationship between university curricula in Korean-related majors and employment outcomes, addressing both societal and market-oriented dimensions of education. The Analytical Framework underpinning this study is depicted in Fig 1.

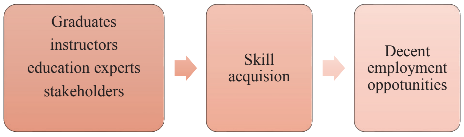

Fig. 1. Analytical framework.

4. Results and discussion

4.1. Description of the study sample

The study, conducted in 2024, collected 97 questionnaire responses, of which 4 were deemed invalid, resulting in 93 valid responses for analysis. This accounts for only 46.5% of the initial target of 200 students. Most responses were from students of the 2018 and 2019 cohorts. Regarding graduation timelines, 90.7% of respondents graduated on time or earlier (within four years), while 9.3% graduated after five years.

Demographically, the sample was predominantly female (85.6%) and largely from the 2019 cohort (63.9%), with the vast majority (91.8%) graduating from a four-year university system. Academic performance was strong, with 51.5% graduating with "Good" and 33% with "Excellent" marks. In terms of employment, 74.1% of graduates were employed, primarily in private enterprises (34%) and foreign companies (28.9%). A notable trend was the prevalence in freelance roles (32%) and self-employment (2.1%), indicating an increase in entrepreneurial pursuits among these graduates. Despite the high employment rate, a 25.9% unemployment rate suggests challenges in securing full-time, aspiration-aligned positions.

Regarding job placement, a significant 68.5% of graduates secured their first job within six months of graduation, underscoring strong market demand for their skills... Furthermore, an 11% promotion rate to management within five years indicates favourable career advancement opportunities within this field. However, job satisfaction was lower (52.5% satisfied or very satisfied) compared to previous studies (75-85%). Financially, over 46% of graduates earned above Ho Chi Minh city's average monthly income of 9.3 million VND [19], suggesting favourable initial salaries. However, a notable 37.1% of graduates earn only 5-10 million VND, a significantly lower proportion compared to a 2021 study in which 80% of similar graduates earned over 10 million VND, raising concerns about potential market saturation for Korean-related jobs in Ho Chi Minh city.

The study also highlighted skill gaps and a lack of suitable opportunities among unemployed graduates, with over 80% believing they lacked sufficient skills. While 69.1% worked within their field, the reasons for unemployment highlight a crucial mismatch between university training and current labor market demands, emphasising the need for better curriculum alignment with industry requirements.

4.2. Assessment evaluation of the training program from the perspective of graduates

Only 18.6% of graduates believed their university education fully met job requirements, while 79.4% felt it partially met them, and 2% stated it did not meet them at all. This highlights a significant gap between training and actual job demands, emphasising the need for Korean-related training institutions in Ho Chi Minh city to align their programmes more closely with market needs.

Graduates rated the training objectives and programmes positively ($M>3$, standard deviation <1), indicating overall satisfaction with Korean-related majors. However, 16.3% "strongly disagreed" or "disagreed" that the balance between theory and practice was reasonable ($M=3.46$), representing the highest level of disagreement among evaluations. This underscores the need for improvement in this area, compared to factors such as training objectives and programme flexibility. Graduates expressed high satisfaction ($M>4.2$) with lecturers' professional qualifications, teaching methods, materials, and enthusiasm, appreciating their expertise and discipline. Nonetheless, 3.1% disagreed that lecturers were enthusiastic and supportive, with some noting insufficient engagement and ineffective communication. As Vietnam moves towards a liberal education model, these findings highlight the need for lecturers in Korean-related majors to innovate teaching methods and reassess their approaches to teacher-student engagement.

Testing and evaluation methods received high ratings, with average scores exceeding 4.1 (M>4.1), and over 80% of respondents agreeing or strongly agreeing with their objectivity and diversity. While the overall rating of the training programme was positive (M>3.7), 4-7% of graduates expressed dissatisfaction with the programme's ability to meet professional knowledge and skill requirements. Similarly, 79.4% of graduates felt their education only partially met job market demands, highlighting a need for institutions to better align programmes with market requirements through detailed surveys.

Evaluations of management and training services showed high averages (M>3.8), but 3.1-7.2% of graduates were dissatisfied with training management effectiveness and the availability of career counselling activities. Regarding facilities, 9.3% of respondents expressed dissatisfaction, particularly with library resources and the availability of reference materials on Korean culture and language. This reflects a lack of updated resources and limited access to materials in Korean and Vietnamese, creating a notable gap compared to Korean institutions. Improving physical and online resource offerings remains a critical area for universities in Ho Chi Minh city.

4.3. Assessment of training quality from the perspective of recruiting units

To gain a comprehensive understanding of training quality based on graduate outcomes, the study surveyed 16 representatives from various sectors, including production/engineering, trade and services, information technology, education and vocational training, non-profit organisations, banking and finance, and fast-moving consumer goods (FMCG). These organisations recruit graduates majoring in Korean Studies or Korean Language and Culture in Ho Chi Minh city. Among the respondents, 68.7% were members of recruitment committees. The majority were at management levels and played significant roles in personnel recruitment decisions, making their feedback representative of industry perspectives on the quality of Korean-related graduates. Notably, 81.3% of the representatives were themselves graduates of Korean-related majors, underscoring the strong community connections and traditional ties within this field.

The recruiting units were categorised into five types: state-owned organisations, domestic private enterprises, foreign enterprises, non-governmental organisations, and educational institutions. The results showed that 55.6% of representatives were from foreign-invested enterprises, 33.3% from domestic private enterprises, and 11.1% from educational institutions. No representatives were from state-owned or non-governmental organisations. These findings indicate that private and foreign enterprises, especially Korean companies, dominate the recruitment of Korean-related graduates, aligning with the statistic that over 60% of graduates are employed in these sectors.

Regarding the average tenure of graduates, 44.4% of recruiting units employed graduates for less than one year, 38.9% for 2-4 years, 16.7% for less than six months, and none for more than four years. Additionally, 44.4% of these enterprises had signed cooperation agreements with Korean-related schools or programmes, while 55.6% had not. This demonstrates that nearly half of the recruiting organisations maintain direct collaborations with training institutions, often due to alumni networks within the field. Korean enterprises investing in Vietnam frequently prefer direct engagement with training institutions over recruitment agencies. Therefore, training units should develop strategies to enhance partnerships with enterprises, which could increase employment opportunities for graduates.

The survey also revealed a preference for hiring graduates from Korean Studies (44.4%) and Korean Language and Culture (38.9%) majors, with only 16.7% employing individuals holding Korean language certificates from other fields. In terms of job assignments, 50% of recruits were placed in translation, interpretation, or assistant roles, 38.9% in general office positions, and 11.1% as customer consultants, reflecting the high demand for translation and interpretation services in Korean-related industries.

Regarding additional training courses for graduates, 56.8% of enterprises reported providing internal training for professional knowledge and skills, 27.8% required no additional courses, and only 11.1% offered soft skills training. No respondents indicated a need for IT skills training, suggesting that enterprises focus on addressing practical skill gaps internally while expecting graduates to independently improve their performance. This also implies that enterprises expect Korean language proficiency and other professional skills to be adequately addressed within university programmes. The lack of emphasis on IT skills suggests these are not currently a priority in the Korean-related sector, with basic writing skills deemed sufficient.

Recruiting units expressed high satisfaction with the quality of Korean-related graduates (M>4.00), particularly in their ability to apply specialised knowledge, adapt to work environments, and demonstrate career development potential. Key competencies such as foreign language proficiency, discipline, work ethic, and communication skills received positive evaluations, with over 70% agreement among respondents. However, there was significant hesitation regarding "research capacity" (44.4% hesitant) and "career orientation before employment" (50% hesitant). This aligns with findings that 79.4% of graduates felt their university education only partially met job requirements, and 50% required additional certifications to secure employment. These results highlight the need for better career orientation within training programmes, a challenge that extends across many universities in Vietnam, not just those offering Korean-related majors.

Recent statistics underscore the broader challenges faced by graduates in the humanities and social sciences. A study by the International University, as reported by Dai Doan Ket newspaper, found that 21.43% of graduates work in unrelated fields, with this figure exceeding 60% in disciplines such as humanities, natural sciences, and agriculture. Graduates in unrelated fields earn less on average than their counterparts in relevant roles [20]. Similarly, a survey by the University of Social Sciences and Humanities revealed that 70% of graduates lacked clear career orientation after graduation [21]. This lack of direction increases the number of graduates working outside their fields and contributes to lower average incomes. These findings underscore the urgent need for lecturers and training units to prioritise career orientation and self-development guidance for students.

4.4. Suggestions for improving the training quality of Korean-related major graduates and recruiting units

Based on evaluations of graduate satisfaction with Korean-related training programmes in Ho Chi Minh city and assessments by recruiting units regarding graduate quality, the research team conducted semi-structured interviews with graduates to identify solutions for improving training quality. A 5-point Likert scale survey was also combined with semi-structured interviews involving recruiting units to gather comprehensive insights.

Proposals for improving the training quality of students in Korean-related majors: Responses to the question, "Which subjects in the training programme are not essential and should have their duration reduced (based on actual job requirements)?" predominantly indicated that non-core subjects, such as general education courses or those centred on Korean culture and history, occupy an excessive portion of the students' course load. These subjects are perceived as less relevant to the specialised practical skills required in the job market, such as Korean language proficiency, English language skills, and translation and interpretation competencies.

Student feedback reveals a consistent dissatisfaction with the practical applicability of their academic program. A central critique revolves around the curriculum's perceived imbalance, with an excessive focus on abstract general subjects (e.g. philosophy, sociology) and insufficient emphasis on career-specific skills. Student A, a 4-year degree course graduate, remarked that "I found that general subjects... are very abstract, which makes it challenging to understand and apply them to future careers. The fact that students are required to study an excessive number of general courses while receiving insufficient education in areas that enhance their knowledge and abilities for future careers... makes it difficult for me to accept this reality". This sentiment underscores a fundamental concern about the curriculum's direct utility for professional pathways.

Furthermore, students reported that the content of general subjects is often outdated, failing to reflect current realities and subsequently diminishing engagement and motivation. Student B, also a 4-year degree course graduate, observed, "I found that the content of the general subjects is rarely updated during my studies. Most of it reuses outdated information, which makes it hard for students to feel interested or connect the knowledge with current realities, leading to a loss of motivation" This suggests a need for dynamic curriculum development that incorporates contemporary issues and practical applications.

A strong consensus emerged among students regarding the necessity for more intensive training in core Korean language skills, especially listening and speaking, as well as specialised courses in translation and interpretation. Student C highlighted this, stating, "Most students wish to study translation and interpretation skills more in-depth during their final year due to their relevance for future employment. Therefore, I found it unreasonable that the school includes subjects unrelated to our registered courses, like Korean Language Teaching, which leaves students feeling disappointed with the training program". This indicates a perceived mismatch between student career aspirations and the program's offerings. Students also called for practical courses covering Korean corporate culture and communication etiquette, emphasising the need for "reflex skills when talking to Koreans" (Student B) and advocating for instructors to "communicate with students in Korean rather than Vietnamese" (Student A) to foster immersive learning.

To improve training quality, many students believe that faculty and institutions should actively listen to and incorporate their feedback, particularly regarding their semester experiences, rather than relying solely on formal feedback mechanisms. There is also strong support for increasing career guidance activities, offering internships with Korean-Vietnamese components, and facilitating practical exchange programmes between Vietnam and Korea. Additionally, students raised concerns about the inadequate transfer of credits for courses completed during exchanges in Korea, emphasising the need for training institutions to address this issue effectively.

Beyond curriculum content, graduates also expressed concerns regarding administrative processes and assessment methodologies. A notable critique pertained to the forced transition to online learning for specialised subjects. One graduate articulated this sentiment, stating that "the online learning method implemented in the recent past is really ineffective and not suitable for specialised subjects" (Student E, 4-year degree course graduate). This highlights a perceived disconnect between pedagogical methods and the specific requirements of in-depth Korean Studies and Language training, suggesting a need for educational institutions to more actively solicit and integrate student feedback on such policy decisions.

Furthermore, administrative inefficiencies were a significant source of frustration. Delays in credit transfers for students participating in exchange programs were particularly problematic, leading to disruptions in course enrollment and, in some cases, delayed graduation. As one student observed, "the Training and Finance departments... always take a long time to address issues with credit transfers for students participating in exchange programs abroad". (Student B), such procedural shortcomings underscore the necessity for streamlined administrative processes to support student mobility and timely academic progression.

Additionally, a significant recommendation from students focused on enhancing practical learning and cultural immersion. Graduates proposed implementing more regular "practical sessions, experiences and cultural exchanges between Vietnamese and Korean students" to facilitate real-world Korean language communication. They also advocated for "hands-on exercises relating to dishwashing, utensils, and other aspects of Korean culture" to deepen cultural understanding through experiential learning. Crucially, there was a strong call for "more programs to support students to have the opportunity to practice and intern in related fields" (Student C), aiming to bridge the gap between academic learning and professional readiness by providing clearer career orientation and practical experience.

Finally, graduates advocated for the implementation of more rigorous academic standards and assessment criteria across semesters. A clear demand emerged for increased challenge in coursework and examinations, aimed at fostering greater competitiveness among students. As one graduate articulated, "instructors and lecturers at schools ought to make their classes and exams more challenging" (Student E), arguing that overly simplistic assessments lead to inflated grades that may not accurately reflect students' true skill levels. This feedback underscores a desire for an academic environment that genuinely prepares graduates with the competencies required to excel in a competitive job market. Concurrently, there is a significant demand for modifying or adding foreign language skill courses to explicitly focus on training for relevant standardised certifications, such as TOPIK, TOEIC, and IELTS. Such adjustments are perceived as offering direct practical benefits for both enhancing job application prospects and facilitating postgraduate study opportunities.

Suggestions to improve the training quality of units recruiting students majoring in Korean-related majors: Enterprise representatives recruiting graduates with Korean-related majors largely supported proposals for enhancing training quality (M>4.0), emphasising the critical need for closer collaboration with businesses and updated professional requirements. Over 80% agreed with research proposals, while 66.7% specifically supported joint scientific research and work projects to provide practical experience. The survey highlighted pervasive concerns among recruiters regarding declining foreign language skills (both Korean and English), deficiencies in soft skills, and a lack of clear career orientation among graduates, indicating significant gaps in current training and quality control.

Recruiters consistently expressed concerns regarding the observed decline in foreign language proficiency, encompassing both Korean and English, among recent graduates. As evidenced by one recruiter's observation, "Recent graduates show very weak Korean and other foreign language skills, particularly in English, along with little practical experience, lack of orientation, and low motivation. Their ability to apply knowledge in real work situations is significantly weaker than what is assessed during recruitment sessions" (Recruiter 1). This highlights a fundamental discrepancy between academic preparation and the linguistic competencies demanded by the professional environment, particularly in contexts requiring direct communication with Korean leadership. Furthermore, enterprises frequently noted deficiencies in graduates' soft skills and a generalised "lack of future orientation" (Recruiter 3). Such observations suggest that graduates often "do not understand what they want and do not have a clear direction" (Recruiter 3), which can contribute to subsequent job dissatisfaction and premature attrition within the workforce.

In response to these perceived quality gaps, recruitment departments strongly advocated for more opportunities for students to engage with real business environments and participate in internships. They emphasised the necessity for academic institutions to conduct systematic surveys on hiring needs, understand specific career requirements for Korean-related majors, and forge stronger alliances with companies in the sector. Recruiters suggested that cultivating stronger "Vietnam-Korea connection programs, organising business exchanges, and establishing clubs" could enhance student proactivity and communication skills (Recruiter 4). Additionally, establishing active alumni organisations was proposed as a more effective channel for connecting students with job opportunities and fostering industry partnerships. Finally, there was a call for lecturers to guide students in "exploiting Korean data sources outside of the classroom" (Recruiter 2), promoting more practical and self-directed learning to ensure graduates possess competencies beyond basic communication for professional settings. These recommendations collectively stress the imperative for a more industry-integrated and practically oriented educational framework to better meet employer expectations.

5. Recommendations

To enhance the quality of education in Korean-related majors, this study suggests that universities focus on the following four areas: prioritising career orientation and guidance, job market demand-oriented curriculum improvement, strengthening collaboration with industry, and enhancing alumni connections and support activities.

5.1. Prioritising career orientation and guidance

Both students and recruiting companies emphasised the importance of stronger career advising during university studies. Employers observed that students pursuing careers related to Korea often lack clear career direction, leading to insecurity and inadequate preparation during the hiring process. Without clear objectives, students face challenges in securing employment, as over 76% of employers prefer candidates with 1-2 years of experience, according to TopCV's 2023 research [22]. This lack of orientation results in demotivation, poorer academic performance, and a higher percentage of graduates working outside their field, which lowers their salaries and delays skill development. The report recommends integrating career mentoring into education, focusing on essential topics such as social insurance, tax awareness, labour market trends, and Korean-Vietnamese corporate culture. This proactive approach would better prepare students for the job market, increasing their employability and confidence.

5.2. Job market demand-oriented curriculum improvement

Curriculum improvement should aim to equip students with the knowledge and skills required to meet job market demands. Recent graduates in Korean Studies or Korean Language majors often lack foreign language proficiency and the initiative to apply their knowledge effectively in the workplace. Recruiters have noted that graduates' creativity and language skills are not sufficiently developed. Educational institutions should update their curricula by benchmarking against those of other universities, ensuring relevance to students' future careers, with greater emphasis on practical applications rather than theoretical content. Enhanced access to resources such as books, e-books, and digital libraries is also essential and can be facilitated through collaborations with Korean universities. Korean-related majors in Ho Chi Minh city universities currently focus significantly on Korean Language (50%), reflecting the demand from numerous Korean companies in the region. This aligns with the city's role as an economic hub where Korean proficiency is highly valued for practical work applications. Training programmes should therefore emphasise workplace-relevant language skills and understanding Korean-Vietnamese corporate culture. Aligning curricula more closely with the expectations of enterprises, especially those with Korean affiliations, is critical for improving graduate outcomes.

5.3. Strengthening collaboration with enterprises, especially those that frequently recruit the institution's graduates

The provisions of the modified Law on Higher Education (2018) and Resolution No. 19-NQ/TW (2017) of Vietnam encourage greater collaboration between enterprises and vocational education institutions, with the goal of involving businesses in curriculum development, providing internships, and monitoring students' progress [23]. However, research findings reveal a gap between these policy intentions and their real-world application, particularly in higher education and the Practice-Oriented Higher Education (POHE) model [24]. This issue is also evident in Korean-related fields, where cooperation between educational institutions and enterprises remains limited. To address this, universities need to move beyond formal agreements into actionable collaborations. Universities should invite speakers from Korean or Korean-affiliated companies, especially those with established agreements, to provide career guidance, conduct practical lectures, and facilitate direct interaction between students and enterprises. Strengthening these partnerships is essential for aligning curricula with industry needs and improving job outcomes for graduates.

5.4. Strengthening alumni connections and alumni support activities

This study achieved only 46.5% valid responses from alumni of Korean-related majors, falling short of the target. Most respondents were from recent graduating classes (K2018 and K2019), highlighting weak connections between alumni and educational institutions. Establishing strong alumni associations is essential for strengthening ties, enhancing the institution's image, and supporting student employment.

