

BEHAVIORAL INTENTION AND BEHAVIOR OF USING E-COMMERCE PLATFORMS BY ONLINE SHOPPING CUSTOMERS

ThiThuy Nguyen

Ph. D., Thang Long University.

LinhThiThuy Nguyen

MSc., East Asia University of Technology.

Abstract-Research customers' behavioral intention and behavior for using e-commerce platforms by online shopping consumers and use the unified theory of acceptance and use of technology (UTAUT2) model as well as add other factors such as Platform Usability, User Autonomy to investigate the use of E-commerce platforms in Vietnam. This study shows that Behavioral Intention are positively influenced by Social Influence, Use Proficiently, Hedonic Motivation, User Skills, Effort Expectancy. While Performance Expectancy has a negative impact on Behavioral Intention. Usage Behavior is positively affected by Behavioral Intentions and Favorable Conditions, and negatively affected by User Autonomy in Vietnam. These findings have some important implications, it is proposed to stakeholders, help managers and the providers of e-commerce platforms by online shopping identify factors that influence the adoption of e-commerce platforms by online shopping by Vietnamese consumers.

Keywords: Behavioral intention, behavior, e-commerce, use behavior.

1. Introduction

An e-commerce platform is a software solution that allows online retailers to manage their business and customers to shop online via the internet, electronic devices, mobile devices, opening up the possibility of providing services e-commerce services on a global scale. (Ha Van Duong, 2022). An e-commerce platform is a software solution that allows businesses to centrally manage their, omnichannel marketing, digital sales and operations (Optimizely, 2023).

According to Ha (2023), changes in consumers' behavioral intentions and e-commerce platform usage behavior of Vietnamese consumers contribute to the growing development of the Vietnamese e-commerce market. Vietnam's e-commerce market includes grocery shopping on e-commerce platforms, omnichannel retailing, using available online marketing tools with the trend of personalizing the purchasing experience. Vietnamese consumers' behavioral intentions and use behavior are spending more time on the e-commerce platforms, and many customers willing to place orders of value and greater quantity. Because, an e-commerce platform allows the commercial buying and selling process to take place, it has a search feature that allows customers to find a specific product, manage orders and make payments.

Therefore, study on behavioral intention and behavior of using e-commerce platforms by online

shopping customers will contribute to promote diversifying business methods brings convenience for consumers, e-commerce platform that are becoming more popular and are likely to dominate in online shopping.

2. Literature and Hypotheses

2.1 Behavioral intention, behavior of using e-commerce platforms and The UTAUT2 Model

Online shopping behavior has become a trend as many different platforms have emerged such as e-commerce. As most consumers switch to online shopping via e-commerce platforms (Yuniar, et al., 2019). Online consumer behavioral intention is consumers decide for online shopping from e-commerce platforms. Their shopping is influenced by requirements and ever-changing expectations. The expectations that drive online consumer behavioral intention are rooted in the commonality, it includes expectations regarding accessibility to products, the cost of shipping, a simple buying experience, delivery transparency. Although needs are different for each online consumer, but those impact how online customers make their shopping on the internet (Chamat, 2022). The fast connections, easy access to e-commerce platforms, and diverse options for online purchases have a significant impact on online consumer behavioral intention and use behavior (Saleem, et al., 2022).

According to study of Zhou, et al (2021) proposed use of UTAUT2 model and performed the study on e-commerce platforms showed that e-commerce platforms and online shopping has stimulated consumer adoption of direct e-commerce shopping. At the same time the growth of live e-commerce shopping need to understand the customers' behavioral intention, use behavior and psychological determination mechanism. On the other hand, Ha (2023) discovered factors influencing behavioral intention behavior of using e-commerce platforms by Vietnamese consumers via the application of UTAUT2 model.

The UTAUT 2 model is an extension of the UTAUT developed by Venkatesh et al. (2012) and combines eight theories of technology acceptance. The UTAUT2 model explains users' acceptance and use of technology platforms with moderating variables and dependent variables as shown in Figure 1.

2.2 Hypothesis Development

Based on the theoretical basis of the UTAUT2 model, adding other factors such as Platform Usability, User Autonomy as well as based on actual conditions of using e-commerce platforms by Vietnamese consumers to propose a research model on behavioral intention and behavior for using e-commerce platforms by online shopping consumers in Vietnam as shown in Figure 1.

