EXAMINING FACTORS AFFECTING CUSTOMERS' INTENTION TO USE E-BANKING IN VIETNAM

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ARTICLE INFO		ABSTRACT
		The paper aims to focus on e-banking in Vietnam - a country with a low percentage of intention to adopt e-banking - and account for the slow
		uptake. A representative sample of 235 customers in Hanoi was
		employed to examine this issue empirically. To estimate the study model, the author conducted the multiple regression analysis using
		SPSS and AMOS software packages. The results highlight that the
		intention to use e-banking was positively affected by Performance Expectancy, Brand Image, Law Factor and Subjective Norms but
		negative relationships were found between the intention to use e-
		banking and Perceived Risk and Perceived Switching Cost. Based on
		the results, recommendations are drawn for banks, involving focusing
		on factors of bank services' features, and external factors such as
		subjective norms. The paper also sheds light on the full functionality of
		bank's e-banking systems, emphasizing the need to ensure individual and media interactions, which can escalate the intention to use e-
		banking in Vietnam.

PHÂN TÍCH CÁC NHÂN TỐ TÁC ĐỘNG ĐẾN Ý ĐỊNH SỬ DỤNG E-BANKING CỦA KHÁCH HÀNG Ở VIỆT NAM

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Học viện Ngân hàng

THÔNG TIN BÀI BÁO		TÓM TẮT
		Bài viết nhằm mục đích tập trung nghiên cứu việc sử dụng dịch vụ e-banking ở Việt Nam - một quốc gia có tỷ lệ ý định áp dụng ngân hàng
		điện tử thấp - và giải thích cho thực trạng trên. Bài viết sử dụng bộ dữ liệu từ khảo sát 235 khách hàng ở Hà Nội về ý định sử dụng ngân hàng
		điện tử. Để ước tính mô hình nghiên cứu, tác giả tiến hành phân tích hồi quy đa biến, sử dụng phần mềm SPSS và AMOS. Kết quả thực
		nghiệm cho thấy ý định sử dụng ngân hàng điện tử ở Việt Nam chịu
		ảnh hưởng tích cực bởi kỳ vọng về tính hiệu quả, hình ảnh thương hiệu, yếu tố pháp luật và chuẩn chủ quan nhưng có mối quan hệ tiêu
		cực với nhận thức rủi ro và nhận thức về chi phí chuyển đổi. Các kết
		quả nghiên cứu trên mang lại những hàm ý chính sách quan trọng đối
		với các nhà quản lý ngân hàng, bao gồm tập trung vào các yếu tố về
		tính năng của dịch vụ ngân hàng, cũng như các yếu tố bên ngoài như
		chuẩn chủ quan. Bài viết cũng khẳng định vai trò của toàn bộ chức năng của hệ thống ngân hàng điện tử, nhấn mạnh sự cần thiết phải đảm
		bảo các tương tác giữa cá nhân và phương tiện truyền thông, điều này có thể làm gia tăng ý định sử dụng ngân hàng điện tử ở Việt Nam.

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1. Introduction

In the context of an increasingly integrated and competitive world, banks have recognized the need to have more proper and up-to-date services to serve customers and distinguish themselves from other rivals, one of which is e-banking with its numerous advantages for both banks and consumers [1]. This concept can be understood as the employment of Internet-based banking services to help customers carry out banking transactions [1], [2]. E-banking also leads to the reduction of transaction costs of traditional banking services, such as the cost of paperwork, legal fees, communication charges, or hiring the labor required for performing financial services. Thus, e-banking has been embraced by many bank managers in light of the numerous benefits it confers on both improving banks' competitiveness and ensuring their effective interaction with customers [3].