In Korean society, alumni associations play a vital role in career opportunities, collaboration, and maintaining connections between enterprises, educational institutions, and students. In Vietnam, an example from Lac Hong University showed that strengthening alumni activities boosted its graduate employment rate to 96% within six months in 2019, up from 78% five years prior. Lac Hong University also emphasised the critical role of alumni in the success of its programme [25].

As many key recruiters of Korean graduates in Ho Chi Minh city are alumni, particularly those in management positions, it is crucial to strengthen alumni connections. Ho Chi Minh city actively participates in global university rankings such as QS (Quacquarelli Symonds World University Rankings) and THE (Times Higher Education World University Rankings), which consider factors like graduate feedback and employment rates. QS rankings also assess alumni activities and their success [26].

These rankings have led many local universities, especially Ho Chi Minh city National University, to acknowledge the importance of alumni and their associations in enhancing rankings. For example, the Korean Studies Alumni Association at the Ho Chi Minh University of Social Sciences and Humanities has improved the faculty's visibility and created scholarship and employment opportunities for students. Alumni associations and educational institutions should work together to organise events such as professional seminars, business networking opportunities, scholarships, soft skills training, and career mentoring to provide additional support for students.

6. Conclusions

This study examines the current employment situation of students majoring in Korean-related fields in Ho Chi Minh city, incorporating perspectives from graduates and recruitment enterprises. The findings indicate a high employment rate, with most graduates securing jobs within a year, particularly in domestic and foreign enterprises across various industries. However, a potential trend shows an increasing number of graduates working outside their major. While students generally express satisfaction with their training, they raised concerns about the lack of reference materials and the need for more updated and practical teaching methods.

The research provides valuable insights for training units and lecturers, offering guidance on aligning teaching materials with the needs of students, employers, and other stakeholders. By fostering greater interaction between universities, students, and recruitment organisations, the study highlights key areas for improvement in the education of Korean-related majors moving forward.

Although this study has limitations due to not achieving the intended number of survey samples, it effectively summarises the employment situation of recent graduates in Ho Chi Minh city who majored in Korean Studies or Korean Languages and

Cultures. It establishes a foundation for future research that focuses on graduates from specific training institutions over a longer period, as well as on the employers recruiting in this sector. By adopting this approach, educational institutions will be better equipped to understand and implement changes to teaching strategies, training curricula, and faculty qualifications to meet the evolving demands of students and employers.

CRediT author statement

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COMPETING INTERESTS

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The *Other* Ones: Inter-generational conflicts over non-conforming romantic relationships of the 1.5- and second-generation in Vietnamese diaspora in the Czech Republic

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Abstract:

To comprehend how varying levels of acculturation and diverse socio-cultural values generate different forms of otherness within the Vietnamese diaspora residing in the Czech Republic, this article examines two types of intergenerational conflicts: those related to inter-ethnic heterosexual relationships and those related to inter-ethnic same-sex relationships. Drawing on analytical data obtained through in-depth and semi-structured interviews with individuals from the first, 1.5, and second generations, the article posits that the majority of first-generation Vietnamese individuals in the Czech Republic strongly oppose the inter-ethnic heterosexual relationships of the 1.5 and second generations. Members of the first generation believe that such inter-ethnic relationships can disrupt the socio-cultural unity of the family and jeopardise their transnational family business networks. They also exhibit pronounced homophobic tendencies, perceiving homosexuality as a contagious illness, a curse, or a consequence of the parents' bad karma. Nevertheless, to conceal their children's homosexuality from the diaspora and the rest of the family in Vietnam, parents prefer same-sex inter-ethnic relationships over co-ethnic ones.

Keywords: **inter-generational conflicts, LGBT+ community, romantic relationships, Vietnamese diaspora.**

Classification numbers: **4.1, 4.2, 4.3**

1. Introduction

"Oh no, I lost my girl forever" (Huong, female, age late 40s, restaurant owner, Olomouc).

This was the immediate reaction of a female owner of a luxury Vietnamese restaurant upon learning about her 21-year-old daughter's romantic relationship with a Czech boy. The mother urged her daughter to end the relationship and find a Vietnamese partner. However, the pressure only resulted in a prolonged conflict between them, while the daughter continued her romantic relationship. Her husband's reaction was even more direct. He could not fathom the idea of his daughter having intimate relationships and children with a Western man (*người Tây*). The thought of mixed-blood grandchildren was particularly displeasing to him (Dang, male, age late 40s, Olomouc).

At the same time, we interviewed a homosexual Vietnamese-Czech young man who had just come out to his mother, whose reaction was unexpectedly calm. Due to the boy's behaviour, the mother had suspected that her son might be homosexual. Surprisingly, she was prepared to accept her son's sexuality but requested that he not inform his father, who might need more time to come to terms with the situation. She also advised her son to keep his sexual orientation hidden from the extended family in Vietnam and the community in the diaspora, explaining, "It may cause us a lot of trouble that we (the family) are not ready to face" (Tuan, age late 20s, artist, Prague).

The research indicates that intergenerational conflicts concerning inter-ethnic relationships are common in the diaspora. Parents usually fear that if their children marry a Czech partner, they might lose the ability to communicate with their children-in-law, grandchildren, and the groom's parents. Two additional concerns were also frequently reported. First, the belief that inter-ethnic relationships could jeopardise the participation of the 1.5- and second-generation in the family business, which is supposed to provide the parents with a certain degree of socio-economic security during their old age. Second, the desire to preserve ancestral rituals and ensure the continuation of the patrilineal family line. However, the research revealed that these concerns do not fully explain the complexity of intergenerational conflicts over inter-ethnic and same-sex relationships within the Vietnamese diaspora.

Looking at the existing literature, we see that conflicts within the Vietnamese diaspora have been extensively studied. K.T. Dinh, et al. (1994) [1] show that conflicts in

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migrant families result from generational gaps, different levels of integration, and acculturation among the generations [2, 3], which are often exacerbated by differing visions of the individual's role within the family or kinship network [4]. These issues have been identified among the Vietnamese diaspora living in the U.S [5-10]. However, they appear to be even more pronounced in Australia, Canada, and Poland, where the bicultural identity of the second generation leads to intra- or inter-generational conflicts [11-13]. In the Czech Republic, the various adaptation strategies, work and living conditions, and specific ethnic economy in the diaspora lead to a range of integration problems and feelings of temporality among first-generation Vietnamese migrants, but they indicate very little about intergenerational conflicts [14-22]. Another set of studies revealed that the majority of Vietnamese families in the Czech Republic sent their children to Czech nannies. As a result, the 1.5 and second generations in the Vietnamese diaspora internalised Czech socio-cultural values, leading to different cultural orientations across generations within the diaspora [23, 24]. In this context, language and cultural barriers, combined with the parenting style of the first-generation Vietnamese, contribute to distance and potential conflicts between the 1.5- or second-generation Vietnamese in the Czech Republic [25]. The main intergenerational conflicts seem to be over the education of the 1.5- and second-generation, their romantic or marital relationships, and inter-cultural skills [26]. The underlying reason for these conflicts is ensuring the socio-economic security of family members, both in the country of origin and in the country of destination [27].

However, our data indicate strong homophobic tendencies among respondents from the first-generation Vietnamese community in the Czech Republic. Twenty-one out of thirty respondents consider homosexuality to be a curse, bad karma, or a contagious (but curable) illness. For parents, having a child in a same-sex relationship is a source of shame in the diaspora or back home in Vietnam. They often push their children towards treatments intended to reverse their sexual orientation and try to persuade them to have a family and offspring, regardless of the child's sexual orientation. As such, we expect that these intergenerational conflicts over same-sex relationships and the rejection of LGBT+ children might be much stronger and more emotionally charged than conflicts over heterosexual inter-ethnic relationships.

To better understand these conflicts and the various forms of otherness that produce them, we were inspired by the call of M. Lopatkova, et al. (2022) [25] to conduct "an in-depth study on Vietnamese parents' preferences concerning their children's marital partners". However, our research goes a step further by examining intergenerational conflicts over inter-ethnic heterosexual and same-sex relationships to elucidate the underlying reasons, reactions, and attitudes of parents toward their children's non-conforming relationships.

The article[1] argues that conflicts over non-conforming relationships (whether inter-ethnic or non-heterosexual) are - albeit with varying intensity - essentially about the survival of the diasporic family as a transnational institution providing its members with a certain degree of socio-economic security. Furthermore, it shows that the reasoning of first-generation individuals in opposing non-conforming relationships is based not only on the socio-economic needs of family members but also on traditional cultural values, religious beliefs, and superstitions. In this sense, the intergenerational conflicts over the romantic relationships of the 1.5- and second-generation Vietnamese in the Czech Republic can be seen as a negotiation of new diasporic socio-cultural norms distinct from those in both the host society and the country of origin. Nevertheless, there are some differences: while both types of non-conforming relationships are problematic from a socio-economic and cultural point of view, in the case of LGBT+ children, the religious aspect seems to be more prominent. Additionally, to hide their children's same-sex relationships from other members of the diaspora or to avoid the problematisation of these relationships, parents actually prefer inter-ethnic romantic partners for their LGBT+ children.

2. Theoretical framework

At a theoretical level, the article delves into a discussion focused on the concept of the outlawed wolf-man as reinterpreted by P. Horton, et al. (2019) [28]. In their reinterpretation, the outlawed wolf-man is portrayed as a "paradigmatic embodiment of possibilities for change and multiple becomings" [29], challenging centralised socio-cultural norms within the family and society at large [28]. This article employs a mixed-methods approach to demonstrate how socio-cultural norms can influence the recognition of LGBT+ children by their diasporic families. It argues that the paradigmatic embodiment of the wolf-man skilfully utilises Vietnamese traditional socio-cultural norms to negotiate recognition by family and society.

This article compares homosexual and heterosexual individuals living in inter- and intra-ethnic relationships. In this context, we clarify the core terminology employed in our final analysis. Homosexual individuals are defined here as those who experience enduring romantic, emotional, or sexual attraction to people of the same sex. However, the authors adopt an anthropological understanding of the term - not solely as a universal social category that has historically been subject to pathologisation or criminalisation [30], but also as a dynamic identity shaped by historical, cultural, and political contexts [31, 32]. Heterosexual individuals are understood as those who experience enduring attraction toward individuals of the opposite

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sex. The authors recognise that, within dominant biomedical and psychological discourses, heterosexuality is often constructed as the normative or default sexual orientation [33].

At the same time, the inter-ethnic relationships are defined as romantic or sexual partnerships between individuals of different ethnic backgrounds - in this study, primarily between Czechs (or more broadly Europeans) and Vietnamese. These relationships may reflect broader social dynamics, including assimilation processes, cultural boundary negotiation, and racialised power structures [34]. Intra-ethnic relationships, by contrast, refer to partnerships between individuals who share the same ethnic background - here, Vietnamese. Such relationships often function as sites for the reproduction of cultural norms, kinship obligations, and ethnic identity, particularly within diasporic and migrant contexts [35].

The term "inter-ethnic same-sex relationships" is also employed, referring to intimate partnerships between individuals of different ethnic backgrounds who identify with same-sex desire or orientation. These relationships are frequently shaped by intersecting dynamics of race, gender, sexuality, and class, and often challenge both homonormative and ethnonormative structures [36]. In contrast, intra-ethnic same-sex relationships occur between individuals who share the same ethnic background and engage in same-sex intimacy. Compared to their inter-ethnic counterparts, these relationships are often shaped by culturally specific understandings of gender roles, family expectations, and the politics of visibility and respectability within their respective ethnic communities [37].

At the theoretical level, this article engages with the concept of LGBT+ and explicitly refers to individuals as LGBT+ children. We acknowledge that our analysis does not encompass the full spectrum of sexual orientations and gender identities typically included under the LGBT+ umbrella - that is, those identities that fall outside heterosexual and cisgender (i.e., assigned at birth) norms, such as lesbian, gay, bisexual, and transgender, or other sexual and gender minorities, including queer, intersex, asexual, non-binary individuals, and more [38].

Throughout discussion, the authors refer to those individuals whose identities, practices, or relationships challenge - or at least do not conform to - dominant binary conceptions of sex, gender, and sexuality that are themselves shaped by the socio-cultural environments of their surrounding societies [39, 40].

Key concepts used in this article include precarity, acculturation, and social location [41]. Existing research indicates that each diasporic generation experiences its own form of migrant precarity. To address this, diaspora members strive to improve their socio-economic status while gaining recognition from society, family, and fellow diaspora members [26, 27, 42]. In the diasporic context, various social agents, such as individuals, capital, and the state, create power relations that produce inequalities and allow political exclusion, economic exploitation, and social subjection [43-45]. Central to these power relations are class, ethnicity, race, and, in some countries, caste, defined by socio-cultural and economic norms [46-48], slowly changed by the circulation of economic and symbolic capital [49, 50].

In enhancing the social location of migrants, the circulation of material and symbolic forms of Bourdieu's capital through remittances and social support within families is crucial [46, 51-53]. Social location results from presenting oneself within social networks - family and kin - with material support and symbols of success. The younger generation must not only provide material support but also demonstrate a successful life career. However, inter-ethnic and same-sex relationships often conflict with the traditional cultural norms upheld by the mainstream discourse within the Vietnamese diaspora, which is in the Czech Republic dominated by first-generation migrants [54]. Consequently, young diasporic individuals must negotiate relationships with parents who prefer co-ethnic heterosexual partnerships for their children [26, 27, 55]. In this process, LGBT+ representation on social media platforms connected to both Vietnam and the Vietnamese diaspora has played a significant role. These platforms offer spaces where young people express opinions shaped by the comparatively less traditional socio-cultural norms of Czech society, contributing to the reshaping of public consciousness and a reduction of stigma, particularly among youth [56, 25]. In this context, it is important to note that resisting heteronormativity and negotiating strong traditional family values becomes more feasible when social media discourse unfolds within a distinct socio-cultural setting - such as a country more tolerant of LGBT+ identities [57, 58]. However, adopting alternative socio-cultural norms creates intergenerational tensions and conflicts within diasporic families.

The article demonstrates that in diasporic contexts, socio-cultural normativity is not solely controlled by the broader society. Diaspora members transplant, transform, and establish socio-cultural norms from their country of origin, utilising them to challenge the host society's norms, slowly evolving through ongoing intra-diasporic discourse.

The first-generation Vietnamese individuals in our research are primarily those who arrived in the Czech Republic during the 1990s and 2000s. These individuals and their families have been significantly influenced by the exclusion of LGBT+ individuals from Vietnamese society during the 1990s, a response to the HIV epidemic and associated campaigns against homosexuality, prostitution, and drug addiction [59-61]. Isolated from changing social discourse in both their origin and destination countries, they slowly accept more LGBT+-friendly norms, displaying strong homophobic attitudes. They also strongly prefer co-ethnic marriages for their children, considered safe for transnational family cohesion. However, from the research, we see this attitude mixed with older perceptions of homosexuality coming from traditional Vietnamese society. In pre-colonial Vietnam, homosexuality was broadly tolerated, as in any other Sinicised society. During that time, the main social virtue was filial piety, this concept ruled the children not only to care for their parents when needed, but above all to continue the paternal lineage of their families. Homosexual relationships belonged to socially defined relationships of friend to friend. In this domain, the child fulfilled all the others' social duties toward the family; he was free to do whatever he pleased [62]. Also, in our research, we can see that for the parents of LGBT+ children, the most important request is to fulfil filial duties, especially to produce the family offspring and financially support the other family members. The family will still accept these children despite their nonconforming sexual orientation.

In this sense, the article highlights how LGBT+ children use the host state's socio-cultural norms to lessen the impact of diasporic gender and sex-normative attitudes. While facing various forms of otherness, they remain tied to family power dynamics rooted in traditional Vietnamese ethics. To gain family acceptance of their sexuality, diasporic children employ strategies identified by S. Mathisen (2022) [63]: 1) keeping strategic silence to preserve family reputation; 2) renegotiating gender norms by refusing marriage; 3) excelling academically and pursuing successful careers to prove themselves as model citizens despite their queer identities; 4) invoking familial love and harmony to fight for recognition and acceptance.

In this way, the article illustrates that the outlawed wolf-man, portrayed as challenging centralised socio-cultural norms [28], actually uses Vietnamese traditional norms - especially filial piety - to prove himself as a socially valuable member of his family, seeking acceptance rather than challenging and changing those norms.

3. Methods

This study adopts an ethnographic approach, incorporating interviews with 78 members of the first-generation Vietnamese and their children, along with long-term participant observations conducted in five families over five years (2019-2023). The dataset was further enriched with interviews involving homosexual members of the 1.5- and second-generation Vietnamese Czechs, which were conducted between 2019 and 2024. For the final analysis, comparing two types of intergenerational conflicts: those concerning inter-ethnic heterosexual relationships and those concerning inter-ethnic same-sex relationships, we limited our analytical data to the in-depth and semi-structured interviews of 20 heterosexual and 18 homosexual members of the 1.5- and second-generation Vietnamese Czechs, 30 members of the first-generation Vietnamese living in Brno, Prague, and Olomouc for analysis.

The 1.5- and second-generation Vietnamese Czechs are young individuals who were either born in the Czech Republic or arrived at an early age. Our research follows M. Zhou, et al. (1994) [6] categorisation, which defines the 1.5-generation as those who arrived between the ages of 5 and 12, and the second generation as those who were born in the Czech Republic or arrived before the age of 5.

Twenty heterosexuals comprise ten females and ten males. Eight of these individuals were born in Vietnam and moved to the Czech Republic between the ages of 3 and 7, while the rest were born in the Czech Republic. Eighteen respondents have Vietnamese parents, and two have Vietnamese fathers and Czech mothers. Four interviewees could not speak Vietnamese, but all were fluent in Czech and English. Among the interviewed members of the 1.5- and second-generation, there were five couples (3 of which were married) and ten singles, all with experiences in romantic relationships. The numbers of their ex-partners varied significantly, ranging from 1 to 7 (with girls averaging three partners and boys tending to have 5). The respondents' ages varied from 18 to their mid-30s, with a fairly even distribution across the age range. Twelve people had a university education, at least at the bachelor's level, while the remaining eight did not seek higher education. One-third of the respondents were students, but all had work experience in various fields, such as the service sector, administrative positions, self-employment, and the arts.

The 18 homosexual respondents from the 1.5- and second generations ages ranged from 20 to 31, with 8 having university degrees and 10 with a high school education. All of them had work experience, with 6 still being university students at different levels. Eight worked in administration positions, 3 in the creative industry, and the rest in various service industries. Eleven were in romantic relationships, 4 had been in one, and 3 had never experienced a relationship (although one of the three had come out to his family). Eleven had fully come out to their parents and friends, while three had partially come out (2 to both parents and 1 to close friends, from whom the information leaked to the parents). All respondents either have or plan to have inter-ethnic romantic relationships, with only two dismissing the idea of having a relationship within their own ethnicity.

Among the respondents of the first generation, there were 8 couples and 4 individuals. Three of them came to the Czech Republic before 1989, 8 during the 1990s, 4 in the 2000s, and 5 after 2010. Among these individuals, 4 couples ran convenience grocery shops, 2 sold merchandise in big Vietnamese business centres, 4 owned Vietnamese restaurants, and 3 couples ran shops selling inexpensive clothing. It is important to note that the members of the first generation were not the parents of the respondents from the first- and second-generation.