Performance Expectancy (PE) is a basic construct that defines adoption and use of technology to improve job performance (Venkatesh et al., 2012). Performance expectancy comes from extrinsic

motivation, usefulness perceptions and job fit. It had positive significant effects on behavioral intention for using e-commerce platforms (Mansur et al., 2019). Customers' behavioral intention to use online transaction platforms in e-commerce is positively influenced by performance expectations (Cabrera-Sánchez et al., 2020). The study of Chatsirichai et al., (2022) showed that performance expectancy had significant effects on behavioral intention for using e-commerce platforms by online shopping consumers. The other result study also showed that performance expectancy had a positive effect on the behavioral intention of using e-commerce platforms (Ezennia&Marimuthu, 2022). Thus, performance expectancy has a positive effect on the behavioral intention of using e-commerce platforms. Hypothesis H1 is as follows:

Hypothesis 1 (H1). Performance expectancy has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Effort Expectancy (EE) is defined as the degree of facility associated and ease related to use of technology (Venkatesh et al., 2012). Effort expectancy refers to the consumers' convenience and ease when they purchase the products and services on the e-commerce platform. Furthermore, this is a factor that has a significant positive influence on behavioral intention to use e-commerce platform (Mansur et al., 2019). On e-commerce platforms, many consumers easily chose the products and services and they have quick purchase that products and services. On the other hand, effort expectancy has a significant positive influence on consumers' behavioral intention to use e-commerce platform or online shopping websites (Hungilo&Setyohadi, 2020). The study of Chatsirichai et al., (2022) showed that effort expectancy had significant effects on behavioral intention for using e-commerce platforms by online shopping consumers as well as the study of Ezennia&Marimuthu (2022) also revealed that the consumers' behavioral intention using of e-commerce platforms is significant effected by effort expectancy. According to Ha (2023), effort expectancy can help consumers speed up online purchases, significantly improve the quality of online purchases in the use of e-commerce platforms and effort expectancy has a positive effect on the consumers' behavioral intention to use the e-commerce platforms. Therefore, effort expectancy has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers. Hypothesis H2 is stated as follows:

Hypothesis 2 (H2). Effort Expectancy has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