Although these e-banking services are of great value to customers and resources have been put into integrating e-banking technology into banks' operations, many customers are not willing to use them [4], [5] and the percentage of customers adopting e-banking in many nations remains low [1], [6], [7]. Studies conducted by some researchers [8], [9] pointed out that banks in England and Turkey have not successfully attracted customers to accept Internet banking. In other less developed nations such as Jordan, there is a preference for traditional methods of conducting financial services rather than online banking [1]. However, Jordan is known as one of the pioneering adopters of Internet banking with a high level of investment in building Internet technology infrastructure in the Middle East [10]. Such a low rate of e-banking adoption can possibly create a number of problems for the banking sector [11] and therefore banks need to identify the different factors that influence the consumers' intention to adopt online banking [12], making the e-services more enticing, useful and user-friendly. From the customers' perspective, they need to be made aware of the important implications behind using e-banking services so that they can feel more secure and increase the propensity to adopt e-banking [13]. Hence, it has become crucial for bank managers to evaluate the factors that can either impede or encourage the acceptance and usage of e-banking, based on which they can formulate appropriate strategies to increase the rate of online banking adoption [5].

A number of previous studies have been conducted to justify the factors impacting consumers' intention to use e banking, which remains a popular topic of research. Despite this, extant online banking adoption literature focuses mainly on developed countries [12] and scant empirical research on this issue has been done in countries with low e-banking usage, which is a research gap in prior studies. Although the proportion of people using the Internet is accelerating in Vietnam, the figure for e-banking adopters is not impressive. In filling this gap in the Internet banking literature, this study investigates the different factors that influence the intention to use e-banking at the country level. The study results are expected to be of great value for both practitioners and academia in the banking sector. Therefore, this study proposes a research model based on the Technology Acceptance Model (TAM) to examine the main factors that influence the decision to use e-banking in Vietnam. This model employs not only the common positive predictors of technology adoption, such as perceived ease of use, subjective norms and brand image, but also negative variables, such as perceived risk, perceived switching costs.

The remaining sections are organized as follows. The second part discusses the research method used in this study, followed by the data analysis and discussion in the third section. Finally, the fourth section outlines the main conclusions and the potential steps for further research and the main limitations.

2. Research methods

The research method in this paper was based on the deductive approach. Primarily, this paper sought to identify the links between the influential factors and people's intention to use e-

banking, especially from the respondents in Hanoi, Vietnam. Therefore, the research was conducted using the quantitative method of both paper-based and online questionnaire surveys.

2.1. Sample and collection procedures

The author randomly distributed the questionnaires to customers currently using banking services. In this manner, the randomness of the sample selection could be ensured to the maximum extent. The questionnaire also indicates that the information provided by the respondents would be kept in strict confidentiality and participation was voluntary to attempt. A pilot test was undertaken on a sample of 22 Vietnamese customers to ensure that the questionnaire is clear and comprehensible in terms of language and terminologies. The data was collected within the 60-day period from January with a convenience sampling method. Although this method has its limitations such as possibility of bias, the advantage is that habits, opinions, and viewpoints of the respondents can be observed in the easiest possible manner. The sample comprises of bank customers based in Hanoi city, Vietnam. A total of 250 questionnaires were filled; however, 15 were removed due to missing data. The 235 valid sampling units include 53.2% females and 46.8% males.

2.2. Framework and Hypotheses development

Based on the Theory of Reasoned Action [14] and the Technology Acceptance Model (TAM) [15], the author proposed the research model as illustrated in Figure 1.
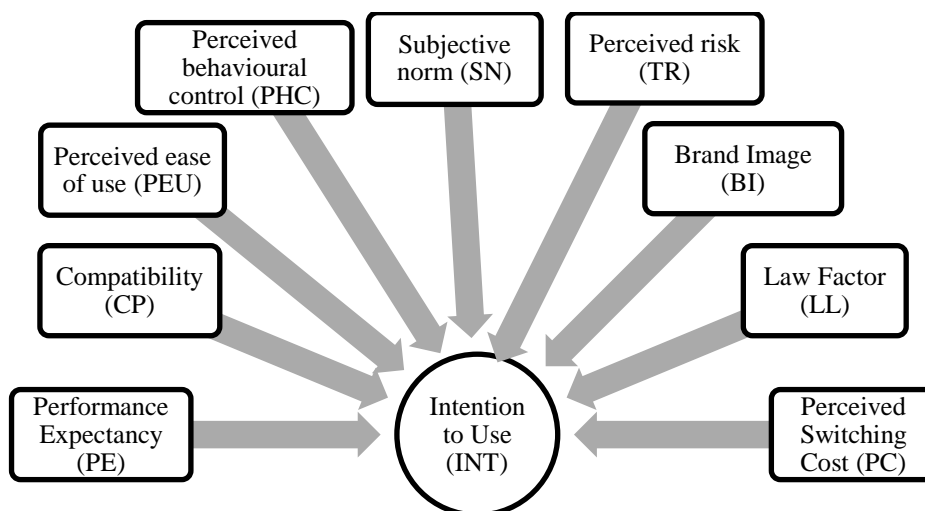