4. Results and discussion

To help the reader fully grasp the article's arguments, it is structured into three parts. The first part explores why diasporic parents in the Czech Republic strongly oppose their children's inter-ethnic and same-sex relationships. It examines not only economic motivations and socio-cultural norms but also religious beliefs and superstitions that contribute to diasporic heteronormativity and a preference for endogamy. The second part describes and explains intergenerational conflicts between heterosexual children and their parents over inter-ethnic romantic and marital partners. Finally, the third part analyses the conflicts faced by LGBT+ children regarding their inter-ethnic same-sex relationships. The conclusion recaps the key findings and engages in epistemological discourse with other authors.

4.1. Socio-cultural values and heteronormativity among the first-generation Vietnamese migrants in the Czech Republic

In the Czech Republic, first-generation Vietnamese migrants encounter various forms of migrant precarity, such as indebtedness, socio-cultural and language barriers, and limited access to state-organised social services [14, 42, 64]. To counter their precarious situation, these migrants often establish family-oriented businesses, including restaurants, grocery stores, and convenience shops [14, 27]. In planning for material security during retirement, parents commonly aim to transfer their well-established businesses to their children, anticipating the children's material and emotional support in their old age. To ensure the smooth functioning of the family system, parents need to socialise their children into this family system and ensure a certain degree of socio-cultural homogeneity across the diasporic generations [27].

Since medieval times, traditional Confucian concepts of filial piety (*hiếu* 孝) and loyalty (*trung* 忠) have been instrumental in socialising subjects into the socio-political system [65]. Interestingly, even today, the two main moral imperatives of *hiếu* are still employed to bind children to the family system: 1) to provide one's parents with good care, especially during their old age, and 2) to maintain the paternal family line [66-68], including ancestor worship [67, 69]. *Hiếu* is also a key concept in parental efforts to socialise their children within the diasporic socio-cultural environment [70, 71]. For example, Vietnamese parents often associate affection/sentiment (tình cảm) with filial piety and use shaming to teach children about their various duties towards their parents, family, and kin - not only in Vietnam but also in the diasporic context [26, 65]. The goal is to instil similar family values in the children and prepare them to sacrifice a part of their own individual interests for the well-being of their parents and kin [27]. Parents typically succeed in persuading their children to provide them with material care as they age:

"My mother always told me that when she gets old, she wants to be with her own family. My father passed away a few years ago, and as the eldest son, I know that eventually, I will have to bring my mother into my own family... That's just how it is for us, Vietnamese people. The elderly can't even imagine not passing away at home, surrounded by family... My mother always said that only a good child can be a good person. I am fully prepared to take care of her... I usually date Czech girls, but they are not willing to live with my parents. I hope my future wife will be okay with taking care of my mother; it means a lot to me" (Hung, male, age late 20s, Prague).

The majority of the 1.5- and second-generation individuals (28 out of 38) can envision taking care of their ageing parents if necessary. However, most of the interviewed parents (24 out of 30) view inter-ethnic marital partners of their children, who come from different socio-cultural backgrounds, as a threat to the family's system of social security for the older generation. They are particularly concerned that, due to Czech individualism, they would not be allowed to live with their children's family when they are old. It is also possibly for this reason that they fear losing the cultural roots of the paternal family line (20 out of 30).

In the traditional (Northern) Vietnamese ancestral cult, only male members of the family (typically the eldest son) are deemed capable of properly worshipping the ancestors and providing them with all the necessary offerings for their afterlife [72, 73]. It is believed that through these offerings, the deceased ancestors will safeguard the family and contribute to its prosperity [74]. Our research indicates that the ancestor cult continues to hold significant weight among diaspora members. The majority of respondents from the first generation (26 out of 30) fear that Vietnamese-Czech culturally mixed families will not be able to produce offspring willing to participate in the ancestor cult. However, they usually hope that sending the grandchildren back to Vietnam would suffice to help the child internalise Vietnamese socio-cultural skills necessary for preserving the family's cultural homogeneity, including worshipping ancestors.

Even more importantly, the ancestral cult emphasises the necessity of continuing the paternal family line. Our research indicates that this is the main reason parents view having a homosexual child who does not have offspring as the most unfavourable social reality for the family:

"Homosexuals (Pe De), it's a true disaster. They have no (grand) children. You see, there will be no one to pray for us, and then, we will become wandering souls. Like homeless, cold, and hungry. Nobody wants that to happen" (Duong, female, age early 50s, Olomouc).

Similar to individuals in Vietnam [69], the majority of Vietnamese-Czech parents (21 out of 30) view homosexuality as a contagious and challenging yet treatable illness or affliction [75], a form of bad family karma [76], or a curse upon the family. They typically believe that having a homosexual child is a parental error[2]. When discussing homosexual children, Vietnamese-Czech parents use the pejorative term "Pe De" [77][3].

Interestingly, when asked how to "cure" their children's homosexuality, the majority of parents were unable to provide

[2]Perceiving mistakes in child-rearing as contributing to the development of homosexual behaviour in children.

[3]French origins transcription of pederasty.

a response (21 out of 30), although hormonal therapy was occasionally mentioned. However, nine respondents suggested that a dutiful and disciplined child should be able to control their behaviour, establish a family, and have children regardless of their sexual orientation. Only by ensuring the continuity of the family line can both the child and the parents fulfil the social obligations dictated by filial piety, and only then would the children be permitted to engage in same-sex relationships without tarnishing the family's reputation [68].

"I understand that he is different [homosexual]. But I truly wish for him to have a family and children. Why can't he do it? Then, he can have someone like him out there. It would be his own affair. We could even go to Vietnam and find a wife for him. There will always be someone willing to come here and become part of our family" (Dung, male, age early 50s, Brno).

At the same time, the parents (28 out of 30) prefer not to disclose a family member's different sexual orientation:

"I really don't want people to know about it. What will people say? That we are cursed, or even worse, sick and wicked. They will fear that it could spread to their own families. If your child marries a Westerner, it's not good for the family. People would already gossip about you. But everyone in the diaspora would understand. They would be compassionate. After all, there are many children like that. But if your child is Pe De, they will think it's your failure that the child turned out that way. There's no mercy; you could lose your closest friends, and they will mock you every chance they get. Every time someone wants to hurt you, they will use it against you" (Hien, female, age late 30s, Olomouc).

The research clearly indicates that keeping the sexual orientation of same-sex children secret is often linked not only to personal shame, as proposed by Q.P. Pham (2022) [69] and P. Horton (2014) [60], but also to upholding the family's good reputation as a whole [66]. Three parents even mentioned that Vietnamese businessmen are typically superstitious, and a business family with an LGBT+ child may be viewed as cursed, potentially complicating business relations with other businessmen in the diaspora. This highlights the main differences in the first-generation perception of heterosexual and homosexual inter-ethnic romantic or marital relationships. While heterosexual inter-ethnic relationships are considered problematic from a socio-economic perspective, strong diasporic heteronormativity is often connected to religious beliefs or superstitions. These are the two main reasons why Vietnamese people often conceal their children's same-sex relationships.

In the subsequent section, to illustrate the broader context of intergenerational conflicts and the negotiation process surrounding nonconforming romantic or marital relationships, the article will delve into the conflicts between parents and their heterosexual children regarding inter-ethnic heterosexual relationships. Subsequently, the negotiation and intergenerational conflicts concerning homosexual inter-ethnic relationships will be analysed and elucidated in comparison with those of heterosexual relationships.

4.2. The conflicts over inter-ethnic heterosexual romantic relationships

The 1.5- and second-generation Vietnamese individuals residing in the Czech Republic have been raised within a socio-cultural milieu markedly distinct from that of their parents' native Vietnam [23]. As a result, these generations exhibit a greater degree of integration into Czech society, characterised by heightened individualism and socio-economic independence [24, 25]. Nevertheless, they still face certain forms of migrant precarity, notably in the realm of identity formation, various manifestations of otherness, and encounter racism [42, 56, 78].

Our research corroborates the notion that identity formation among the children of Vietnamese migrants in the Czech Republic is profoundly shaped by multifaceted experiences of otherness [79] that emerge not only from the broader Czech society but also within the Vietnamese diaspora itself [26]. First-generation migrants frequently refer to members of the 1.5- and second-generation using the term *mất gốc* - literally 'those who have lost their roots' - implying a departure from the traditional Vietnamese socio-cultural environment. Confronted with this dual otherness, these younger individuals often cultivate a unique hybrid identity [79].

The research does not provide a clear consensus on whether members of the 1.5- and second-generation prefer intra-ethnic or inter-ethnic romantic/marital partners. The majority of respondents indicate that the ethnicity of the partner is not a significant factor. Support, emotional understanding, and various personal qualities are deemed more critical (18 out of 20 participants). All respondents acknowledged that a co-ethnic partner might offer a better understanding of their background, yet over half of the respondents from the 1.5-generation expressed a preference for a Czech partner - often citing physical attributes as the reason. Nearly all second-generation respondents have experienced romantic relationships with Czech partners. Concurrently, they are all cognizant of their parents' preference for a co-ethnic partner. The research suggests that these divergent preferences on the ethnicity of romantic/marital partners are a primary source of intergenerational conflict within the Czech diaspora:

"When I told my parents I had a Czech boyfriend, we had a big fight. My mother screamed at me, and my father told me to stop it. They invited all the relatives, and we had a serious discussion about us. They gave me a choice: my boyfriend or the family. Finally, they kicked me out. I slept at the local cemetery for about a month. After a year, when I broke up with my boyfriend and returned home, my parents seemed like they hadn't even noticed. Just imagine, they pretended like nothing had ever happened" (Hien, female, age late 20s, PR assistant, Ceske Budejovice).

This incident was not isolated; two additional individuals reported being expelled from their homes due to inter-ethnic romantic relationships, and ten respondents indicated that they were threatened with expulsion or disinheritance by their parents or family. Sixteen respondents experienced varying degrees of pressure to end their inter-ethnic relationships, including beating. It was common for families to engage in extensive discussions with other members of the family, kin, and diaspora to shame the children involved. In at least one distressing case, a parent threatened to commit suicide if the child continued the inter-ethnic relationship. Only four members of the second generation felt they had the freedom to choose their romantic/marital partners, but their parents expressed a preference for a co-ethnic partner.

Parents also employ a variety of strategies to guide their children into co-ethnic romantic or marital relationships. In the case of daughters, they often attempt to introduce them to a Vietnamese boy, typically from a wealthy family, regardless of the daughter's objections. This approach is less common with sons. The sons' sexual relationships are typically viewed as less serious. Boys are generally advised to "be careful," to avoid impregnating their Czech girlfriends, and to consider the prospect of a Vietnamese wife in the future. Parents blend requests grounded in filial piety with reminders to preserve their children's cultural heritage and concerns over the children's future socio-economic well-being:

"I told him that the beautiful blonde Czech girl was not for him. You know, only someone with a good education and a good job can afford such a beautiful girl. And him? He just finished high school. Now both (sons) work in my shop. We can make good money, but we have to work hard all day. I always told him that she is not for him. Can you imagine her helping him in the shop? Look at her makeup and her dyed hair. She will not stay in the store when he buys goods. A Vietnamese girl, a hardworking one, is what he needs. He used to get angry when I talked to him like this. But now he is more with his Vietnamese friends, and I think he has started to understand what I am telling him" (Manh, male, age 50s, Olomouc).

A majority of the children (13 out of 20) perceive that there is likely to be greater pressure on either the eldest son or an only daughter. However, the study does not indicate pressure directed explicitly towards the eldest sons of the family. Instead, the level of pressure exerted by parents on their children typically hinges on the parents' personalities and adherence to traditional values:

"I am already 51 years old, and this was my only son (before, I had only daughters). Now he is 15, and there is no way he marry a Czech. I want someone to pray for me, he will have a Vietnamese bride... In the worst case, I will send him to Vietnam until he falls in love with someone" (Dat, male, age 50s, Brno).

Even children of very conservative parents typically report that their parents exert power over each child equally. In four cases, children mentioned that, after strongly advocating for a partner of the same ethnicity, the parents ultimately accepted the inter-ethnic partner of their older siblings. Subsequently, the parents displayed more tolerance towards inter-ethnic relationships of the younger children. However, in another five cases, parents exerted even more pressure if they were unsuccessful in convincing the older children.

One of the frequently cited reasons why parents prefer co-ethnic partners is the emphasis on family cohesion and the perception that Czech people are unwilling to care for their elders. According to the parents, Czech people are viewed as too individualistic, and the high divorce rate in Czech society raises doubts about the stability of inter-generational families. While these arguments are respected by the children, they often counter that these views reflect the situation in Czech society from ten years ago and that they themselves share similarities with Czech people. At the same time, nearly all the children express shock at their parents' methods and persistence. In their view, the parents have no right to dictate their life choices (18 out of 20). Eleven respondents firmly stated they would not comply with their parents' wishes, while 5 respondents were unsure if they could resist parental pressure. The remaining 4 individuals ultimately chose a co-ethnic partner (not necessarily due to parental preferences).

In 10 cases, parents eventually accepted the inter-ethnic relationship. In the remaining 6 cases, the children continued to negotiate with their parents while dating either co-ethnic or inter-ethnic partners. The research indicates that neither the children nor the parents desire to permanently sever family ties, but both parties express a willingness to consider contemporary separation as a means to persuade the other. Fourteen respondents mentioned that, if necessary, they would temporarily limit their parents' visits to diffuse tensions. However, obtaining parental approval for their relationship was deemed important by nearly all respondents, particularly the girls.

Overall, parents who have resided in the Czech Republic for a longer period exhibit greater tolerance towards inter-ethnic relationships. However, there are no significant differences observed among parents who arrived after 2010. These individuals demonstrate a stronger determination to encourage their children towards co-ethnic marriages. In cases of inter-ethnic relationships, parents are not hesitant to disclose the situation to other members of the diaspora, who typically offer sympathy and support during the negotiation process.

The study revealed a strong inclination among parents for their children to form co-ethnic relationships. The research indicates that this preference for co-ethnic marital unions arises from a desire to maintain the family as a culturally cohesive social institution, which is intended to provide elders with a certain level of socio-economic security. This finding aligns with existing research. However, in the following section, we will demonstrate that when navigating their children's homosexual relationships, parents may prefer inter-ethnic romantic or marital partnerships. The reasons for this preference may differ, potentially being more culturally rooted or influenced by religious or superstitious beliefs.

4.3. The conflicts over homosexual romantic relationship

The situation of homosexual children is more complex. Similar to their heterosexual counterparts, they are part of three fundamental social entities: the family, diaspora, and state (more precisely, the society at large in the host state). They also face various forms of exclusion and otherness, leading to the difficult formation of their cultural identity [57, 69, 80]. As in Vietnamese society, non-heterosexual sexual orientation is identified as the most significant source of otherness in the diaspora. Homophobia also exists in Czech society [81], but racism and xenophobia appear to be more prominent sources of otherness:

"Something like phags phooey, do it at home. Yes, people sometimes say that in public. But they usually react more negatively to the fact that I am Vietnamese than to me being gay. It is the same as in the Netherlands. When I lived there, people were more negative about my Asian origin than about my sexual orientation. This surprised me" (Dung, age 30s, PR agency, Prague).

Simultaneously, the research indicates that children utilise state-sponsored sexual norms and ethics to challenge diasporic heteronormativity [63, 82] and strive for acceptance within the family. In our study, (11 out of the 18) LGBT+ respondents disclosed their sexual orientation to their parents and expected the parents' acceptance of their sexual orientation, but they expressed no desire to seek approval from diasporic members and rather aimed to protect their parents' reputation (17 out of 18).

"Have I come out to the diaspora? No, I do not want anyone to know. But I had a trusted Vietnamese friend, a woman from my mother's generation. I asked her for her opinion when I was about to come out to my parents. But she told everything about me to the whole market in Brno. Finally, she told my mother that I was the result of my mother's bad karma and lifestyle. My mother gave her a taste of her own medicine when she referred to her own eldest son who has a boyfriend [...] Since then, I have not spoken to that person [...] No one attacked me in the market, but I am not sure if they said anything to my mother" (Tuan, age late 20s, graphic designer, Prague).

In Vietnamese society, homosexual children often choose to live in major cities to keep their sexual orientation hidden from their families and to safeguard family honour in front of the community and relatives [63, 83]. Similarly, Vietnamese Czech individuals from the 1.5 and second generations who are homosexual frequently maintain a strategic distance by residing in large, anonymous cities. This approach helps prevent the disclosure of their sexual orientation not only to their parents but primarily to the diaspora (17 out of 18), as such revelations could bring shame upon their families. Living in major cities also provides more opportunities to find suitable same-sex partners and access higher-paying job opportunities, which is essential for cultivating a favourable social image within the family and diaspora:

"In order to leave our small town, I enrolled in Charles University in Prague. My parents were proud of my achievements in my studies, but for me, it was freedom. I could do whatever I wanted with whomever I wanted, and no one would question me or tell my parents about it. [...] Later, I stayed in Prague to work for an international company. My salary was high, and my parents were happy. But that was not important to me. While I was studying, they asked me about the girls, especially my mother. One day we were talking and suddenly she asked me about the girls. I was in a bad mood that day. I have no romantic relationship, and I cannot bear her questions. So I told her. Actually, I screamed at her that I had no one and that I did not want a girl. She then asked what I wanted. I just screamed, A guy! She just smiled sadly and told me: I know. I immediately regretted it. But then a miracle happened. We talked about me, and at the end of the day, she told me it was okay but advised me not to tell my father. She promised to prepare him. Since then, he (the father) never asked me about the girls, but acted like he knew everything" (Tuan, age late 20s, artist, Prague).

While residing in major cities, away from the family and diasporic environment, children typically engage more with society at large, and nearly all respondents express a preference for inter-ethnic partners. The research suggests that the preference for inter-ethnic partnerships could be a response to the prevalent diasporic heteronormativity, and also a strategic way for children to demonstrate their alignment with broader socio-cultural norms in society. This alignment may facilitate parental acceptance of their children's same-sex relationships. Additionally, the study reveals that children are not primarily concerned with state recognition. Living in major cities with much more LGBT+-friendly environments provides them with arguments to challenge diasporic heterosexual norms and engage in negotiations for recognition as respected members of the family. When struggling for the parents' acceptance of their sexuality, the children usually point out that "they are not doing anything bad or illegal" and explain that their sexual orientation is not against the socio-cultural norms in the Czech Republic. Simultaneously, they strive to meet other expectations of caring-child or to achieve a high social status. The children often come out to their parents, sometimes even before attaining the desired high social status (4 out of 18). On the other hand, they maintain a strategic distance from the diaspora. As queer individuals in Vietnam [63, 82], they do not directly challenge diasporic heteronormativity. Instead, by being good children and model citizens, they seek to earn recognition, acceptance, and approval from their family members.

Despite the careful preparation, coming out is always extremely stressful for the parents. One mother of a homosexual boy expressed her experience as follows: "For me, it was a shock. I could not believe it. I felt empty. In fact, I thought I had lost him. I could not sleep for a time, and I did not dare to tell my husband about it." Upon hearing about their children's sexual orientation for the first time, parents typically confront the children. Depending on the circumstances, the parents' reactions vary. Severe disputes with parents, including physical attacks, inheritance, expulsion from home, or permanent breaking contact with the family, were reported. If the information is/or becomes public, parents may arrange large family meetings and councils aimed at addressing or "curing" the children's situation:

"For me, the worst reaction came from my aunt. She asked me if I was sure that I was not missing hormones, but I told her that I do not get sexually aroused when I see women. She replied that I should take some pills and just do it. I felt very uncomfortable with her and ended the conversation. I told the family that this is the way it is. Since then, I have not spoken to her" (Hung, age mid-30s, manager, Brno).