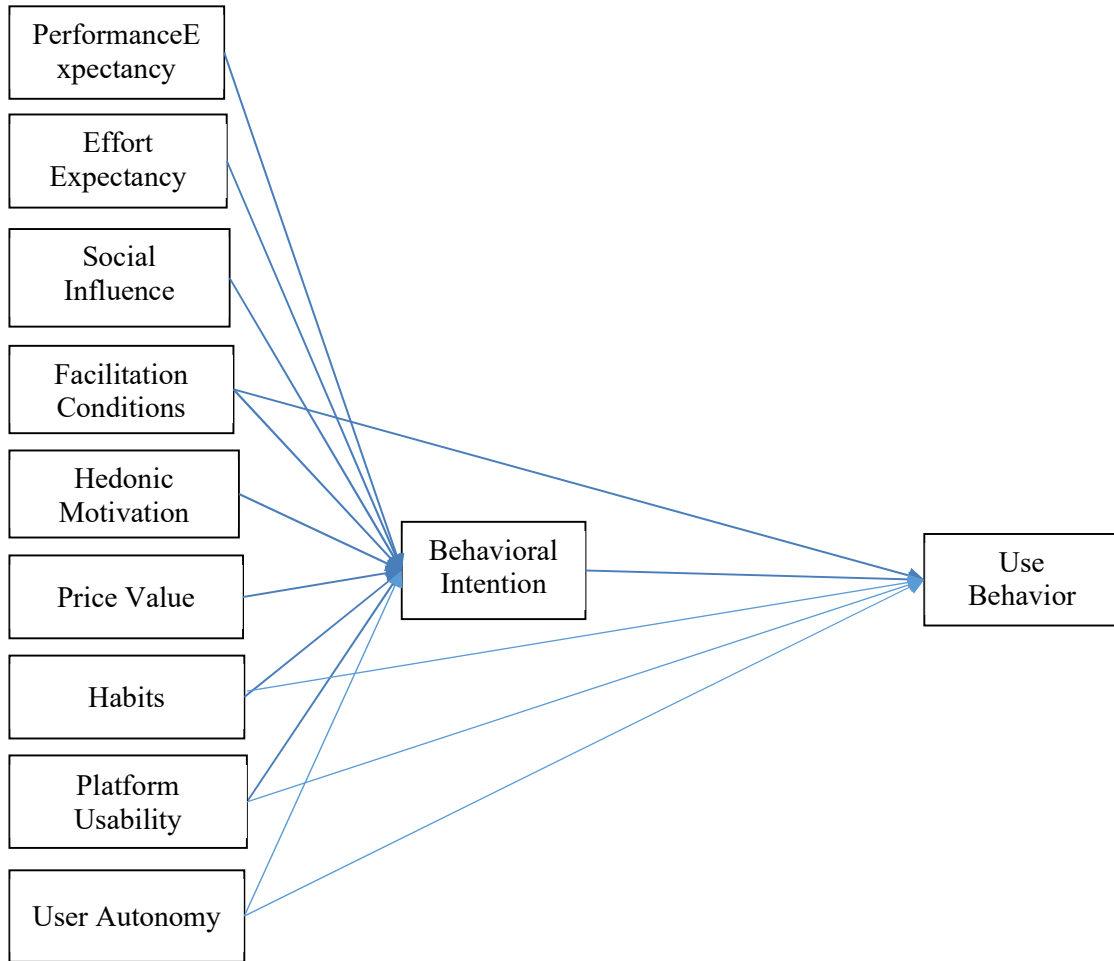


Figure 1. The Proposed model

Source: Venkatesh et al. (2012) and author's supplement

Social Influence (SI) measures the pervasive and powerful mechanisms for consumers' behavior intention change due to influence by family and friends as well as they think the others should use the technology platforms (Venkatesh et al., 2012). Social Influence has a positive significant influence on consumers' behavioral intention to use e-commerce platforms (Chen et al., 2021). The study of Ezennia&Marimuthu (2022) also shows that social influence impacts on the consumers' behavioral intention using of e-commerce platforms. According to Ha (2023), social influence in the use of e-commerce platforms is the factor that has a significantly positive effect on the consumers' behavioral intention and it has a positive effect on the consumers' behavioral intention to use the e-commerce platforms. So, the social influence has a positive effect on the consumers' behavioral intention of using e-commerce platforms. Hypothesis H3 is formed as follows:

Hypothesis 3 (H3). Social Influence has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Facilitating Conditions (FC) is defined as individuals' beliefs regarding the availability of sufficient resources and support for them to use technology (Venkatesh et al., 2012). Pobe (2021) found that facilitating conditions had a significant association with intention and a significantly influence the customers' behavior of using e-commerce platforms. According to Rehman et al. (2022), there was significant relationship between facilitating conditions and customers' behavioral intention using of e-shopping platforms, and Ezennia&Marimuthu (2022) also revealed that customers' behavioral intention of using e-commerce platforms was influenced by facilitating conditions. Therefore, it can be concluded that favorable conditions have a positive impact on behavioral intention and usage behavior of e-commerce platforms. Thus, two hypotheses were stated:

Hypothesis 4a (H4a): Facilitating conditions have a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Hypothesis 4b (H4b): Facilitating conditions have a positive effect on the behavioral of using e-commerce platforms by Vietnamese consumers.

Hedonic motivation (HM) refers to the impact of a person's pleasure receptors on their motivation toward the goal of using technology, and it is described as a factor that influences users' acceptance and adoption of technology (Venkatesh et al., 2012). Hedonic motivation will positively influence the consumers' behavioral intention to use the e-commerce platform, and they will experience a sense of enjoyment when using the platform (Ezennia&Marimuthu, 2022). The customers' behavior for buying decision on e-commerce platforms is significantly affected by hedonic motivation (Kamalia et al., 2022). Beside, the study of Ha (2023) also show that hedonic motivation has a significantly positive effect on the consumers' behavioral intention using of e-commerce platforms. Hypothesis H5 is formed as follows:

Hypothesis 5 (H5). Hedonic motivation has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Price value (PV) is the factor by which customers can compare the costs incurred with the benefits of using technology and this is also the customer's perceived trade-off between costs and benefits received from technology application (Venkatesh et al., 2012). Consumers tend to purchase online through e-commerce platforms and price value is the main concern as they believe in paying less and getting fair prices in addition to other benefits (Singh et al., 2017). Hungilo and Setyohadi (2020) show that consumers' purchase behavioral intentions through e-commerce platforms are significantly influenced by price value. The study of Ezennia and Marimuthu (2022) show that price value significantly influences consumers' behavioral intention to use the e-commerce platforms. Hypothesis H6 is as follows:

Hypothesis 6 (H6). Price value has a positive effect on the behavioral intention of using e-

commerce platforms by Vietnamese consumers.