Figure 1. *Proposed research model*

Performance expectancy and intention to use e-banking

Performance expectancy means the consumers realize gains from the use of online banking, implying that the value customers derive from e-banking services can be greater than those available from brick-and-mortar based services. Using E-banking helps customers save time and costs for customers, thereby achieving greater efficiency in payment-related jobs as well as online transactions [1], [16], [17]. Based on that, the first hypothesis is formed as follows:

H1: Performance expectancy has a positive statistical impact on customers' intention to use e-banking.

Compatibility and intention to use e-banking

Compatibility refers to how well the service fits they way customers manage their financial situations and their lifestyles. If the customer perceives e-banking services more

compatible to them, they will have a tendency to accept such services [18]. Thus, the following hypothesis is formulated:

H2: Compatibility has a positive statistical impact on customers' intention to use e-banking.

Perceived ease of use and intention to use e-banking

Perceived ease of use is a crucial determinant of system use in an organization, especially in adopting e-banking service [14], [19]. When customers feel the ease of use, they will feel the use is more advantageous and beneficial to use. This can be hypothesized as:

H3: Perceived ease of use has a positive impact on customers' intention to use e-banking.

Perceived behavioural control and intention to use e-banking

Perceived behavioural control is the customer's perception of e-banking service or the difficulties when performing e-banking transactions such as whether the customer have full resources when using the service or can fully control transactions by e-banking services. The better perceived behavioural control the customers have, the higher the level of customer e-banking service acceptance is [19]. Thus, the following hypothesis is formulated:

H4: Perceived behavioural control has a positive impact on customers' intention to use e-banking.

Subjective norms and intention to use e-banking

Subjective norms are interpreted as the consumer's social pressure to engage in e-banking transactions. One's perception of pressures from people who may be acquaintances or important people can affect the intention to adopt e-banking [20]. In this regard, the hypothesis can be proposed as below:

H5: Subjective norm has a positive impact on customers' intention to use e-banking.

Perceived risk and intention to use e-banking

Risks in online transactions are the risks that customers perceive when using the e-banking system, affecting customers' confidence in using this service. The choice of technology application is inversely proportional to the level of perceived risk. Defined risks are the objective damages that customers face when they cannot foresee the consequences of their use. The higher the customer's perception of this risk, the lower the level of acceptance to use e-banking service will be [21] - [25]. Based on the argument, the following hypothesis is proposed:

H6: Perceived risk has a negative impact on customers' intention to use e-banking.

Brand image and intention to use e-banking

Customers' perception of the brand's reputation, resources, and commitment policies as well as service support guidance of the bank has a positive impact on the customers' acceptance and use of e-banking. If they feel the banks have good brand image, they will have a higher level of e-banking acceptance [26], [27]. In this regard, the hypothesis can be proposed as below:

H7: Brand Image has a positive impact on customers' intention to use e-banking.

Law factor and intention to use e-banking

Law factor is the degree of influence of legal factors affecting the acceptance and use of E-Banking. Like the government's laws on electronic transactions, the central banks' regulations on electronic transactions as well as the financial and monetary stability policy are put in place to protect interests and benefits of customers when using e-banking services [28], [29]. The clearer and more specific the policies and regulations are, the higher the level of e-banking adoption is.

H8: Law factor has a positive impact on customers' intention to use e-banking.

Perceived switching cost and intention to use e-banking

Perceived switching cost is defined as the extent to which a person believes that using a banking service will cost money. Costs may include the cost of bank fees or charges such as service fees, fees for performing transactions in the form of banking fees, network fees for sending information. This shows that the intention to adopt new technology is related to a reasonable switching cost, meaning that a lower switching cost can attract customers to use such e-banking service [26], [27]. Hence, the following hypothesis can be proposed:

H9: Perceived switching cost has a negative impact on customers' intention to use e-banking.