If the child's sexual orientation is not public knowledge, parents may resort to more subtle, persuasive, and less confrontational methods to address their children's sexuality. Parents may discreetly arrange chance encounters for their children with individuals of the opposite sex, typically from the same ethnic group. They may also request that their children conceal their sexual orientation, enter a heterosexual marriage, and start a family. In exchange, the parents promise the child the opportunity to engage in a same-sex extramarital romantic relationship. Surprisingly, the research uncovered a preference among parents for their children to have same-sex partners from different ethnic backgrounds:

"My mother says it is good that my partner is not Vietnamese because of other people. If the family disagrees with his sexual orientation, it can be very difficult for us. Mother also does not want people (in the diaspora) to know about the situation. Otherwise, she does not mind. If it is a Roman, a Muslim, or a black, it might be a little bit of a problem. They would have more questions" (Quang, age 20s, student, Olomouc).

It appears that the preference for inter-ethnic partners is part of a broader strategy aimed at preserving the family's reputation, particularly in the eyes of the diaspora and other relatives in Vietnam. Over time, parents may accept the children's sexual orientation (in 4 cases) but continue to emphasise the importance of maintaining a family and having children. To uphold the family's reputation, they also hold a certain distance from their children who are in same-sex relationships. Only one of the respondents was working with her parents at the time of the interview. The remaining respondents are employed in distant cities or abroad, often still too young to fulfil their parents' desires for a family and grandchildren. Nonetheless, more than half of the respondents (11 out of 18) express a strong determination to fulfil their parents' wishes for grandchildren and to provide them with good material care.

"My brother does not want children, but I would like to have them. I am only 24, but it would be ideal to have a girlfriend who is more open. Many of my girlfriends are ambitious and working on their careers […] If one of them wanted to take a sabbatical, have a baby, and go back to work, that would be ideal. We would have a child, and she could return to a larger household whenever she needed to. Or adoption [...] This can calm my parents down, and I can be free to live my way" (Dung, age mid-20s, gay, entrepreneur, Prague).

In contrast to O. Tsedendemeberel (2021) [77], the study suggests that LGBT+ members of the Vietnamese diaspora seek to compensate for their sexual orientation by being exceptionally dutiful children rather than exemplary citizens (similar to S. Mathisen (2022)) [63]. Additionally, these individuals primarily seek acceptance from their families as the sole social institution. In the broader society, ethnic or racial backgrounds are perceived as significantly stronger determinants of otherness. It also appears that while state-promoted norms and the mainstream Czech discourse on sexuality are considered LGBT+ friendly, the overall situation remains somewhat ambiguous:

"I am not afraid to walk hand in hand with my girlfriend on the street. Negative reactions are rare, and there are usually people who protect you. The situation is not perfect, but I think people here (in the Czech Republic) are more xenophobic, not homophobic. At least, not like the Vietnamese. It happened a couple of times that a young guy tried to court both of us because he knew we were together. Crazy! (smile) As lesbians, we might be more accepting of those machos who are otherwise homophobic and aggressive, and women are usually less confrontational..." (Hien, age 20s, student, Brno).

Conversely, not only do LGBT+ members of the diaspora, but virtually all respondents from the 1.5- and second-generation (33 out of 38), perceive the diasporic discourse on sexuality as highly homophobic and in direct conflict with the social sexual norms and ethics promoted by the Czech state and its mainstream discourse on sexuality. Consequently, diasporic heteronormativity is generally viewed as inconsequential within the Czech Republic context (29 out of 38). However, in their negotiation for recognition of their sexual orientation by their parents, the children are fulfilling all the Vietnamese socio-cultural family norms to cultivate a desirable social image. Nevertheless, as indicated in the section focused on first-generation Vietnamese migrants in the Czech Republic, the socio-economic aspect appears to be just one component of the broader cultural values that shape strong heteronormativity within the diaspora. The other, potentially more significant aspect, is rooted in cultural, religious, or even superstitious beliefs. The prominence of these cultural factors in Vietnamese diasporic heteronormativity, along with the preference for inter-ethnic same-sex romantic partners, may represent the main differences observed in the negotiation processes surrounding romantic and marital relationships between the two groups.

5. Conclusions

The research identified frequent xenophobic and heteronormative tendencies (even homophobia) among the members of the first-generation Vietnamese migrants in the Czech Republic. A range of explanations exists for the xenophobic and heteronormative tendencies among first-generation Vietnamese migrants. As mentioned elsewhere in this study, one is socio-economic [26, 27]. In the host country, the migrants are facing various forms of precarity. To resist them, the first-generation migrants establish numerous family business networks. To ensure the smooth operation of these networks, parents strive to maintain socio-cultural homogeneity within their transnational families. As their children become more integrated into the host society, this insistence on socio-cultural homogeneity leads to intergenerational conflicts, particularly concerning the inter-ethnic romantic or marital relations of subsequent generations. Nevertheless, when inter-ethnic heterosexual relationships are disclosed within the diaspora, there is often a display of sympathy and supportive attitudes toward the parents. As the parents enjoy the support of other members of the diaspora, they can exert a strong push for co-ethnic partners in their children. On the other hand, having an LGBT+ child living in a same-sex relationship is often viewed as a curse, bad karma, or a disease of the whole family by other members of the diaspora. Consequently, when a child comes out, the parents are placed in a precarious situation. To protect the family's reputation, they are compelled to keep this information hidden from the diaspora and their relatives in Vietnam. As a strategy to preserve the family's image, parents may permit their child to have an inter-ethnic partner, which reduces the risk of the information being disclosed to other diasporic members. Meanwhile, parents attempt to convince their children that, regardless of their sexual orientation, they should bear children to continue the family lineage.

Echoing the findings of P. Horton, et al. (2019) [28], our research shows that in both cases - heterosexual and same-sex relationships - the pressure to marry is intrinsically linked to patrilineage. Parents of LGBT+ children often harbour hopes of persuading their offspring to produce a male heir and to ensure their descendants uphold the tradition and maintain the family line. However, the strategies employed by LGBT+ youth to normalise discussions about LGBT+ sexuality within the diaspora are particularly intriguing. By maintaining a strategic distance from the diaspora and relocating to larger cities, these individuals safeguard their families' reputations and work to accumulate enough social capital to gain their parents' acknowledgement. However, while trying to earn the parents' recognition of their sexuality, the children are behaving according to the Vietnamese socio-cultural norms, in this case filial piety, ruling Vietnamese families.

In this sense, this article does not view LGBT+ diasporic children as *homo sacers*, who can be killed but not sacrificed for any god [28]. These children appear to be positioned within Agamben's concept of the exception, as the ambiguous status of same-sex marriages in Vietnam places them simultaneously inside and outside the realm of legality [83], but still "anchored in a certain relationship" of power [84]. The article posits that homosexuality was traditionally practised within the framework of the fifth Confucian constant relationship of friend to friend and that the sexual practices themselves may not necessarily be condemned by the family. If an LGBT+ individual fulfils the fundamental duties based on filial piety [66-68], their sexual behaviours may be viewed as part of the realm of erotica [85]. As long as the children fulfil their obligations rooted in the concept of filial piety by maintaining the family lineage, caring for elderly parents, and contributing to the family's well-being, they can still be regarded as integral members of their basic social group in this case, the family. Thus, in theory, the traditional concept of Vietnamese family and socio-cultural norms may not inherently problematize homosexuality [59]. Nevertheless, the majority of our cases proved otherwise.

At the same time, this study follows M. Sinnott (2010) [86] and aims to extend the understanding of complex sexualities in the Vietnamese diaspora through the deconstruction of normativity. The findings demonstrate that LGBT+ children also leverage the traditional Confucian concept of filial piety to earn recognition from their parents and families. As in Vietnam, these children strive to be model children and citizens in order to persuade their families [87]. By doing so, LGBT+ children effectively "fulfil certain filial duties...they are capable of achieving" [63], and they assist their parents in navigating the uncertainty of being migrants by offering them material and social support. Through these actions, they cultivate an image of a respectable, relatively normal, and fulfilling existence (including in terms of sexuality) that they hope will be accepted by their parents and broader families [68].

The article concurs with S. Mathisen (2022) [63] that the "position of LGBTQ youths in society, as well as their strategies for gaining recognition, must be understood in the context of the family". However, contrasting with L. Ly (2019) [88], the article views the potential for future family and legal marriages as a means to combat queerphobia. Through this process, the legalisation of same-sex marriages could spark a new discourse on LGBT+ individuals, leading to the establishment of new sexual and social norms within the diaspora. The focal point of the diasporic family "can thus be seen as a way of expressing oneself through connections to others, constructing an identity that conforms to social norms of respectability while engaging in non-normative expressions of gender and sexuality in unconventional spaces" [80].

There are several limitations to this research. Due to ethical considerations, the authors were unable to interview both LGBT+ children and their heterosexual parents within the same family. Consequently, only one member of the first generation had direct experience raising an LGBT+ child, while others shared their experiences solely within the diasporic discursive context. To enhance the research findings, future research should better explore the ethnic preferences of the 1.5- and second-generation Vietnamese living in the Czech Republic. Also, to better analyse the role of traditional Vietnamese socio-cultural values, religion, and superstitions in the acculturation of the 1.5- and second-generation Vietnamese should be beneficial to the understanding of the Vietnamese diaspora in the Czech Republic.

CRediT author statement

Filip Kraus: Collecting data, Data analysis, Conceptualisation, Methodology, Writing, Editing; Mai Thi Thu: Collecting data, Data analysis, Methodology, Writing, Editing; Bui Hai Dang: Conceptualisation, Validation, Data analysis, Writing, Editing.

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COMPETING INTERESTS

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

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Characteristics of the cultural personality of Indians in the North and South of India

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Abstract:

Recognised globally as one of the most ancient and geographically vast epicenters of human civilisation, India possesses an immensely rich cultural heritage. Although considerable academic attention has been devoted to investigating the general effects of Indian culture on the diverse cultures within Southeast Asia, a significant lacuna remains within the existing body of scholarship. Specifically, there is a conspicuous deficiency of academic articles or dedicated works that precisely clarify and differentiate the distinct cultural influences stemming separately from the northern and southern sectors of the Indian subcontinent on Southeast Asian nations. Therefore, this article seeks to bridge this knowledge gap. By strategically utilising established theories pertaining to cultural ecology, the concept of cultural regions, and cultural typology, and employing a rigorous comparative method combined with an interdisciplinary framework and qualitative data synthesis and analysis, this study aims to illuminate the fundamental causes and key characteristics underpinning the cultural differences between northern and southern India. In doing so, it provides essential reference materials indispensable for future scholarly investigations focused on discerning the divergent influences originating from these two major Indian cultural zones on the multifaceted cultures across Southeast Asia.

Keywords: **cultural personality, cultural regions, Indian subcontinent, interdisciplinary approach, qualitative data analysis.**

Classification numbers: **9.3, 11**

1. Introduction

India represents one of the most expansive and historically significant cultural and civilisational origins of humanity, particularly within the Oriental context, alongside other notable cultural and civilisational origins such as Egypt, Mesopotamia, Persia, China, and Southeast Asia. Within the contemporary context of Vietnam, numerous scholarly investigations have been conducted to examine the impact of Indian culture and civilisation on distinct nations within Northeast Asia and Southeast Asia, as well as on the broader East Asian region. Nonetheless, there appears to be a significant gap in the academic literature concerning the exploration of the factors contributing to the disparities in the philosophical and literary attributes of the two prominent regions of South and North India. Therefore, the authors have decided to analyse the natural and social conditions to delineate the characteristics of philosophical and cultural attributes in North and South India. The article's research goal is to explain why cultural and spiritual disparities exist between North and South India. In terms of research, the concept of "cultural personality" is extremely broad. In this article, the authors focus on two typical fields: ideology and literature. When attempting to grasp a nation's cultural personality, we believe it is necessary to first understand its "cognitive culture," or its perspectives on life and the cosmos. The cognitive worldview described above has a direct impact on the field of inquiry we have chosen, which is literature. Following the colonial period, theatre and film were new arts imported from elsewhere, namely the Western world. The study seeks the rules, movement, and development tendencies that are important to the Indian cultural personality. As a result, many sectors borrowed from other countries that have not grown continuously since the creation of Indian culture will be excluded from analysis.

2. Literature review

2.1. Material

In the context of Indian culture, Vietnam possesses educational texts concerning Indian Culture and Oriental Culture [1-4]. The majority of these textbooks primarily

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delineate the foundational aspects of Indian cultural formation, tracing the evolution of Indian culture to encompass manifestations of material culture, spiritual culture, and the societal governance of India. However, in Vietnam, there seems to be a significant gap in comparative research on southern and northern India, compared to the focus on comparative research on southern and northern Vietnam as well as the focus on comparative research on southern and northern China which has long been popular in Vietnam. To elucidate the distinctions and cultural as well as spiritual attributes between the southern and northern regions of India, we have consulted a series of scholarly works on Indian literature by on Indian philosophy by scholars, and on Indian painting [5-8]. Subsequently, we employed the theories of regional culture and cultural types to systematise these findings, aiming to derive the most coherent explanations for the observable differences and characteristics in the domains of philosophical thought, literature, and painting across the southern and northern regions of India.

D.C. Güss (2011) [9] demonstrated that individuals from individualistic cultures exhibit greater confidence in analytical decision-making, while those from collectivist backgrounds rely on intuitive, socially informed strategies. In India, such dynamics are exemplified by the contrast between North Indian professionals, who often prioritise data-driven, hierarchical decision-making in corporate settings, and South Indian communities, where familial or communal consensus frequently guides major life and business choices. These patterns align with the findings of [10], who observed that North Indian respondents in managerial roles displayed higher risk tolerance in financial investments, whereas South Indians preferred risk-mitigation strategies anchored in familial advice. North India's Hindi-dominated public sphere contrasts with South India's multilingual landscape, where languages encode cultural narratives that prioritise indirect communication and relational nuance. Such linguistic differences, as argued by [11], influence cognitive styles, with South Indians more adept at interpreting implicit social cues during decision-making. Avoidant decision-making was more prevalent among North Indians in high-stakes professional scenarios, whereas South Indians demonstrated dependent tendencies. These patterns resonate with the work of [10], who identified similar trends in consumer behaviour across India's regions.

North Indian professionals in IT hubs like Gurugram exemplify analytic styles, using data-driven frameworks like SWOT analysis, whereas South Indian entrepreneurs in Bengaluru integrate nemawashi (Japanese consensus-building) with Silicon Valley agility [12]. Furthermore, Southern Indians are referred to as clever and sometimes too clever by half by North Indians [13]. These references can be assigned to ethnic origin. Indo-Aryans, residing in the North, have been experienced more warfare due to different occupations from the bordering countries which has brought a region with warriors. The Dravidians resided in the South, have not been influenced by these numerous wars until it became common to come to India by sea which the British did. Ethnicity is group belonging, and referring to the social identity of groups. The sense of belonging to an important ethnic group may override, and even nullify, the feeling of belonging to a particular nation-state [14]. However, generally, almost the aforementioned works used the lens of the theories of behaviours, and the lens of Hofstede's the onion of cultures, thus, there seems to be no works on systemised the differences in cultural personality between the North and South India from the complex of theories including the theory of cultural typologies, the theory of cultural regions, the theory of cultural diffusion, and the Gestalt psychology's theory.

2.2. Theoretical framework

A cultural region is defined as a particular cultural domain established by residential entities within a specified geographical locality of a community, which collectively engenders a system of cultural manifestations imbued with pronounced ethnic characteristics. These characteristics are articulated through the interplay of social and humanistic contexts, as evidenced in the interactions of human conduct with nature, society, and interpersonal relations throughout the continuum of historical evolution [15]. Concurrently, a cultural region is characterised as a continuous spatial entity exhibiting relatively uniform natural conditions internally while being distinctly separate from surrounding territorial expanses. It constitutes a spatial domain wherein a relatively cohesive community of individuals coexists, resides collectively, and engages in prolonged interactions and exchanges, thereby facilitating the development of a unique value system that enables differentiation from the value systems of proximate external territorial regions [16]. Consequently, a cultural region is identified as a continuous spatial domain exhibiting congruities in natural conditions, historical developmental trajectories, and a distinctive value system in contrast to adjacent external territorial expanses. The cultural region theory posited by American anthropologists contends that the culture of each ethnic group is intricately developed in conjunction with specific social environments and historical contexts [17]. Cultural diffusion theory provides an analytical framework for explicating cultural similarities, as articulated by various scholarly traditions, including the cultural-historical school and the cultural diffusion school. This theory elucidates the advancement of civilisations through the appropriation of cultural achievements and the migration patterns of ethnic groups. Moreover, cultural diffusion theory downplays the significance of human agency, placing greater emphasis on spiritual and religious dimensions, thereby adopting a predominantly idealistic perspective. F. Boas (1911) [17] cultural regional theory stands in opposition to the evolutionary paradigms proposed by Tylor and Morgan, while simultaneously critiquing the cultural diffusion theories advanced by European scholars. He meticulously examined the cultures of individual nations as they emerged historically in relation to specific geographical conditions and social environments. Furthermore, F. Boas (1911) [17] introduced the concept of cultural change, recognising that the interactions between disparate societies serve as the fundamental basis for cultural exchange and adaptation. The sociocultural practices of nations frequently draw upon neighbouring societies rather than being conceived in isolation. F. Boas (1911) [17] placed significant emphasis on the patterns of cultural borrowing across temporal frameworks, regarding this phenomenon as a vital avenue for investigating the system of cultural types that give rise to similarities in rituals, customs, music, and craftsmanship. His students, including A. Kroeber (1876-1960) and C. Wissler (1870-1947), furthered the exploration of the historical dimensions of cultural phenomena [18-19]. They appropriated a range of concepts related to cultural regions and attributes from early 20th-century German "diffusionist" anthropologists to investigate the spatial distribution of one or more cultural characteristics across diverse cultures, particularly those in close proximity, and to analyse the processes of diffusion that occur among them.

In contemporary discourse, the theoretical framework concerning cultural regions and historical-ethnic territories serves as a foundational reference for scholars engaged in the delineation of cultural areas and the categorisation of cultural landscapes. The conceptualisation of cultural regions posited by American anthropologists underscores the innovative contributions of diverse populations globally and is bolstered by scholarly endorsement. This framework posits that cultural regions emerge as a consequence of enduring cultural differentiations, attributable to the adaptive strategies employed by demographic groups in response to ecological variables; thus, an analysis of cultural regions necessitates the identification of a constellation of defining elements that collectively constitute a specific regional culture. Nevertheless, the practical implications of this theoretical perspective on cultural zoning remain limited. Since the introduction of the concept of cultural regions by American anthropologists, it has faced scrutiny from various critics who contend that the criteria employed for the segmentation of cultural regions are fundamentally arbitrary [18]. In contrast, the framework of historical-ethnographic regions articulated by Soviet ethnologists delineates the determinants influencing the emergence of such regions, the evolution of cultural traits, and synthesises the domains of both material and spiritual existence of inhabitants, encompassing factors such as geographical homogeneity, levels of socio-economic advancement, sustained intercultural exchange, and shared historical ancestries of ethnic groups within a given locale. Consequently, this theoretical approach manifests a considerable degree of practical efficacy [18].