Habits (HA) are an active frequency that has been repeated in a high degree due to the learning process of consumers who tend to automatically use technology (Venkatesh et al., 2012). Yoga and Triami (2021) indicated that consumers' use behavior for e-commerce platforms are significantly influenced by habits. E-commerce platform usage habits have a positive impact on consumers' behavioral intentions, and these habits have a positive impact on their usage behavior (Wulandari et al., 2022). The study of Setiyani et al. (2023) shows that customers' behavioral intentions to use e-commerce platforms are significantly influenced by habits. Hence, two hypotheses were stated:

Hypothesis 7a (H7a): Habits have a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Hypothesis 7b (H7b): Habits have a positive effect on the behavioral of using e-commerce platforms by Vietnamese consumers.

Platform usability (PU), where usability is the terms that refers to talk about digital platforms, and platform usability makes users comfortable when they use a website, app, or basically any digital platform (Bragg, 2018). Consumers' behavior and intention in adopting e-commerce depends on the importance of this platform usability (Venkatesh and Bala, 2008). Website platform usability has a significant effect on consumers' behaviour and purchase intention (Bai et al., 2008). The study of Perdana and Suzianti (2017) shows that usability factors that directly affect customers' intentions on online e-commerce sites. By enhancing usability, the providers can better navigate the consumers' behavior and drive e-commerce platform adoption (Hossain et al., 2023). Hypothesis H8 is formed as follows:

Hypothesis 8a (H8a): Platform usability has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Hypothesis 8b (H8b): Platform usability has a positive effect on the behavioral of using e-commerce platforms by Vietnamese consumers.

User Autonomy (UA), according to De Charms (1968), user autonomy is experiencing freedom of choice and feeling free to perform user behavior. This is the ability to control a user's experience with technology without being manipulated or coerced by other parties. Kohler (2022) show that user autonomy is seen as users being completely free to choose and explore as they wish. Therefore, user autonomy is essential for sustainable technological development, as it respects the users' preferences, fosters trust, engagement and innovation. The user's autonomy has a positive effect on purchase decisions, and a user's power distance moderates the relationship between self-efficacy, and purchase decisions (Fan and Liu, 2022). The findings of Ha (2023) indicate that user

autonomy has a positive effect on behavioral intention and plays an important role in the user's behavioral intention of using the e-commerce platforms. Hypothesis H9 is indicated as follows:

Hypothesis 9a (H9a): User autonomy has a positive effect on the behavioral intention of using e-commerce platforms by Vietnamese consumers.

Hypothesis 9b (H9b): User autonomy has a positive effect on the behavioral of using e-commerce platforms by Vietnamese consumers.

Behavioral intention (BI) is defined as a user's level of trust and willingness to adopt technology in the future, and it determines the users' technology use behavior (Venkatesh et al., 2012). Behavioral intention of using the technology and e-commerce platforms is significantly correlated with consumer use behavior (Ha and Nguyen, 2022). The study of Ha (2023) also shows that behavioral intention has a positive impact on consumer use behavior. Hypothesis H10 is indicated as follows:

Hypothesis 10 (H10): Behavioral Intention has a positive effect on the behavioral of using e-commerce platforms by Vietnamese consumers.

3. Research Methodology

3.1 Research design

Qualitative research is applied to help interviewed users understand the content. This study finds the factors that constitute the intention to accept and use e-commerce platforms in Vietnam. Through preliminary research, this study also completed edits or eliminates observed variables in the research model.

Quantitative research is applied to analyze the digital data that has been collected. Data collected from interviewees was used to evaluate the levels of acceptance and use of e-commerce platforms in Vietnam through Cronbach's Alpha reliability coefficient and EFA, CFA, SEM analysis.

3.2 Sample and data

Data is collected from e-commerce platform users in Vietnam. With the purposive sampling method, the questionnaire was measured on a 5-point Likert scale (5 = completely agree; 1 = completely disagree); In which, the questionnaire describes user characteristics in the first part and describes factors measuring the intention to accept and use e-commerce platforms in Vietnam in the second part.

Sampling was done using a sample size of 5-10 multiplied by the questionnaire item, as the number of questionnaire items was 52, hence the sample size in this study (10x52 = 520) respondents. Therefore, the number of 718 samples collected from interviewed people ensures a sufficient

sample size for this study.