2.3. Variable measurements

On the basis of the research objectives, a structured questionnaire was carefully designed with two sections. To be specific, the first section, which consists of six multiple-choice questions, aims at collecting demographic data of the sample. The second section, which is the main part of the questionnaire, seeks to examine how the significant factors affect the intention to use e-banking, in accordance with the research model constructed.

Five-point Likert Scale questions in this section essentially required the respondents to select to what extent they agreed with each item, ranging from "strongly disagree" to "strongly agree". Particularly, 36 items for all questions were cautiously adapted from prior studies. There are nine variables, namely Performance Expectancy (PE) [16], [17], Compatibility (CP) [18], Perceived ease of use (PEU) [14], [19], Perceived behavioural control (PHC) [19], Subjective norms (SN) [20], Perceived risk (TR) [19], Brand Image (BI) [30], Law Factor (LL) [28], Perceived Switching Cost (PC) [26], [27] and Intention to Use (INT) [14], [20], [26], [27].

Software tools named SPSS and AMOS were used to test the hypothetical model of the effect of Performance Expectancy, Compatibility, Perceived ease of use, Perceived behavioural control, Subjective norms, Perceived risk, Brand image, Perceived Switching cost and Law Factor on Intention to Use E-banking in Vietnam. Before conducting the multiple regression analysis, the author has conducted Cronbach's Alpha test and exploratory factor analysis (EFA) to measure the internal consistency and overall validity of the instrument. Linear regression was used in order to examine the significance and nature of the relationship between variables.

3. Results and Discussion

3.1. Cronbach's Alpha results

Table 1. *Cronbach's Alpha test*

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Performance Expectance (PE): Cronbach's Alpha = 0.858		
PE1	0.747	0.801
PE2	0.715	0.815
PE3	0.64	0.845
PE4	0.715	0.815
Compatibility (PC): Cronbach's Alpha = 0.898		
PC1	0.803	0.851
PC2	0.828	0.828
PC3	0.765	0.882
Perceived Ease of Use (PEU): Cronbach's Alpha = 0.837		
PEU1	0.645	0.803
PEU2	0.75	0.774
PEU3	0.642	0.804
PEU4	0.695	0.788
PEU5	0.474	0.847
Perceived Behavioural control (PHC): Cronbach's Alpha = 0.778		
PHC1	0.554	0.764
PHC2	0.698	0.603
PHC3	0.6	0.716
Subjective norm (SN): Cronbach's Alpha = 0.888		
SN1	0.79	0.835
SN2	0.781	0.842
SN3	0.775	0.847

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Perceived risk (TR): Cronbach's Alpha = 0.896		
TR1	0.789	0.858
TR2	0.808	0.839
TR3	0.789	0.856
Brand Image (BI): Cronbach's Alpha = 0.886		
BI1	0.627	0.874
BI2	0.684	0.866
BI3	0.668	0.868
BI4	0.749	0.854
BI5	0.689	0.865
BI6	0.752	0.854
Law Factor (LL): Cronbach's Alpha = 0.884		
LL1	0.818	0.796
LL2	0.756	0.853
LL3	0.761	0.852
Perceived Switching Cost (PC): Cronbach's Alpha = 0.913		
PC1	0.8	0.897
PC2	0.881	0.835
PC3	0.811	0.896
Intention to Use (INT): Cronbach's Alpha = 0.874		
INT1	0.748	0.83
INT2	0.842	0.744
INT3	0.703	0.871

The Cronbach's Alphas of the nine constructs are displayed in Table 1. All Alphas are above the threshold of 0.70 [31], meaning that the reliability is confirmed.