By integrating the theoretical constructs of cultural regions and historical-ethnic territories, it becomes evident that the natural geographical milieu constitutes a fundamental basis for the development and evolution of both national and regional cultural attributes. Each distinct natural geographical locale frequently hosts one or multiple ethnic groups that assume the role of principal cultural agents, significantly contributing to the establishment of the cultural identity characteristics inherent to the region.

In the realm of methodological discourse, the theory of historical particularity posits the necessity for an empirical framework, accentuating the importance of field data collection, while simultaneously dismissing the overarching comparative methodology, and particularly underscoring the imperative of comprehensive analysis in the examination of cultural practices [18]. The theory of historical particularity dictates that cultural practices must be scrutinised through three fundamental dimensions: environmental conditions, national psychological determinants/national character, and historical contextual factors, with historical context bearing the paramount significance [18]. Culture emerges as a product of historical contingencies and the dynamic interplay between humanity and both the natural and social milieu. Consequently, any cultural practice can only be accurately and holistically comprehended when situated within that socio-historical framework. Thus, any attempt to juxtapose one culture against another is deemed forced and methodologically unsound.

The theory of historical particularity elucidates the intricate nature of cultural transformation and posits that distinct cultural attributes must be examined within the specific contexts of their emergence. As articulated by F. Boas (1911) [17], while a certain degree of unity and regularity exists in the evolution of human culture, the culture of each community is inextricably linked to a particular social environment shaped by specific geographical conditions at a given historical juncture. Thus, each individual culture can only be examined within defined parameters, adhering to its own developmental trajectory. There may exist no universal laws governing social organisation, and its transformations may not conform to a singular theoretical archetype of history or society. Cultures have extensively appropriated and amalgamated elements from one another. Therefore, the theory of cultural relativism underscores the significance of recognising the parity of cultural values engendered by diverse populations. In V.T. Nguyen, et al. (2013) [20], when they discuss on the theory of F. Boas (1911) [17], they have commented that F. Boas (1911) [17] asserts that no culture holds superiority over another, and distinctions such as superiority or inferiority, or notions of good or bad, are inapplicable across cultures. In the application of cultural relativism, it is imperative to refrain from adopting a specific historical vantage point to assess alternative perspectives. It is essential to engage in field investigations and conduct in-depth interviews with each research participant, attentively listening to their narratives and viewpoints in an effort to mitigate one's own subjective biases.

V.T. Nguyen, et al. (2013) [20] also discussed that F. Boas accentuated the relevance of historical and social contexts in the examination of cultural phenomena. He advocated for the analysis of culture as it is constructed within a specific historical framework and social environment, characterised by distinct geographical conditions. F. Boas (1911) [17] maintained that cultural similarities arise from inter-ethnic exchanges rather than being the products of independent and fortuitously analogous developments. Broadly speaking, among ethnic groups engaged in contact and reciprocal exchange, the social environment, geographical conditions, and historical contexts significantly contribute to the establishment of a distinctive system of cultural values representative of each ethnic group [21].

The influence of Gestalt psychology posits that individuals perceive the overarching framework rather than the intricate details within it. "The crystallisation of a cultural pattern emerges not merely as a direct result of circumstances and conditions, but rather as a product of the creative faculties of human imagination and representation". The placement of each cultural element within the entirety, in the overall configuration, is pivotal in determining their significance. For instance, in the context of Vietnamese culture, patriotism is accorded the highest degree of importance. Conversely, the Chinese ascribe absolute significance to the concept of filial piety. Benedict's objective is to elucidate, in a more nuanced, profound, and empathetic manner, certain cultures, endeavouring to "comprehend the implications of behaviours shaped by cultural contexts". In addition to B. Ruth (1934) [22], notable scholars include Margaret Mead and M. Metro, who explored Themes in French Culture (1954), as well as Gorer & J. Rikman, authors of The Peoples of Great Russia (1948), and D. Risman, who conducted a study titled The Lonely Crowd, examining the evolving character of Americans (1950). B. Ruth (1934) [22] contended that each culture's distinctive personality embodies a unique mode of association with a prevailing behavioural model or psychological decision-making framework, accentuated by the characteristics of quotidian existence, religious influences, and the emotional and behavioural responses to the surrounding world. Radughin asserted that cultural personality is intrinsically linked to individuals' recognition of their subjectivity, positing that personality reflects the human endeavour to transcend necessity in pursuit of freedom, thereby suggesting that personality serves as a cultural manifestation, distinct from the inherent nature of individuals. According to T.V.N. Nguyen (1995) [23], cultural personality constitutes a value embedded within the system of human attributes, which not only fosters the capacity for human interactions with other socio-cultural entities but also facilitates the modulation of behaviours in relational contexts, thereby assisting individuals in the development and refinement of their own identities while simultaneously becoming engaged, contributing members of society, in alignment with societal ideals. In summary, cultural personality represents the amalgamation of all cultural attributes inherent to an individual, which are discovered and cultivated across various dimensions of life and all that pertains to that individual's existence.

Cultural variances are inherently shaped by disparities in both natural and sociocultural contexts. The predominance of flat topography fosters an agrarian lifestyle, compelling inhabitants to adopt a stable and enduring mode of existence characterised by a reluctance to embrace disruption, simultaneously cultivating a posture of reliance on the natural environment rather than an inclination to dominate it, thereby promoting a harmonious coexistence with nature. Given their reliance on a multitude of natural phenomena, the Vietnamese people engage in dialectical thinking, encompassing all pertinent factors while emphasising their interrelationships. This dispersed focus manifests in a succinct yet profound expressive style. The sustained and stable lifestyle engenders a relational framework grounded in affection, which in turn fosters an ethos of moral respect, literary appreciation, and reverence for motherhood. The imperative to honour emotional experiences necessitates a flexible and adaptable approach to social interactions, ensuring the preservation of emotional ties. Due to the valuation of emotions alongside adaptability and flexibility, the organisational structures, hierarchies, and disciplines among the Vietnamese populace do not manifest as excessively rigid or pronounced. Ultimately, this continual state of flux, adaptability, and emphasis on emotional and relational dynamics engenders a culture of fusion, synthesis, and amalgamation [16]. In a similar vein, from the standpoint of cultural typologies as elucidated by T.N. Them (2013) [16], the collective of scholars including [4] contended that the formation of Eastern culture was intrinsically linked to expansive, fertile delta basins conducive to agricultural advancement. The four paramount natural constants characterising the East encompass substantial water availability, a temperate climate, fertile soil, and ease of cultivation, which collectively influenced the tendency of Eastern inhabitants to rapidly engage in agricultural production, particularly in the realms of rice farming and the rearing of livestock and poultry. Consequently, the essence of Eastern culture is encapsulated in its agricultural-rural identity, which is manifest through its principal sustenance source, clothing traditions, as well as festivals and religious beliefs that are intricately tied to the veneration of natural phenomena that agricultural production necessitates. Due to its agricultural-rural identity and the governance of the aforementioned natural constants, Eastern culture exhibits communal traits and adaptability, fostering a harmonious relationship with nature that contrasts sharply with the more aggressive and transformative interactions characteristic of Western cultures. Furthermore, owing to its intrinsic agricultural-rural identity and the influence of these salient natural constants, Eastern culture is characterised by a certain introspection, stagnation, and relative insularity, thereby creating fertile ground for ethical philosophies to flourish over centuries, with India being recognised as one of the foundational cradles for numerous renowned philosophical schools of thought.

India is delineated as a subcontinent characterised by distinct natural boundaries: formidable mountain ranges obstructing the northern expanse, and expansive seas encircling the two southern peripheries. The Himalayas, heralded as the most imposing mountain range, often referred to as the roof of the world, extend over a distance of 2,400 km, housing more than 50 peaks that soar beyond 7 km in elevation [1]. Originating from Kashmir, this mountain range diverges in two directions. The southern and western trajectories of the mountains converge with the plateaus of Afghanistan and Iran. In this region, the mountains exhibit relatively modest elevations, while the valleys expand to form numerous passes that have historically served as gateways to India. The perpetual snow adorning the Himalayas constitutes an inexhaustible source of water for the three principal rivers that have shaped this plain: The Indus river traverses almost parallel to the western perimeter of contemporary India, navigating through an arid region that receives scant precipitation, thus rendering the snowmelt from the Himalayas as its primary water source. The Brahmaputra river flows independently to the east before ultimately curving back westward to converge with the Ganga river. The confluence of these two rivers' lower reaches culminated in the formation of Bengal. The predominant section of the North Indian plain is encapsulated by the Ganga river basin, which interfaces with the lower reaches of the Brahmaputra river to the east, while being delineated from the Indus river basin by a modest promontory. The Ganga river plain itself spans a width of 150-300 km and stretches approximately 2,000 km in length, exhibiting a predominantly flat topography, with no elevation exceeding 250 m above sea level [1]. Over one-third of the population resides within this expanse, and the lower stretches of the Ganga and Brahmaputra rivers have evolved into one of the most densely populated regions.

In summary, the environmental conditions of India have profoundly shaped its cultural landscape, characterised by the following attributes: the northern region is home to the formidable Himalayan mountain range along with two expansive, fertile river plains, namely the Indus and Ganga, characterised by substantial precipitation, a cold season, and snowfall; the northeastern region is particularly abundant in mineral resources; whereas the central and southern regions are distinguished by the Thar desert and the Deccan plateau, which feature narrow, secluded plains, limited rainfall, a flood season, and an absence of snowfall. The contrasting natural environments of North and South India have engendered distinct cultural variances. Despite these disparities, in response to an environment that is simultaneously expansive, exposed, and formidable, the populace has opted for harmonious coexistence rather than dominion over nature. The profound influence of mountains and rivers also permeate Indian spiritual culture, contributing to a nation shaped by these geographical features, a land rich in divine entities and mythological narratives.

3. Methodology

The researchers predominantly employ secondary data analysis, utilising synthesis, the historical-logical method, the comparative method, and an interdisciplinary approach. Within this framework, the analysis-synthesis technique is employed to examine and integrate secondary qualitative research findings derived from reference sources according to various criteria and domains.

The historical-logical method is utilised to scrutinise the manifestations and attributes of the spiritual culture present in the southern and northern regions of India in a chronological sequence. It also explores the dialectical interrelations between these manifestations and attributes, particularly the interplay between the spiritual cultural characteristics of both southern and northern India through the lens of philosophical thought and the spiritual cultural attributes of these regions as expressed in literature and painting. Additionally, it examines the connections between the foundational elements that contribute to the cultural development of both southern and northern India, including natural environmental factors and social environmental variables such as historical context, economic conditions, and demographic considerations, in relation to the manifestations and characteristics of the spiritual culture prevalent in both regions.

Furthermore, the study employs a parallel comparison method to contrast the two regions, specifically focusing on three foundational bases of cultural formation in southern and northern India: natural geographical basis, historical basis, and economic basis. It also conducts a parallel examination of the spiritual and cultural characteristics of these two regions across three domains: philosophy, literature, and painting. The comparative analysis of cultures through a dialectical understanding of both the identity and divergence of distinct cultures enables the identification and comprehension of the principles governing cultural evolution. The comparative examination of consciousness and cognitive frameworks constitutes a substantive comparison, distinctly different from a mere formal or contrived comparison. Cultural comparison investigates the diverse cultures of global populations, emphasising the interconnectedness among them, the distinctive characteristics of global cultural evolution, and the identity and differences that exist among the cultures of various peoples worldwide. Moreover, cultural comparison explores the relationships between ethnic and regional cultures, underscoring the values and identities inherent in national cultures, the unity amidst diversity of regional cultures, and global cultures, while elucidating the operational principles of culture in a broader context.

Ultimately, the study adopts an interdisciplinary approach, primarily integrating geography, history, and culture, in addition to an interdisciplinary perspective encompassing culture and literature, as well as philosophy and culture, and painting and culture, to elucidate the foundational aspects of the formation and expression of the spiritual cultural characteristics of the southern and northern regions of India.

4. Results and discussion

4.1. Cultural characteristics of Indian people of two regions in the field of philosophy

The evolution of ancient Indian philosophy transitioned from religious and mythological frameworks into a sophisticated and rational intellectual system aimed at probing the origins of the cosmos and the essence of human existence. This intellectual odyssey is a rich tapestry of thought that encapsulates primitive perceptions of the universe. The historical trajectory of ancient Indian philosophy is typically categorised into two distinct epochs: The Vedic - Epic period and the Buddhist - Brahmanical period. Each of these periods has yielded significant contributions, culminating in a diverse and profound philosophical legacy that continues to exert a lasting impact on global culture and intellectual discourse [24].

Northern India serves as the incubator for numerous esteemed philosophical traditions, thereby painting a rich and intricate portrait of intellectual thought and knowledge. This region has functioned as the nucleus of philosophical discourse. It represents the bedrock of Indian philosophy, marked by the emergence of the Vedas, Upanishads, and Brahmanas. The richness and diversity of this intellectual tradition are evident not only in the plethora of philosophical schools and authors but also in the vast array of texts produced. This phenomenon not only underscores the creativity and dynamism inherent in the intellectual life of North India but also articulates the pivotal role of philosophy in shaping the cultural and spiritual ethos of the region. Each principal philosophical school possesses its own extensive corpus of scriptures and commentaries, numbering in the thousands [7].

From ancient mythologies to contemporary philosophical inquiries, the natural environment has functioned as both a source of artistic inspiration and a stimulus for philosophical reflection. The Indian conceptual framework embodies a profound recognition of the intrinsic relationship between humanity and the natural world. This perspective acknowledges the cyclical essence of existence, encompassing the experiences of birth, death, joy, and sorrow [24]. The varied geography of Northern India has facilitated the flourishing of civilisation and intellectual development. The region's rich resources and diverse landscapes have fostered an optimal habitat for human life. The Himalayas exemplify the formidable challenges posed by nature, with their perennial snowfall and extreme climatic conditions. In response to nature's unpredictability, the Indian populace has constructed a pantheon of deities associated with various natural occurrences. This mythological and religious framework embodies the belief in the interconnectedness of humanity and the natural realm. Through rituals of prayer and offerings, individuals endeavour to procure blessings from these deities, thereby acknowledging their reliance on natural forces.

In addition to these six primary philosophical schools, numerous other branches and philosophical traditions have emerged in Northern India, including Buddhism, Jainism, and Lokayata. It is evident that within Northern India, seven out of ten philosophical schools predominantly concentrate on the inquiries pertaining to matter, spirit, quantum, atom, the logic of knowledge, argumentation, and scriptures, which encompass the macro-level, significant issues confronting the world and humanity [25-27]. Conversely, only three out of ten schools of philosophy in the North, namely Yoga, Buddhism, and Lokayata, share thematic similarities with the philosophical schools of Southern India, namely Agamic, Dvaita, Vishishtadvaita, and Advaita Vedanta, which are primarily centred on matters of liberation, practice, meditation, soul, and micro-level ethical values, emphasising the individual's role within society. Southern India is distinguished by its profound philosophical discourse, which revolves around themes of liberation, practice, and meditation, accentuating the significance of the soul and the quest for inner truth, thereby encouraging individuals to engage in self-exploration as a means to attain enlightenment [28]. The promotion of ethical values at the micro-level focuses on accountability and the relational dynamics among individuals within society, thereby establishing a robust foundation for ethical conduct while concurrently fostering harmony and tranquillity within the community. The widespread dissemination of spiritual practices and meditation has facilitated individuals in achieving mental purity and fostering a profound connection with reality, ultimately guiding them towards liberation from suffering and the repetitive cycle of rebirth [29]. Although the Southern region may not exhibit the same level of richness and diversity in philosophical schools as its Northern counterpart, it nevertheless plays a critical role in the evolution of Indian philosophy. While the quantity of schools, authors, and works in this region may be comparatively fewer, their quality and impact remain significant. Specially, Hinduism spread all over India making India unity in diversity [30], and the kings of the dynasties in South India built thousands of Hindu temples, which still stand the test of time, symbolise the preservation and influence of the indigenous beliefs and indigenous culture, folk culture of the Dravidian people in South India [31], opposed to the spread of many exogenous religions and culture in the North India such as Islam, Christianity, etc. Notable figures such as Ramanuja and Madhva have indelibly influenced the narrative of Indian philosophy.

Northern India, owing to its strategic geographical positioning, has historically served as the nucleus for numerous prominent dynasties, ranging from the ancient Maurya and Gupta dynasties to the Islamic and Mughal dynasties. This historical significance has rendered the North a pivotal political and cultural hub, while simultaneously being a battleground for incessant conflicts, resulting in various repercussions such as social stratification, religious discord, and political volatility [32]. These dynamics have profoundly shaped the psyche and lifestyle of the Northern populace, engendering a cultural identity that is both rich and intricate. With the amalgamation of diverse social strata, from the impoverished to the affluent, Northern India has emerged as a centre for knowledge creation and dissemination. The abundance of philosophical thought is manifest in the plethora of philosophical texts produced, thereby positioning the North as the cradle of numerous seminal schools of thought in the annals of Indian history. Cultural interactions among various dynasties, in conjunction with the influences of religions such as Hinduism, Buddhism, and Islam, have cultivated a rich and diverse philosophical landscape. This amalgamation has not only enhanced the reservoir of knowledge but has also significantly contributed to the shaping of the populace's worldview and existential perspectives [33].

Meanwhile, the region of South India is distinguished by a temperate and warm climate, characterised by limited precipitation and the absence of snowfall, thereby facilitating agricultural practices and daily life activities. The expansive Deccan Plateau, endowed with its dense forestation and constricted plains, enhances agricultural productivity, although it is not without challenges, such as the threat of drought. In contrast to the North, which frequently encounters flooding events, the South experiences a lower incidence of these natural calamities, thereby contributing to a more stable living milieu. Historically, the Southern region has not served as the nucleus for numerous prominent dynasties, resulting in a diminished frequency of warfare compared to the North. The significant, perilous, secure, arable, extensive, level, and less fragmented northern region of India has been selected by eighteen dynasties, specifically the Mauryan, Later Chalukyas, Varman, Ranjit Singh, Harshavardhana, Nanda, Gupta, Surasena, Satavahana, Pratiharas, Jamwal, Pala, Sakas, Gurjara, Sharqī, Lodhi, Ghurid Sultanate, and Iltutmish as their seat of power over a span exceeding thirty-eight centuries. In contrast, the southern region, characterised by aridity, elevated temperatures, and increased fragmentation, was geographically isolated by land and could only be accessed via maritime routes; thus, it was the choice of merely fifteen dynasties, namely the Cholas, Pallavas, Pandyas, Chalukyas, Kakatiyas, Satvahanas, Bahmani, Rashtrakuta, Shivaji, Tipu Sultan, Andhra Ikshvakus, Eastern Ganga, Kongu Nadu, and Vijayanagara, to establish their capitals and reside therein for a duration surpassing thirty-seven centuries. Northern India has been the theatre of numerous significant military confrontations throughout its extensive historical timeline. Among the notable conflicts are the First Battle of Panipat (1526), the Second Battle of Panipat (1556), which reinforced Mughal authority in Northern India, and the Third Battle of Panipat (1761), which culminated in the defeat of the Maratha forces, thereby considerably diminishing their influence. Other notable engagements include the Battle of Khanwa (1527), the Battle of Haldighati (1576), the Battle of Delhi (1737), and the Indian Rebellion of 1857. Furthermore, there were campaigns led by Chandragupta II in Balkh, the First Hunnic invasion, the Gauda-Gupta interactions, as well as the Gupta conquests of Bengal and Kanishka's military endeavours against Parthia. It is evident that Northern India experienced a greater frequency of wars and uprisings than its Southern counterpart, which has had profound ramifications for the northern region. The Southern Wars encompass: the Battle of Talikota (1565), which signified the decline of the Vijayanagara Empire, the Battle of Tughlaqabad (1327), the Carnatic Wars (1746-1763), the Battle of Pollilur (1780), and the Anglo-Mysore Wars (1767-1799), as well as the Maratha-Mysore Wars (1785-1787). Additionally, other conflicts such as the Saka-Satavahana and Chalukya-Chola wars played crucial roles. These military engagements not only significantly influenced the political landscape and power dynamics within North and South India but also contributed to the shaping of the historical and cultural trajectories of these two distinct cultural regions. The northern region is characterised by a high population density; however, when excluding the Himalayan mountainous expanse, the available land is insufficient to accommodate the total populace, thus intensifying job competition. Consequently, the disparity between affluent and impoverished populations is markedly pronounced, with a higher incidence of low-income individuals compared to the southern region. Conversely, although the southern plains are narrower and more fragmented, their proximity to the sea facilitates the development of international trade and the attraction of foreign investment. This results in comparatively milder job competition and a less severe economic divide, evidenced by a lower percentage of low-income individuals than that observed in the North. Therefore, it is noteworthy that the majority of the top ten states with the highest gross domestic product (GDP) in India are situated in the southern region, whereas most of the states with the lowest GDP are found in the northern region. Consequently, this has engendered a more stable cultural environment, less susceptible to the ramifications of conflicts and political turmoil. This prevailing peace has facilitated the flourishing of culture, art, and philosophical inquiry, culminating in a distinct cultural identity for the South. Although the Southern region does not boast as many of the wealthiest individuals in the country as its Northern counterpart, it hosts a majority of the states with the highest GDP in India. States such as Tamil Nadu, Karnataka, and Andhra Pradesh have exhibited significant growth in the realms of industry, information technology, and service sectors, thereby attracting substantial investment from both domestic and international sources. This economic advancement not only generates numerous employment opportunities but also enhances the overall quality of life for the populace. From this foundation, unique, abstract, and profound philosophical traditions have emerged, seeking pathways to human liberation. Philosophers advocate for individual self-exploration as a means to attain enlightenment, while simultaneously promoting ethical values at the micro level, with an emphasis on individual responsibilities and social relationships. The evolution of Southern philosophy not only influences spiritual existence but also profoundly impacts cultural, artistic, and societal domains, resulting in the creation of rich literary and musical compositions that deeply articulate spiritual and intellectual values. In summary, South India has engendered a vibrant culture that encapsulates humanity's relentless pursuit of enlightenment and truth.

4.2. Cultural characteristics of Indian people of two regions in the field of literature

Indian literature is characterised as a complex tapestry that embodies the rich cultural heritage of the subcontinent. The extensive geographical landscape of India has fostered unique literary traditions, with the Northern and Southern regions often regarded as the two contrasting poles of numerous artistic and literary schools. Through the examination of the literary heritage across these regions, we aim to illuminate the intricate interplay of culture, history, and language that has shaped the literary tradition within the nation. South Indian literature is recognised as one of the oldest literary traditions globally. It is deeply rooted in a profound cultural heritage, influenced by ancient traditions and classical languages [34].

North Indian literature is significantly shaped by the influence of various dynasties. This body of literature represents a synthesis of indigenous themes and external influences, characterised by centuries of cultural exchange and hybridity, thereby reflecting the syncretic spirit of the region [35]. The colonial era was instrumental in moulding the literary landscape of North India, marked by the emergence of English literature, the introduction of Western literary genres, and the advent of novel literary discourses. Authors depicted the colonial experience while providing insights into the intricate dynamics of identity and cultural conflict. As articulated by M. Meenakshi (2017) [36], the colonial encounter indelibly influenced North Indian literature, affecting its themes, linguistic choices, and narrative methodologies.

Conversely, South Indian literature frequently embodies robust regional identities, deeply entrenched in the region's unique linguistic and cultural traditions. The literary works often convey reverence for the sublime beauty of nature, employing natural imagery as a symbol of vitality, love, and endurance. Women are venerated as a source of strength, symbols of good fortune, and protectors of family. The archetype of the strong, independent, and sagacious woman is prevalent across many literary pieces, thereby contributing to the discourse surrounding the value and societal position of women. Authors have delved into the intricacies of South Indian society, portraying its rituals and customs. Their literary creations are imbued with a profound sense of place, evoking the lush landscapes and vibrant traditions intrinsic to South India [37]. South Indian literature celebrates the cultural diversity of the region, presenting a mosaic of voices and narratives that encapsulate its distinct identity.

In contrast, North Indian literature predominantly emphasises themes of identity, social transformation, and the lives of ordinary individuals, including their challenges and aspirations. Beginning in the late 13th century, the literary works of this era often exhibit religious, mythological, legendary, and romantic elements, influenced by Islamic culture while intertwining with the artificial and refined traits of aristocracy. However, there exists a genre of narratives and songs that mourn the bygone golden age, whereas others depict the tragic and fatal consequences wrought by warfare. These literary works are constructed upon popular morality, grounded in simple realism, and often employ humour to critique the hypocrisy inherent in feudalism and the ruling Muslim aristocracy [2]. North Indian literary compositions represent an amalgamation of indigenous motifs and cultural subtleties, offering a glimpse into the diverse societal landscape. They reflect a journey of identity-seeking amidst the currents of modernity, grappling with the tensions between tradition and modernisation [38].

Consequently, owing to the unique geographical attributes of South India, which has historically remained detached from being the epicentre of numerous Islamic dynasties and the British Raj administration, South Indian literature has similarly experienced a degree of isolation and divergence from predominant foreign literary influences, such as Islamic and Western literature. As a result, in South India, the indigenous cultural imprint and traditional literary forms exhibit a greater depth compared to North India, which has been significantly shaped by external influences from Islamic and Western literary traditions. The geographical and climatic disparities between the North and South Indian regions, characterised by the North's harsh and magnificent natural landscapes in contrast to the South's temperate, warm, and relatively moderate conditions, serve as foundational factors contributing to the differentiation in literary schools across these two regions. Thus, South Indian literature has flourished for over 2,500 years, encompassing 2,381 Sangam poems crafted by 473 poets, which celebrate themes of womanhood, romantic love, regional cultural identity, and the rich, diverse, and enduring ethnic cultures present in South India. In contrast, North Indian literature predominantly engages with genres such as novels, epics, short stories, and plays that explore themes of religion, spirituality, and nostalgia, particularly reflecting on the illustrious governance of bygone eras.

5. Conclusions

The Northern region is characterised by its severe climate and grandeur, encompassing extensive, level, and fertile plains, which are heavily populated and serve as the administrative hub for numerous dynasties. This area has historically been the battleground for a significant number of conflicts and is the residence of the majority of India's wealthiest and impoverished individuals, alongside most of the states exhibiting the lowest GDP in India. Consequently, educational institutions predominantly emphasise religious motifs, spirituality, significant religious figures, mythology, as well as the interplay between humanity and the cosmos, materiality and spirituality, atomic structures, and epistemological pursuits, housing a corpus of scriptures that is one and a half times more substantial than that found in South India. Simultaneously, these institutions reflect a pronounced influence of cultural interchange and the assimilation of Islamic and Western cultural elements, in contrast to the educational establishments in South India. The Southern region, in contrast, presents a temperate climate that is warm rather than extreme, featuring narrow, arid, hot plains with minimal precipitation, an absence of snowfall, and few instances of flooding. Furthermore, it does not serve as the administrative centre for the majority of dynasties, and the incidence of historical warfare is comparatively lower than in the Northern region. Despite its fewer affluent inhabitants relative to the North, it is home to the majority of the top ten states with the highest GDP within India. Thus, the educational institutions predominantly concentrate on themes of venerating women, cultivating personal ethical values, and promoting diverse and rich local cultural identities, while simultaneously reflecting a more pronounced influence of indigenous South Asian culture compared to those found in Northern India. The interplay of the natural landscape, historical context of societal evolution, and the creative subject alongside the accumulation of cultural values and products across the Southern and Northern regions of India has significantly influenced, shaped, and engendered distinctions in the spiritual and cultural characteristics endemic to both regions. The confluence of these aforementioned factors, manifesting in the creative outlook and stylistic approach of the creative subject, along with the aggregation of cultural values and products across all domains of spiritual endeavours, has culminated in the distinctive spiritual and cultural visage of both Southern and Northern India. Specifically, the cultural manifestation of Northern India is perpetually enriched, accumulated, and cultivated through the legacies of the primordial nomadic cultures originating from the West and the North, rendering its positive attributes more pronounced, whereas the cultural representation of Southern India is consistently preserved, sustained, protected, and promoted, showcasing the indigenous culture of South Asia with a relatively more negative aspect and a heightened prominence of negative qualities compared to Northern India. Although the extent of cultural interaction and exchange between these cultural domains is progressively intensifying, leading to a more frequent occurrence of cultural acculturation, each cultural lineage in Northern and Southern India retains its distinctive, unique, and inherent characteristics, alongside its specific role in the collective endeavour of constructing a cohesive Indian cultural value system characterised by diversity.

CRediT author statement

Minh Giang Nguyen: Reviewing, Formal analysis, Editing, Data analysis, Abstract; Thi My Linh Tran: Data analysis, Writing, Proofreading; Thi Uyen Nhi Luong, Thi Bich Nhi Nguyen, Quynh Nhu Nguyen: Data analysis, Writing.

COMPETING INTERESTS

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

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The concepts of filial piety and factors affecting filial piety of Vietnamese people

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***Abstract*:**

"Filial piety" is a fundamental moral value of the Vietnamese people, expressing the respect and gratitude of children towards their parents. It also embodies gratitude towards one's roots, preserving the esteemed values of ancestors. Filial piety is a personal value that governs behaviour within the family and community. It has been revered in various beliefs and religions, particularly in ancestor worship. Originating from a culture that values emotions and gratitude, Vietnamese filial piety towards parents, ancestors, and loyalty to the country has been transmitted through generations since ancient times. The Vietnamese have integrated patriarchal norms, family values, and religious rituals of filial piety from Buddhism, Taoism, and especially Confucianism, further enriching and expanding the meaning of Vietnamese filial piety. This study aims to address questions regarding the viewpoints and practices of filial piety in traditional society; identify the factors shaping filial piety; and examine contemporary elements influencing Vietnamese filial culture. The study reveals that, in addition to moral values within the family, Vietnamese filial piety embodies community values and notably fosters patriotism rooted in village culture and national history. The approaches of Vietnamese and area studies are employed to comparatively analyse and synthesise the concepts and practices of filial piety in folklore, beliefs, and religions; and to discern differences in Vietnamese filial piety compared to the core values of filial culture influenced by Confucianism.

***Keywords*: ancestor worship, filial piety, grandparents - parents, gratitude.**

***Classification numbers*: 10, 11**

1. Introduction

"Filial piety" is a fundamental moral principle within the family, expressing the respect and gratitude of children towards their parents and ancestors [1]. Furthermore, filial piety is an ethical tradition and a community culture, reflecting gratitude to one's roots and preserving and developing the esteemed values of ancestral generations.

Filial piety is considered one of the moral standards of societies, pervasive in cultures, beliefs, and religions, and even in architecture, paintings, music, and literature. The tradition of filial piety towards parents and ancestors, along with loyalty to the homeland, has long been established in Vietnam. Originating from a culture of respect, gratitude, and honour, filial piety contributes to forming the moral foundation of the Vietnamese people [1-3]. Although influenced by Eastern filial piety, particularly Confucianism[1], with its patriarchal ideology and family rites, the filial piety of the Vietnamese people retains a distinct Vietnamese identity, echoing native Southeast Asian elements such as an agriculture-oriented lifestyle, motherhood, and the collective spirit of villages.

The foundational values of filial piety are often expressed in family relationships and customs, such as family norms, gratitude, tolerance, and responsibility towards parents, grandparents, and ancestors. In Vietnam, filial piety is also a community culture, reflected in belief values through scriptures, commandments, and rituals, as seen in religions and beliefs such as the worship of ancestors, heaven and earth, national forefathers, heroes, and founders of careers. Although the meaning and practice of filial piety have evolved through various historical and cultural periods and socio-economic contexts, it remains a fundamental component of the cultural value system of the Vietnamese people. Filial piety is not only a personal and familial value, contributing to social security, but also a community ethic, rich in humanities and spiritual culture, linking present generations with both the past and the future.

[1]Confucianism is often described as a system of social and ethical philosophy, formed in the 6th century BC. In fact, Confucianism is an ancient religion that established the social values, institutions, and transcendent ideals of traditional Chinese society.

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In the contemporary context of globalisation, digital technology, and economic integration, domestic and transnational migration is altering the structure of the population, family, and community. Additionally, increased life expectancy, decreased birth rates, a fast-paced lifestyle, multi-dimensional interactions, personal freedom, and self-determination have significantly impacted individual consciousness and lifestyle, as well as family and traditional filial culture. This study aims to explore the viewpoints and practices of filial piety in the traditional society of Vietnamese people, as well as to identify the factors and contemporary influences shaping the culture of filial piety in modern Vietnamese society.

2. Research overview

2.1. Literature review

The literature review can be categorised into three main groups: studies related to traditional filial piety and filial piety in Vietnamese religious and folk beliefs; studies on the changes in filial piety in contemporary Vietnam; and studies on filial piety in some East Asian countries influenced by Confucianism.

Research related to filial piety and traditional family ethics, such as “From traditional filial piety, think about filial piety today” and “Filial piety in Vietnamese families today” [1, 2], affirms that filial piety embodies respect and gratitude for parents and grandparents, serving as a moral standard and behavioural culture within the family, and as the root of human morality. P.C. Son, in “Family Customs” [3] and “Family rituals in past and present”, also asserted that family customs and rituals in Vietnamese families play a crucial role in individual growth and the sustainable development of the nation. These studies confirm that Confucianism has a significant impact on filial piety in Vietnamese families, often without discussing the influence of other religions and beliefs. Meanwhile, Buddhist and Catholic authors in their studies [4-6], and scholars studying religions in “Culture, Beliefs and Religions Practice of Vietnamese People” [7] and “Theory of Religion and The Current Religious Situation in Vietnam” [8], have shown that indigenous beliefs, Buddhism, Taoism, and even Christianity also significantly influence the concepts and practices of filial piety among Vietnamese people.

The studies “The transformation of filial piety in Vietnam today” [9], “Piety in Traditional Culture and Its Aspects in Vietnam Today” [10], and “Changes in Filial Piety in Vietnamese Families Today” [11] highlight both positive and negative changes in the practice of filial piety today. These studies suggest that the main causes of these changes are globalisation and socio-economic factors, specifically the socialist-oriented market economy. However, the cultural aspects and trends of younger generations related to family interaction in modern society may need further consideration. From an ecological anthropological perspective, the study “Finding Streets in The Village: The Thinking Afternoons of The Elderly” [12] described the inner conflict of the elderly, expressing both sadness over the fading and loss of tradition, and excitement and pride in the changes within the village. The recent study “The interdependence of happiness and filial piety within the family” [13] used a scale to show two aspects of filial piety: it can bring joy to parents but also imposes a personal obligation and pressure on their children.

Filial piety is a significant ethic in Vietnam as well as in some East Asian countries under Confucian influence. The research “A comparison of contemporary filial piety in rural and non-rural China and Taiwan” [14] found that filial piety remains strong in Chinese societies, despite dramatic social and economic changes; caregiving for elderly parents was more common in rural compared to non-rural areas in China. “The influence of Confucianism on modern Korean family culture” [15] suggested that Confucian ideas are deeply ingrained in Koreans, even more so than in China, particularly regarding the culture of patriarchy and hierarchy, though there have been positive changes in modern society. Along with these ideas, the article “Empowerment and standardisation of the filial piety tradition in Vietnamese and Korean cultures” [16] offered a meaningful comparative comment: when theorising about filial piety, Koreans consider family morality as the core value of society, whereas Vietnamese filial piety is dominated by village culture based on harmony. “The Sequence of Loyalty and Filial Piety and Its Ideological Origins in the Traditional Ethical Culture of China and Japan” [17] discussed that although Japanese family culture (before World War II) was often based on patriarchy and age hierarchy, loyalty is the highest value in Japanese culture, from family to nation. These studies show that the main values of filial piety in East Asian countries are not identical, and they certainly differ from Vietnamese filial piety, which will be discussed in this study.

2.2. Research questions

The study aims to answer three questions as follows:

The concepts of filial piety of Vietnamese people; Practising filial piety in Vietnamese traditional society; and Factors affecting filial piety culture in Vietnam?

2.3. Research theories

The theories of Structural Functionalism and Cultural Relativism are applied in this study. Sociologists from the structural-functional group, such as E. Durkheim, Talcott Parsons, and Robert Merton, believe that a society exists and develops because its constituent parts work harmoniously together to ensure the overall balance of the whole structure. Social institutions aim to meet human social needs; any change in one component will lead to changes in others. According to these postulates, the family is considered a component of the societal structure, performing basic societal functions. The family meets the needs of its members and contributes to social stability. In studying the role of the family in educating today's young generations, P.C. Son [3] also stated that the family is the first place where members form their personality, and traditional values are transferred from generation to generation.

According to L. Robert (1997) [18], the function of institutions contributes to maintaining the structure of the "social body". Besides transmitting the nation's history, filial piety also has an educational effect, serving as a basic function to maintain social order by directing people to voluntarily comply with moral patterns recognised by the community. Talcott Parsons discussed social phenomena as occurring in a "state of moving equilibrium". From the opposite perspective, structuralism suggests that the breakdown of family and filial piety can damage its functions, leading to social instability, especially in today's globalised and interconnected world. This world can create significant changes in thinking, working, and human interaction, potentially fostering prosperity but also increasing vulnerability and instability in society.

Cultural relativism was an axiom in F. Boas's anthropological research in the early twentieth century. Cultural relativism holds that a person's beliefs, values, and practices should be understood based on that person's own culture, rather than judged by the criteria of others. Cultural relativism helps make the study of cultures or anthropological research more objective. For F. Boas, the formation of ethnic culture is closely linked to historical processes and the interaction between cultures in a specific geographical environment [19]. Beliefs and value systems in filial piety, according to cultural relativism, have been sanctified in indigenous beliefs and the imported or domestic religions of the Vietnamese.

Radcliffe-Brown, with structural functionalism, claimed that social structure determines culture when explaining cultural differences, focusing on current factors. In contrast, F. Boas believed that culture determines social structure and emphasised considering historical contexts. While cultural relativism may illuminate the viewpoints and factors shaping Vietnamese filial piety, structural functionalism may explain the culture of filial piety in contemporary society.