3.2. EFA results

Table 2. *Exploratory Factor Analysis (EFA) results*

Variable		Component					
		1	2	3	4	5	6
Brand Image (BI)	BI5	0.833					
	BI6	0.81					
	BI4	0.807					
	BI3	0.742					
	BI2	0.678					
	BI1	0.62					
Performance Expectancy (PE)	PE1		0.802				
	PE4		0.775				
	PE2		0.772				
	PE3		0.731				
Perceived Risk (TR)	TR2			0.902			
	TR3			0.861			
	TR1			0.855			
Perceived Switching Cost (PC)	PC1				0.926		
	PC2				0.883		
	PC3				0.815		
Law Factor (LL)	LL1					0.871	
	LL3					0.861	
	LL2					0.769	

Variable		Component					
		1	2	3	4	5	6
Subjective Norm (SN)	SN3						0.89
	SN1						0.822
	SN2						0.782
Kaiser-Meyer-Olkin Measure of Sampling Adequacy				0.755			
Bartlett's Test of Sphericity	**Approx. Chi-Square**			1877.311			
	df			300			
	Sig.			0.000			

Table 3. *Total Variance Explained*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	7.807	31.230	31.230	7.807	31.230	31.230
2	3.730	14.922	46.151	3.730	14.922	46.151
3	2.585	10.339	56.490	2.585	10.339	56.490
4	1.999	7.995	64.486	1.999	7.995	64.486
5	1.478	5.911	70.397	1.478	5.911	70.397
6	1.206	4.825	75.222	1.206	4.825	75.222
7	1.059	4.236	79.458			
8	0.750	3.001	82.459			
9	0.672	2.689	85.148			
10	0.518	2.073	87.221			
11	0.440	1.758	88.979			
12	0.413	1.650	90.630			
13	0.354	1.416	92.045			
14	0.312	1.246	93.292			
15	0.292	1.167	94.459			
16	0.245	0.980	95.439			
17	0.210	0.840	96.279			
18	0.186	0.745	97.024			
19	0.168	0.673	97.697			
20	0.146	0.584	98.281			
21	0.122	0.487	98.767			
22	0.099	0.397	99.165			
23	0.078	0.313	99.478			
24	0.071	0.283	99.761			
25	0.060	0.239	100.000			

Extraction Method: Principal Component Analysis.

EFA results show that the statistical indicators are suitable (Table 2). The Exploratory factor analysis (with the extraction method of Principal Component Analysis and the rotation method of Varimax) was conducted on a pool of the 33 items to identify the factors affecting the intention to use e-banking. In the final solution, KMO = 0.755 > 0.5, so it satisfies requirements of factor analysis ($0.5 \leq KMO \leq 1$) $\chi2$ (df = 300) = 1877.311; p < 0.001), 22 out of the original 33 items were retained, resulting in six factors which accounted for 75.222% of variance in the data (Table 3). Six independent variables that can influence the intention to use e-banking (INT) are Performance Expectancy (PE), Subjective norms (SN), Perceived Risk (TR), Brand Image (BI), Law Factor (LL), Perceived Switching Cost (PC).

3.3. Results of estimating the model

In order to investigate the proposed hypotheses, a regression analysis was conducted in line with the statistics from the questionnaire survey. Table 4 provides the results of the regression analysis. The Adjusted R Square value is 0.408, which means that the six independent variables can explain 40.8% of the variability in the customers' intentions to use e-banking.

Table 4. *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.667[a]	0.445	0.408	0.67897	0.1812

To ensure certain validity and reliability of the model and the regression coefficients in the model equation, F-test and t-test were undertaken based on the results presented in the Table 5 and Table 6. Firstly, as seen from Table 5, F = 12.034 and the Sig. = 0.000 ≤ 0.05, which indicates that the model is significant. The results in Table 6, which provide the t values of all the independent variables, suggest that all six independent variables are significant as their Sig. values are all lower than 0.05.

Table 5. *ANNOVA*

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	33.285	6	5.547	12.034	0.000[b]
Residual	41.490	90	0.461		
Total	74.774	96			

a. Dependent Variable: INT
b. Predictors: (Constant), SN, PC, LL, PE, BI, PR

Table 6. *Coefficient*

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1 (Constant)	1.473	0.604		2.439	0.017		
PE	0.452	0.111	0.388	4.085	0.000	0.683	1.463
BI	0.006	0.129	0.004	0.045	0.004	0.650	1.539
TR	-0.083	0.100	-0.075	-0.834	0.006	0.759	1.318
PC	-0.183	0.078	-0.215	-2.341	0.021	0.729	1.372
LL	0.108	0.122	0.084	0.886	0.008	0.681	1.468
SN	0.231	0.093	0.236	2.483	0.015	0.681	1.468