2.4. Methodology

Filial piety is a moral value present in most cultures, but it has become a dominant value in Confucianism and East Asian countries influenced by Confucianism, including Vietnam. However, the expression of filial piety in Vietnam varies across folklore and religions, differing by period, region, and social class. It may also vary according to historical circumstances and socio-economic contexts. This leads to different values, meanings, and consequences in both historical and synchronous dimensions within society. These issues warrant extensive research and study. Within personal limitations, the author aims to provide an overview of the concepts and practices of filial piety among Vietnamese people in folklore and some popular religions and beliefs in Vietnam, as well as the factors influencing filial piety among Vietnamese people.

Thus, the research focuses on the concepts and practices of filial piety, along with the factors influencing the culture of filial piety among Vietnamese people.

Vietnam has been influenced by both Chinese culture and indigenous Southeast Asian culture. The approach of Vietnamese Studies and Area Studies is employed through qualitative methods, such as descriptive and comparative analysis, and synthesis of documents based on the integration of knowledge from interdisciplinary research: cultural studies and religious anthropology.

More specifically, the study will describe, analyse, and synthesise the views and practices of filial piety among Vietnamese people in folklore and in some beliefs and religions; it will logically analyse the factors shaping and influencing Vietnamese filial piety.

Based on the findings of previous studies, comparative analysis is also used to identify the similarities and differences in the concept and practice of filial piety between religions, and the differences in Vietnamese filial piety compared to the core values in the filial piety culture of East Asian countries under the influence of Confucianism.

3. Results and discussion

3.1. Some concepts and practice of filial piety of Vietnamese people

Filial piety is a cultural feature that has been inherited and integrated by Vietnamese people over time. Perceptions, viewpoints, and value standards in Vietnamese filial piety culture are shaped by the cultural ecology and faith systems in folk beliefs and religions throughout the country's historical process.

"Filial piety" in Vietnamese is "Đạo hiếu"

Scholar D.D. Anh explained in the Simplified Sino-Vietnamese Dictionary [20] that "Đạo" means the way, right reason, and morality, while "Đạo hiếu" refers to respecting and caring for parents and forgiving siblings. According to H. Phe's Dictionary [21], "Đạo hiếu" involves taking respect and gratitude towards parents as principles that must be preserved and followed in social life, embodying the morality of being human.

Filial piety is described in folklore as the morality of descendants or the duty of children; children must remember their parents' merits with gratitude. Vietnamese folk verses express this sentiment: "A heart to worship mother and respect father/ Fulfilling filial piety is the offspring's morality"; or "Worrying at night then worrying in day/ How could it be filial as the child's duty?", etc.

Confucianism, Buddhism, and Taoism were introduced to Vietnam over time, contributing to the strengthening of the Vietnamese culture of filial piety. The Chinese character for "filial piety" (孝) symbolises the image of a son carrying his father on his back, with "the old" above and "the son" below. Confucian schools agreed that filial piety is the essence of being human. Tran Trong Kim, a profound Confucian scholar, believed that the roots of morality are love and respect, which form the foundation of filial piety. The Confucian concept of filial piety was originally related to bloodline, such as children taking care of their parents and grandparents and their funerals [22]. Confucianism was especially popular in the post-Le Dynasty in Vietnam in the 15th century. Nguyen Trai (1380-1442), a prominent politician and cultural figure of the Vietnamese people, emphasised filial piety in the responsibility to love and care for parents: "When it's warm or cold, I will take care of you/ Providing rice and medicine every time/ Come in and visit every now and then,/If you are safe, I will be at peace" [23].

Nguyen Du (1765-1820), the Great National Poet of Vietnam, showed in his work that the character Thuy Kieu was tormented by choosing to sacrifice her personal happiness to fulfil filial piety: "Love or filial piety, which one is more important?/As a child, it must first be grateful to the birth" (Kieu's Story). As for Nguyen Dinh Chieu (1822-1888), a famous poet of the south in the second half of the 19th century, filial piety surpassed fame and personal career when Luc Van Tien decided to drop out of the exam to mourn his mother.

In a culture that values gratitude, community cohesion, and national consciousness, the Vietnamese concept of filial piety is not only filial within the family (hiếu thảo) but also includes respect and gratitude towards predecessors in the community (hiếu nghĩa) and loyalty to the country (hiếu trung). This integration of family morality with village spirit and patriotism is evident. When Nguyen Phi Khanh, Nguyen Trai's father, was sent into exile, Nguyen Trai intended to follow to care for him, but his father told him: "Let your brother do this, you are an educated person, find a way to avenge the country and your father. This is great filial piety" (quoted by Nguyen Thi Tho, 2007). Likewise, according to Nguyen Dinh Chieu, filial piety requires full devotion to children's destiny in the family and the duty of loyalty to the country and the monarch: "Being a guy is grateful to the country, owes to home/ Filial piety to father and king is the talent" (Làm trai ơn nước nợ nhà/ Thảo cha ngay chúa mới là tài danh). Loyalty and filial piety become ethical-political twins; filial piety is not only loyalty to the king but also fidelity to the fatherland or patriotism. Filial piety is associated with loyalty, as Ho Chi Minh taught party members: "Loyal to the Country, Filial to the People" (Trung với Nước, Hiếu với Dân), a term conceptualised by Ho Chi Minh, originating from the community and national characteristics of traditional Vietnamese filial piety. After learning of his eldest brother's death, Uncle Ho wrote in a telegram dated November 09, 1950, sent to the Nguyen Sinh: "A son sacrificed his family love because he had to worry about state affairs" [24]. When researching the concept of filial piety in Vietnamese culture among some students in Ho Chi Minh City, the study by N.D. Hai (2018) [25] confirmed that the word "filial piety" extends from family to monarch and nation; filial piety is both a moral code in family lines and a part of the national institution.

While Confucian filial piety contributes to the foundation for Vietnamese discipline and morality in families and society, Taoist filial piety strengthens beliefs in the "after-life". It involves helping deceased parents and relatives with requiem to bliss through funeral rituals, soul summoning, charms, votive papers, and burial items, etc.

Filial piety in Buddhist traditions is about salvation and openness in terms of object, time, and space. Thich Dong Thanh, Lin Vi Tuan, and Thich Nu Lien Dinh explain that Buddhist filial piety not only repays the kindness of parents but also repays human beings and the Three Jewels (Buddha-Dharma-Monk); both in human life and the six paths of reincarnation [4, 5]. Promoting parents and others to focus on goodness and truth is considered great filial piety. Buddhism also clearly defines "further filial piety" (vien hieu) to the saints and ancestors, and "near filial piety" (can hieu) to one's parents and neighbours.

For Christians, filial piety to parents is the top commandment among the laws related to others in the Ten Commandments. The Catholic dictionary of the Vietnam Bishops' Conference states: "Filial piety is love and respectful gratitude to one's parents and grandparents; Filial piety is God's law that teaches people to love, obey, and be responsible for their parents, both materially and spiritually" [6]; filial behaviour towards parents and ancestors is roughly called grandparental piety. Beyond the blood family, Christian authors also identify that filial piety is the light of truth, the gateway to bringing people into the great family of heaven, of which God is the creator and the Father [6].

Filial piety is a key concept in Confucian ideology that affected East Asian countries, including Vietnam. Despite sharing Confucian thought, these nations have different core values and expressions of filial piety. In Chinese filial piety, taking care of one's parents and family is the first priority, but later, filial piety within the bloodline linked with "loyalty" to the kings to maintain the feudal social order. Like Vietnam, Confucian ideas have penetrated deeply into the minds of Koreans for thousands of years, even more "concentrated" than in China. This is because many Korean feudal dynasties favoured Confucianism, and the ideology became exclusive and extreme during the Chosun Dynasty (1392-1910). Filial piety in Korea is the root cause of building family ethics in hierarchy [15, 16]. For the Japanese, despite the influence of Chinese culture, due to differences in their historical and socio-cultural traditions (Shinto, Mikado, and Samurai), "loyalty" is the highest value, laying the foundation for universal morality in Japanese society. A study by W. Yang (2019) [17] further added that while filial piety has practical rationality and is a secularisation of Chinese morality, loyalty, despite being a Japanese national cultural and psychological heritage, has a religious colour, containing the risk of nationalism and absurdity.

Unlike these countries, it can be said that with integrated thinking, village culture, and country history, the concept and practice of filial piety among Vietnamese people includes behavioural relationships not only within the family and clan but also towards the community and the fatherland, harmonising monarch loyalty and patriotism.

Practising Vietnamese Filial Piety: From home to alley

Jean Ladrière (1921-2007), a philosopher and logician, stated that three systemic elements govern each other in culture: "ideas, normative values, and actions". Conceptions, perceptions, and beliefs about values and standards in filial piety are interrelated with behavioural aspects such as customs, lifestyle, relationships, and rituals, which have been institutionalised in Vietnamese civil society.

In home: Reflected in folklore (legends, fables, folk verses, and proverbs), previous generations passed on filial practices from the family to the village and the nation. They practised and taught their offspring to love and care for their parents and grandparents, especially the aged. This is because "The merit of a father is like a high mountain, and the care by a mother is like an endless spring" (folk verse). Filial piety also involves avoiding upsetting parents, tarnishing their ancestors' reputation, and doing good deeds to bring glory to their family and clan.

The filial piety of Vietnamese people promotes personal morality, family bonds, and community solidarity through customs and rituals at home and in the neighbourhood. Their practice of filial piety is closely related to the custom of ancestor worship, a long-standing belief in Vietnamese life based on gratitude to one's roots and belief in the spiritual world after death. A.D. Rhodes (1593-1660), among the first missionaries in Vietnam, was surprised by the worship practices of the Vietnamese people, noting that perhaps no one respects and worships deceased parents like the Annam people [26]. When studying the culture, beliefs, and religions of Vietnamese people, L. Cadière (1869-1955) observed that Vietnamese people integrated beliefs into daily behaviour, deeply attaching them to family life; rituals originated from filial piety. Vietnamese people believed in the longevity of ancestors and the presence of deceased grandparents among the family to protect and bless them. The customs and rituals in ancestor worship show the harmonious relationship between family members, whether alive or dead. For the author, "a family is like a temple, the living members live in the front hall, then the first and the last will enter the main hall" [7]. Filial piety in the custom of ancestor worship expresses the tradition of gratitude to ancestors and the belief in ancestors' blessings on descendants. Vietnamese people often carefully conduct their grandparents' and parents' funerals, worship on death anniversaries, on New Year's Days, and place the ancestral altar in a solemn position in the house [1, 3].

Like their own culture, Vietnamese filial piety in ancestor worship bears a deep sense of community and national character. Ancestor worship is related to individual life cycles and community customs. Life cycle rituals such as birth, marriage, longevity celebrations, funerals, death anniversaries, and ancestral worship are often performed in families with the participation of neighbours and villagers, promoting individual and family connections with the village community.

Out home: For Vietnamese people, ancestors are not only in the bloodline but also include national founding figures, national heroes, and career founders. They are respected, deified, commemorated, and worshipped in folk beliefs, both legendary and historical characters. The Four Immortals is the common name for four saints in the belief of Vietnamese national heroes: Tan Vien Son Thanh, Phu Dong Thien Vuong, Chu Dong Tu, and Princess Lieu Hanh. Vietnamese former Prime Minister Pham Van Dong noted that villagers worship the tutelary god, national heroes, the fathers of professions, and cultural celebrities. D.N. Van (2001) [8] explains that ancestors include those deceased in the bloodline and those who have contributed to the community of villages and the country, which the author calls the Religion of Ancestor.

The worship of national heroes is the sanctification of figures who made great contributions to the country. L.V. Loi (2022) [27] stated that national heroes are the ancestral generation whom posterity honours as gods; Vietnamese monarchies issued decrees to confer deities and regulations on worship. The Vietnamese state and governments through many regimes have always supported the establishment of temples and shrines to worship national heroes. In the minds of Vietnamese people, those with meritorious service to the community are often blessed gods who continue to help and protect the community after their passing. There are communal houses, temples, and shrines or palaces for them in almost every province and city in Vietnam, such as temples for national heroes: the Two Trung Kings/Ladies, Saint Tran (Tran Hung Dao), King Ly Thai To, and King Quang Trung. Temples worshipping famous people such as the traditional medicine physicians Tue Tinh and Hai Thuong Lan Ong; the cultural celebrities Chu Van An, Nguyen Trai, and Nguyen Du; and the land openers Mac Cuu and Nguyen Huu Canh, are still respected throughout the country.

In particular, scholar D.D. Anh (1938) [28] and other authors discussing ancestor worship [8, 10] confirm that the Vietnamese people, from North to South, have the custom of worshipping the Hung Kings, the national ancestors of Vietnamese. The dynasty of 18 Hung Kings is considered the time when the ancient state of Van Lang, the first national name of Vietnam, was established. Worshipping the Hung Kings is a cultural creation of the Vietnamese people, implicitly recognised by Vietnamese communities at home and abroad. It is akin to the Vietnamese wisdom: "Tree has roots, water has source". The death anniversary of the Hung Kings is the National Day to commemorate and pay tribute to the founders of the nation. The annual festival of the Hung Kings Worship Ritual in Phu Tho province (home of the Hung Kings), honoured by UNESCO in the "Representative List of the Intangible Cultural Heritage of Humanity" in 2012 [29], embodies spiritual solidarity and provides an occasion to acknowledge national origins and sources of Vietnamese cultural and moral identity.

For Vietnamese people, filial piety in the custom of ancestor worship is also connected with the worship of heaven and earth, considered the most high ancestors, the first parents who created human beings. In the past, Vietnamese agricultural society was entirely dependent on nature (folk verse: *Rely on the sky, rely on the land, rely on the clouds/ rely on the rain, rely on the sun, rely on the day, rely on the night*). Franz Boas, in his Cultural Relativism, claimed that the objective world is always refracted through the subjective perspective of native speakers. In the worldview of the ancient Vietnamese, heaven and earth are the parents of people, divine beings with supreme power, knowing everything, rewarding and punishing everyone. This belief is expressed through folklore and daily life. In many situations, Vietnamese people call upon, pray to, and give thanks to heaven and earth, from popular language to acts of worship and supplication. Some Western missionaries (ethnologists and linguists) recognised that the sense of God Heaven's supreme power is deeply imprinted in the Vietnamese religious consciousness. According to the authors, the vast majority of Vietnamese people believe that heaven and earth create and nurture people (*Heaven gives birth - Earth nourishes*).

The Yin Yang school in Chinese philosophy believed that Qian-Kun is the original yin-yang principle; Qian is the heaven, the father, and Kun is the earth, the mother. The relationship between Qian and Kun is the combination of yin and yang, the process by which all things were born in the natural universe, including humans [22, 30]. Ancient Vietnamese people held the concept that the heaven (sky) is round and the earth is square. Square and round represent the duality of yin and yang, earth and heaven (the legend of banh chung and banh day). Heaven and earth are considered the parents of humans, and the king is the "son of heaven", obeying heaven to rule people. The king, on behalf of the people, made offerings to heaven and earth to pray for peace, prosperity, good weather, and proliferation for the country.

Influenced by Confucianism, the Vietnamese people's filial piety extended to offerings to heaven and earth, and the most important ceremony of the monarchy was the offering at Dan Nam Giao. It can be said that Dan Nam Giao is the practice of Vietnamese filial piety, integrating the Vietnamese worldview and Confucian thought. According to Cardière (up to the time of his research), the national ceremony at Dan Nam Giao is the noblest and most solemn act in Vietnamese beliefs. Most Vietnamese feudal dynasties established Dan and held annual ceremonies to worship heaven and earth. During the Dinh dynasty (10th century), worshipping heaven and earth was called the Kinh Thien ceremony. From the Ho dynasty's Dan Nam Giao in the early 15th century in Thanh Hoa to the Nguyen's Nam Giao in the early 19th century in Hue, it still followed the same model: the main altar is circular, on a high square pedestal according to the "round sky - square earth" cosmology of the Vietnamese people.

Many families place an altar in front of their house to worship heaven and earth. Some Southern religions have a two-storey altar in the temple yard. People often light incense sticks and pray every day at sunset, the intersection of day and night, heaven and earth. The two-storey altar reflects the belief in harmony between yin and yang, serving as a place that connects people with Father Heaven and Mother Earth, with the hope of favourable weather and good crops.

Nowadays, although Confucianism and Taoism are considered doctrines or ideologies rather than religions, it is clear that the Confucian-Taoist ideology related to filial piety has deeply permeated and integrated into the customs and practices of the Vietnamese people. Excluding Taoism, it can be observed that the practice of filial piety in religions focuses on the living rather than the deceased. However, indigenous culture, with the custom of ancestor worship, has led religious followers towards rituals and offerings to honour the deceased. Vietnamese filial piety is a synthesis of Vietnamese characteristics, value systems, and consciousness over time, becoming living values and spiritual culture, promoting the connection between individuals, families, and the community.

3.2. Factors affecting the filial piety culture of Vietnamese people

Due to its historical factors and geographical location, Vietnam is both a convergence of Southeast Asian culture and an approach to Chinese culture. It can be said that family practices, village customs, along with the Vietnamese worldview and belief in ancestor worship, integrated with Eastern filial values, have contributed to shaping the filial piety culture of the Vietnamese people.

Filial piety bearing the mark of Vietnamese ecology and history

According to Radcliffe-Brown, social structure determines culture. Cultural researchers agree that the rice civilisation has shaped the culture and character of the Vietnamese people. Vietnamese family customs and spiritual culture (such as ancestor worship, mother goddess worship[2], animism, heaven and earth) probably originate from agricultural life, depending on nature and a desire for fertility. Since ancient times, Vietnamese people have lived in river deltas to cultivate wet rice. They joined together to build canals, dikes, or dams for production and the prevention of natural disasters. With a settled lifestyle in rice cultivation, they respected the sense of gratitude and attachment to family and the community of villages. The interests and existence of the family are closely linked to the interests of the community and the survival of the nation (Vietnamese proverbs: ích nước lợi nhà, quốc thái dân an, nước mất nhà tan, etc.; meaning: useful for the country and interests the home; the peace of the country and peace of the people; the loss of the country and the destruction of the family).

While Chinese and Korean filial piety is heavily hierarchical, centralised, male-oriented, and connected to the family, the Vietnamese culture of filial piety, from family customs to religious rituals, is not only within the scope of bloodline but also strong in community and village democracy. The agricultural culture of respecting family and village has contributed to shaping the characteristics of affection, community, and collective democracy in Vietnamese filial piety. N.N. Tho believed that traditional Vietnamese society, both before and after being influenced by Confucianism, is still generally a society of horizontal relationships [16].

Even though Vietnamese filial piety has been "Confucianised", it retains a feminine, maternal character, echoing traits of native Southeast Asian cultures. Vietnamese people practice and pass on to their descendants the filial piety of "worshipping father and respecting mother", balancing both paternal and maternal sides during the celebration of the New Year (The first Day for Father, the second Day for Mother), and celebrating the life expectancy of both grandfathers and grandmothers, fathers and mothers. The ancestral altar includes both paternal and maternal ancestors. Although Confucianism favours males with the custom of incense offering (hương hỏa) to the eldest son and grandson[3], many Vietnamese people still respect the folk custom: "It doesn't matter whether you choose to have a boy or a girl, as long as they are kind and righteous". (Gái mà chi, trai mà chi?/Sinh ra có nghĩa có nghì thì hơn). While living in a dynasty that emphasised Confucianism, Nguyen Trai still expressed the view of filial piety regardless of gender: "Whether paternal or maternal, It's the same on both sides/Don't mess around over there, over here" [23].

The Southern wave, starting from the mid-16th century under the Nguyen Lords until the S-shaped map of Vietnam was formed, saw Vietnamese filial piety in Dang Trong continue to interact with the matriarchal culture of ethnic groups like the Cham, Raglay, and Khmer. Vietnamese people in the Central region welcome and respect the goddess Po Inu Naga, the Mother of the kingdom of Kauthara of the Cham, as the Holy Mother of Vietnamese Thien Y A Na, or Thien Mu (Mother Goddess of Heaven); Southern people especially revere Linh Son Holy Mother.

With a culture of gratitude, or the ethic of "drinking water, remember its source", Vietnamese people value the tradition of filial piety towards their parents and grandparents, and promote filial respect towards neighbours (proverbs: Sell distant brothers to buy near neighbours), and honour loyalty to the country.

Furthermore, the Vietnamese people have a strong national consciousness due to a history of thousands of years of resisting assimilation, fighting foreign invaders, several centuries of expansion to the South, and even

[2]Mother Goddess Worship is a Vietnamese indigenous belief, a form of worship that deifies nature such as sky, earth, water, and forest-mountains into mother goddess.

[3]However, the youngest sons are often in charge of hương hỏa (instead of the eldest sons) in the South Central and Southern Vietnam.

a modern history of fighting for national sovereignty and independence. The history of formation, protecting the homeland from natural disasters and invaders, building and developing the country is closely linked to the names of talented individuals. The custom of "Cúng việc lề" in many rural areas of the South is a form of ancestral memorial service, a filial piety culture in the community to show gratitude to ancestors who have travelled with difficulty to find a place to live and leave a legacy for their descendants. The dense system of temples, shrines, and pagodas expressing filial piety to heaven and earth, gods, Buddhas, national heroes, and ancestors has remained for thousands of years throughout the country.

The customs and value systems in Vietnamese filial piety are closely related to those found in folk beliefs and religions in Vietnam.

Beliefs and religions help with shaping and institutionalising Vietnamese filial piety

It can be said that all beliefs and religions in Vietnam promote filial piety and integrate indigenous filial piety into their systems of doctrine, rituals, and religious life. In the convection dimension, belief values, dogmatic systems, and rituals related to filial piety in religions permeate the consciousness and practice of filial piety among the Vietnamese people.

Vietnamese folk beliefs, especially ancestor worship, are considered a way of expressing gratitude to the roots, whether followers of different religions or none. The practices of ancestor worship as family customs, rituals, and funerals are both spiritual culture and behavioural rules in family and village communities. These are considered the basis of Vietnamese filial piety culture.

Confucianism, Buddhism, and Taoism were introduced to Vietnam for almost a thousand years of Chinese domination, with different periods of prosperity and decline for each religion during the Vietnamese dynasties. Since then, Vietnamese filial piety has been systematised, becoming more diverse and flexible. With synthetic thinking and a culture of mixing and tolerance, the Vietnamese people have integrated patriarchy, moral standards, and social rituals from Buddhism, Daoism, and especially Confucianism into their culture of filial piety. Filial piety in Taoism leans towards souls and the "after-life" by promoting beliefs, mantras, and rituals of "contact" with the deceased in the worship of ancestors and the Mother goddess.

The missionary Buzomi commented, "perhaps thanks to Confucianism, society and family in this country (Dang Trong in the 16th century) had a high level of organisation. The people of this country have admirable virtues and customs". When researching the belief culture of Vietnamese families by observing and penetrating family and village rituals in the central part in the late 19th and early 20th centuries, Cadière expressed his admiration for the family cultural structure, along with the filial piety rituals of the Vietnamese people. The author made a fervent wish: "Please do not use any measures that threaten to weaken the family in this country, but on the contrary, strengthen it by all means. Alas! Is it possible…" [7].

The Vietnamese monarchy of the 15th century also institutionalised filial piety associated with ancestor worship through the law of The Hong Duc Code (Clause 7, Article 2) [31], which mentions the relationship between parents and children, including the obligation to obey and take care of parents and grandparents while they are still alive, as well as holding their funerals and rituals when they pass away. The dynasties of Le and Nguyen considered unfilial piety as one of the crimes that must be severely punished. The annual solemn rituals of worshipping heaven and earth of the monarchical dynasties were the official ceremonies of national filial piety towards father heaven and mother earth.

Whereas Confucian filial piety in Vietnam emphasises compliance with laws, rituals, and behavioural morality (state codes, village rules, family ethics), Buddhist filial piety focuses on moral aspects such as cultivating oneself, keeping commandments, doing charity, making offerings, and guiding parents to good dharma. Buddhism clarifies that filial piety beyond the world is the true dharma. No child is unfilial in Confucianism, but monastics in Buddhism are filial because they know how to bring true faith and interest to their parents. Buddhist scholars say: the sutra system of Buddhism (Four Noble Truths, Theory of Cause and Effect, Reincarnation, Noble Eightfold Paths, etc.) contains commandments and teachings on filial piety at different levels [4, 5]. The Vu Lan ceremony of filial piety is an important festival in Mahayana Buddhism (Northern Buddhism) to express respect and gratitude to parents and ancestors. Theravada Buddhism (Southern Branch) focuses on individual spiritual growth and self-discipline in temples, called 'tu báo hiếu'. It teaches that individuals are responsible for their own enlightenment and repaying the gratitude towards one's parents as good karma or merit, and as a way to contribute to social order. Despite their deep attachment to Mahayana, Vietnamese people still encourage everyone to participate in short-term filial retreats to repay merit to their parents and create good karma for themselves.

While the Three Teachings (Confucianism, Buddhism, and Taoism) contribute to shaping the Vietnamese culture of filial piety, Catholic filial piety is "localised" in the spirit of cultural integration of the Second Vatican Council (1965). Catholic scholars affirm filial piety in Catholicism by citing many precepts, maxims, and hymns in the Bible related to filial piety, especially the example of Jesus' filial obedience to his heavenly Father and earthly parents. The Catholic communities mixed their faith with indigenous traditions in filial piety practice, especially the value of filial piety in ancestor worship. Ancestor ceremonies and life cycle rituals of marriage, funerals of Christians, or Catholic Masses to pray for parents and ancestors at cemeteries show the impact of Vietnamese filial piety culture on Catholic rituals. Vietnamese Catholic historians also confirm that the ups and downs of missionary history in Vietnam are closely linked to the issue of filial piety in families, especially ancestor worship and polygamy. In fact, the 1659 Injunctions of Catholicism were several hundred years ahead of Vatican II when it clearly stated, “Do not seek how to bring our customs into their country, must respect the ancient customs of the natives” regarding filial piety and ancestor worship of Vietnamese people [6, 32].

The indigenous religions that appeared in the late 19th century in the South are spiritual creations, blending Confucianism, Buddhism, and Taoism based on the Vietnamese tradition of gratitude. Studies on the land, culture, and people in the South of Vietnam by Dang Nghiem Van [8] and other cultural scholars show that ancestor worship holds a key position in the spiritual life of Vietnamese families, whether living in rural or urban areas, domestically or abroad. Southerners, followers of religions such as Buu Son Ky Huong, Tu An Hieu Nghia, Hoa Hao Buddhism, Ta Lon Filial Piety Buddhism, or Cao Dai, all prioritise filial piety. They maintain the tradition of gratitude to their parents and ancestors, to the country, to the Three Jewels, and to their compatriots in their religious teachings and rituals.

While customs of filial piety in family and community, as well as the spiritual culture of filial piety in religions and beliefs, play an important role in traditional society, socio-economic factors seem to strongly influence decisions on how to practise filial piety in modern society.

Contemporary socio-economic and cultural context

While cultural relativism can illuminate the concepts and factors that shape Vietnamese filial piety, structural functionalism can explain filial piety in contemporary society. Radcliffe-Brown and structural functionalists argue that social phenomena occur as a “dynamic equilibrium”. If social relationships change, it will lead to changes in the entire social system and vice versa.

Today’s socio-economic factors are changing the social life of Vietnamese people. In addition, culture, media, and the “flat world” in modern society strongly impact personal consciousness, lifestyle, family relationships, and community configuration, which are deeply related to filial culture, with both positive and negative effects.

Globalisation originates from technological updates and replacements that break down the gaps of time and space, leading to changes in traditional orders. Globalisation and economic integration, internal and transnational migration are creating a changing process of demographic, family models, and community structure in modern society. The phenomenon of labour export, and the migrating flows of youths and young families seeking opportunities to study or make a living in big cities in recent decades, have significantly impacted Vietnamese filial piety culture, from rural to urban areas, even among Vietnamese labourers abroad. The number of rural households with parents has become smaller in villages. Many households consist only of the elderly or grandchildren living with their grandparents while their parents work far away and send home filial expenses. Conversely, immigrant households in urban areas often live in crowded conditions, constantly changing neighbourhoods, and the sense of community solidarity becomes fragile.

Although Vietnam is achieving the golden population structure together with a replaceable birth rate, it is also entering the phase of “population ageing”. Life expectancy is increasing thanks to socio-economic growth and better access to healthcare, but birth rates are decreasing, causing the population to age faster. According to the United Nations Population Fund, Vietnam is one of the countries with the fastest population ageing rate in the world and will enter an ageing population period in 2036. Vietnam currently has about 14.4 million people of retirement age. However, 72.3% of the elderly have no pensions or social benefits and must depend on their children [33]. The majority of the Vietnamese population living in rural areas (65.7%) are farmers and work in agriculture. Meanwhile, it is shown that more than 90% of workers in urban factories are migrant labourers from rural areas. While young people follow the fast pace of life in a competitive society, the number of ageing and lonely elderly people is easily “left behind”.

Changes in family size, structure, and living conditions also lead to changes in the behavioural relationships between family members and generations. The number of nuclear families is rising, and the size of families is smaller. Avoiding living together between generations is not only the desire of young families but also a meaningful choice for today’s elderly. Today’s generations of offspring choose a nuclear family and contribute “filial expenses” because they do not want to be tied down; or the elderly dislike depending on their children when they can financially support themselves. In addition, unlike traditional Vietnamese beliefs, many young people today consider that marriage is not the only goal of love, and more young people intend to lead a single life, or form a non-marital family, or become a single parent. The current gender gap is also signalling changes in family structure in the future.

Traditional families put family interests above personal ones, often requiring the obedience of children to their parents, and wives to their husbands. Today, family members are becoming more equal and democratic, especially in the relationship between husband and wife, and between parents and children. Women in the family, with roles as wife, mother, or daughter, are almost treated more fairly in terms of obligations and rights related to previous generations and in their access to social services.

Filial piety in traditional Vietnamese society (influenced by Confucianism) emphasises the authority of parents, the daily obligations of children to their parents, and makes children tied to their family and hometown. However, in modern society, the age of digital technology and multi-dimensional information, self-determination and personal freedom are promoted. Along with socio-economic development, young generations have chances to study, develop capacity and expertise. They are free to leave their family to choose their partner, lifestyle, profession, and future direction rather than being determined by their parents or following a "hereditary" career. In reality, most families of intellectuals, civil servants, and industrial workers are nuclear families but they still retain some filial characteristics of traditional families. Even if they do not live with and care for their parents, they send filial expenses and receive support from their extended family and relatives in need. They still visit their parents in their hometown, especially on death anniversaries and Tet holidays (Lunar New Year). Most families with origins in the countryside or migrant workers often return to celebrate Tet with their parents and visit ancestors' graves in their hometown as a custom of their filial piety.

Studies on changes in filial piety in modern society [9-11] revealed that positive changes in filial piety today include the emergence of social centres for the homeless elderly, hiring maids to take care of parents at home, new concepts of marriage, and more civilised worship of ancestors. Many families maintain traditional filial values while incorporating modern elements. Descendants take care of their parents materially and pay attention to their mental health, such as taking them on trips and helping them to join recreational activities. Social organisations play an increasing role in promoting filial piety. Many programmes and events are held to encourage filial piety, such as writing contests on the topic of filial piety, ceremonies to honour filial children, and gratitude programmes for families of war invalids and martyrs.

Recent research on the interdependence of happiness and filial piety within the family in Vietnam [13] concludes that at the social level, promoting the value of filial piety is fundamental to building family happiness, making an important contribution to achieving a welfare society at home. Moreover, industrial society tends to simplify community rituals and loosen family customs. Daily routines also show a decrease in family cohesion. The pressure of work or making a living for adults, and study pressure for children today, causes many families to have less time together. Some elderly people, despite having many children and grandchildren, are still lonely during the holidays while their children often phone or send gifts instead of visiting directly. The aged in rural areas feel both pensive and sad due to the fading and loss of tradition, yet eager and proud of the changes in the village with high buildings, cars, internet cafes, supermarkets, etc. The elderly admit to feeling lonely in their own homes when their sacred spaces, houses, and gardens are invaded by modernity [12]. The care of children seems no longer to compensate for the old people's worries. The elderly see the urbanisation process encroaching on the village. At the same time, their hometown gradually loses its village culture, and the relationships between people in the village gradually fade away. Meanwhile, their descendants choose to study trendy majors or turn to non-agricultural fields because they cannot bond with the countryside.

The downside of contemporary society is the crisis of values, pragmatism, and a culture of personal enjoyment. Moral values are also affected: family structure and community cohesion become fragile, which can lead to a decline in social moral standards. Modern piety mixes filial duty with self-interest and is not as pure as before. Piety is weighed and calculated in terms of profit and loss. The culture of gratitude and filial piety is sometimes abused as commercial products. Some individuals and families today want to show off by organising expensive and lavish funerals, building tombs like royal mausoleums, or expressing excessive superstitions, such as hiring worship services. Even in some families with many children, the responsibility of taking care of parents is often pushed aside. With the belief that "the afterlife is like the present life", the types of offerings and votive paper have become very sophisticated and diverse, from clothes and houses to high-tech devices that pollute the environment.

Furthermore, while the legal system is becoming more complete and detailed, crime and social evils are still widespread and increasingly sophisticated. Many sociological studies show that the majority of criminals come from families lacking filial piety and experiencing family violence. For some people, family is not a peaceful home and does not guarantee life. Family conflicts, violence, divorce, or criminal cases between relatives related to moral degradation, inheritance, and parental care obligations have been on the rise in modern times.

It can be said that village culture with Vietnamese characteristics (respect for agriculture, family and community affection, and national spirit), together with folk beliefs, especially ancestor worship, can be seen as the foundation that shapes the filial piety of Vietnamese people. Over time, the filial piety in Confucianism, Buddhism, Taoism, and Christianity has integrated, been Vietnamised, and enriched the filial piety culture of Vietnamese people. Nowadays, the concept of filial piety among Vietnamese people is not much different from the past, as it also stems from gratitude to one's origins, parents, and ancestors. However, today's generations of descendants practise filial piety differently from the ancients due to social circumstances and modern lifestyles. In spite of some shortcomings, in general, the generations of descendants try to fulfil their filial duties to their parents and ancestors even if they are unable to directly care for them. Though it is a controversial issue due to traditional concepts, the opinion on quality elderly care services is becoming more accepted. However, as society becomes more prosperous, life becomes more stressful and self-centred, and the communal character of filial piety seems to fade more than before.

From the above findings and discussion, the factors affecting Vietnamese people's filial piety can be summarised as follows (Fig. 1).

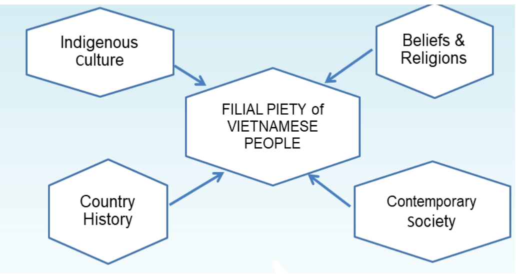

Fig.1. Factors affecting Vietnamese people's filial piety.

Filial piety practices in East Asian countries and Vietnam during the medieval period were quite similar in terms of family lineage. According to Professor Tsuboi Yoshiharu, if we compare the intensity between countries influenced by Chinese culture, nowhere emphasises filial piety more than China. However, modern society and political life have changed the ways filial piety is practised. According to some studies, Japanese, South Korean, and Taiwanese people prefer nuclear families; social security, care services, and nursing homes have increased rapidly [14,15,34]. Meanwhile, a high proportion of the elderly still stay at home in mainland China and Vietnam, especially in rural areas. The government is responding to the situation of the elderly population living alone at home. L.P. Su's research showed that while Chinese rural elders live alone or with their daughters or eldest daughters-in-law at the filial expense sent home, most Taiwanese elders rely on pensions and social security [14].

According to L.X. Chung (2015) [15], although Korean society favours the nuclear family, family rituals and genealogy remain strong in modern times. However, the negative effects of hierarchical culture and domestic violence are gradually diminishing. K.T. Sung (2024) [34] stated that, in facing the rapidly ageing population and changes in modern family structures in Korea, there have been nationwide public and private efforts to preserve traditional values associated with respect and care for the elderly. In general, the practice of filial piety in East Asia and Vietnam has changed significantly in contemporary society, but traditional filial piety still holds core values and meanings for each nation to preserve and promote.

4. Conclusions

The concepts and practice of filial piety among the Vietnamese people show that Vietnamese filial piety encompasses both personal living values within the family and the bond of mutual connection between individuals, their family, the community, and the country. With village culture and national history, Vietnamese filial piety extends from the family to the community and the nation. Besides the moral values within the family, Vietnamese filial piety expresses collective values, social ethics, and especially promotes patriotism.

The system of beliefs, rituals, and teachings of filial piety in many religions and folk beliefs not only provides spiritual support for Vietnamese people, helping to reform people's hearts, but also links tradition with the present. Filial piety in religions and beliefs expresses a rich spiritual culture, contributing to the transmission of cultural, ethical, and historical values from previous generations to the next.

Contemporary socio-economics and culture are changing the family model and community structure in today's society, strongly affecting the lifestyle and choice of filial piety practices among Vietnamese people. However, filial piety remains one of the constants of Vietnamese culture, contributing to building well-being and humaneness in society. Perhaps primary and secondary schools need to increase more educational programmes on the values of filial piety in the family and community.

Religious faith and rituals have largely empowered and promoted the filial piety tradition in Vietnam. Religious believers need to promote the spirit of ecumenism, demonstrate the function of reformation and education, and promote the humanity of filial piety, contributing to building social security and stability. However, it is also necessary to "clean up" filial piety practices, especially outdated rituals and superstitions that impact the environment.

Potential research on the positive and negative aspects of Vietnamese filial piety, especially in the context of globalisation and economic integration in today's society, or comparative studies of filial piety practices in rural and urban communities, may be needed to make significant contributions to policies on family and social welfare.

COMPETING INTERESTS

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

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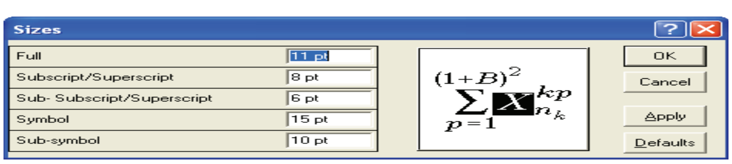

Fig. 1. The figure caption.

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Table 1. Caption.

a	b	c	d	e
f				
g				
h				

Equations

$$\int_a^b x dx \tag{1}$$

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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.

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