Dependable variable: INT

Based on this basis, the results of estimating the study model have the following equation:

$INT = 0,388*PE + 0.004*BI - 0.075*TR - 0.025*PC + 0.084*LL + 0.236*SN + \varepsilon$

Impact of performance expectancy (PE) on intention to use e-banking (INT): The results show that performance expectancy (PE) has a positive impact on the intention to use e-banking. This result is consistent with the previous studies [27], [32], [33], which confirmed that performance expectancy is identified as a significant antecedent of Internet banking acceptance.

Impact of perceived risk (TR) on intention to use e-banking (INT): The results indicate that perceived risk is an important factor that negatively affects customers' intention to use e-banking. This is in line with results from other researches [21] - [25]. This finding offers insights for bank managers to motivate customers to develop greater risk acceptance and minimize the negative impact of the perceived risk of the adoption of e-banking. Some of the possible strategies to foster a high level of confidence in customers that bank management should consider include implementing safeguarding measure of intrusion and identity theft,

using security devices to protect internet banking security systems or building service recovery programs for customers' transactions.

Impact of Brand image (BI) on intention to use e-banking (INT): A positive relationship has been found between the image of the bank and customers' intention to use e-banking. This impact is consistent with findings from prior studies [21]. The implication is that banks should develop a marketing communication that to enhance brand image, or bank image, in the online context. An image of high quality and reliability related to banks' services, especially online ones, should be created in the mind of consumers to encourage the adoption rate of e-banking.

Impact of perceived switching cost (PC) on intention to use e-banking (INT): The results indicate that perceived switching cost negatively affects customers' intention to use e-banking. This is consistent with the finding by [26], [34] who labeled perceive switching cost as the factor determining consumer adoption of Internet banking. Since the impact of perceived switching cost on intention to use e-banking is quite significant, it is advisable for bank managers to reconsider price policies in order to increase the acceptance of e-banking.

Impact of law (LL) on intention to use e-banking (INT): The results indicate that law factor positively impacts customers' intention to use e-banking [28], [29]. The government plays an important role in improving the acceptance of e-banking services among customers their by designing policies to foster the use of this channel, such as Internet security policies and consumer protection legislation. The customers will be more likely to use e banking since they feel more secure and comfortable with internet technology. The Vietnamese government has spent decades concentrating on developing the digital sector, and the empirical results confirm a reasonable level of effectiveness with regard to the implementation of e-banking services.

Impact of subjective norms (SN) on intention to use e-banking (INT): The results indicate that subjective norms are statistically significant in directly affecting the intention to use e-banking. This resonates with the research results by [35], [36]. Vietnamese people tend to be sensitive to other people's opinions and expectations. Thus, bank managers should focus on personal referents to encourage e-banking adoption among bank customers and deploy social media as a channel of communication in an effort to increase the rate of e-banking adoption.

4. Conclusion

In this study, a number of factors that contribute to encouraging the intention to use e-banking amongst Vietnamese customers are illustrated in the banking industry, using TAM model. With the deployment of multiple regression analysis, the study has found that the intention to use e-banking is positively affected by performance expectancy, brand image, law factor, and subjective norms. However, perceived switching costs and perceived risk are notable as barriers to intention to use e-banking services, negatively impacting the customers' propensity to use e-banking services. These are important policy implications for the managers at the banks. In order to improve customers' intention to adopt e-banking, bank managers need to formulate effective strategies for delivery channels to retain and broaden the current network of customers. Another important implication is that bank managers can take advantage of marketing communications to widely publicize the benefits associated with the use of e-banking to wider consumers. Bankers can apply advertising techniques to impact consumers' attitudes toward e-banking services, which, in turn, can lead to a higher likelihood of using e-banking. Despite the contributions, the research has some limitations. One of the biggest constraints is the sample size, with only 235 respondents. A larger sample would yield more significant results. Additionally, the study was conducted on a country level, making a cross comparison between countries difficult. Therefore, future researches should be conducted on a larger scale, incorporating both developed and developing nations.

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