According to Hu and Bentler (1999), RMSEA values of 0.06 or less are good, RMSEA values of 0.08 or less are acceptable. P value of Close fit (PCLOSE) of 0.05 or more is good, a PCLOSE value of 0.01 or more is acceptable. Byrne and Campbell (1999) showed GFI value must be ≥ 0.80 . Hair et al. (2010) said that CMIN/df values of 2 or less are acceptable, CMIN/df values of 5 or less are acceptable. CFI value of 0.8 or higher is acceptable for a good model fit (CFA ranges from 0 to 1). Kline (2011) showed the most used fit index (GFI, AGFI, NFI, NNFI, CFI and IFI) should be ≥ 0.85 in CFA and SEM methods. Shadfar and Malekmohammadi (2013) indicated that TLI ≥ 0.85 is a good value level and > 0.8 is an average value level.

4. Research Results

4.1 Demographic statistics

There were 750 questionnaires distributed and 718 questionnaires collected. The results of analysis using SPSS 25.0 software are as follows:

Table 1: Demographic profile

Item	Optional	Frequency	Percentage
Age	22- 45 years old	389	54.18
	46-55 years old	155	21.59
	56-65 years old	106	14.76
	65 years old and up	68	9.47
Gender	Male	352	49.03
	Female	366	50.97
Experience	0-1 year	295	32.73
	Over 1 year - 5 years	236	41.23
	Over 5 years	187	26.04
Education level	Graduated from college and university	698	97.21
	Postgraduate level	20	2.79
Income level	800 USD – 1,000 USD/Month	382	53.20

Over 1,000 USD - 1,500 USD/Month	157	21.87
Over 1,500 USD - 2,000 USD/Month	86	11.98
Over 2,000 USD - 2,500 USD/Month	68	9.47
Over 2,500 USD/Month	25	3.48

Source: Primary data, processed in 2023

The age of the interviewees ranged from 22 to 45 years old with the highest percentage at 54.18% and 48.47% of them were male. Surveying the experience of using e-commerce platforms shows that the period from 1 year to 5 years accounts for the highest percentage of 41.23%. The majority of those interviewed had college or university degrees, 97.21%, and the rest had postgraduate degrees. The income level of the interviewees ranges from 800 USD to 1,000 USD/month or more, which is the highest income level among the interviewees.

4.2 Cronbach's alpha reliability analysis

According to Hulin et al. (2001), the scale accepted in terms of reliability has a Cronbach's Alpha coefficient ≥ 0.60 and variables with a total correlation of less than 0.3 will be eliminated. This study shows that the variables have alpha coefficients greater than 0.6 and total correlation coefficients greater than 0.3 according to the results of reliability analysis, so all scales are qualified to perform EFA can be seen in Table 2.

Table 2. Independent, moderating and dependent variables in the research

No.	Code	Observed variables	Corrected Item-Total Correlation
	PE	Cronbach's alpha = 0.879	
1	PE1	Using e-commerce platforms makes it easy for me to shop online anywhere.	0.732
2	PE2	Using e-commerce platforms helps me understand online shopping easily and clearly.	0.683
3	PE3	Using e-commerce platforms delivers on my expectations of online shopping.	0.593
4	PE4	Using e-commerce platforms allows me to shop online faster.	0.608
5	PE5	Using e-commerce platforms is suitable for my work and beneficial in my daily life.	0.637
6	PE6	Using e-commerce platforms makes me more comfortable with online shopping.	0.795
7	PE7	Using e-commerce platforms gives me more convenience for 24-hour online shopping.	0.614

EE		Cronbach's alpha = 0.825	
8	EE1	Using e-commerce platforms helps me speed up my online shopping transactions.	0.688
9	EE2	Using e-commerce platforms helps me buy many high-quality products.	0.523
10	EE3	Using an e-commerce platform helps me shop online more safely.	0.624
11	EE4	Using e-commerce platforms helps me understand online shopping information.	0.576
12	EE5	Using e-commerce platforms helps me have enough information to shop online.	0.595
13	EE6	Using e-commerce platforms helps me increase efficiency in online shopping.	0.555
SI		Cronbach's alpha = 0.847	
14	SI1	My behavior of using e-commerce platforms in online shopping is influenced by many influencers.	0.678
15	SI2	I was advised to use e-commerce platforms for online shopping by many influencers.	0.608
16	SI3	I was advised to use an e-commerce platform for online shopping by people familiar with me.	0.606
17	SI4	My behavior of using e-commerce platforms in online shopping is influenced by my colleagues and friends.	0.615
18	SI5	I receive support for using e-commerce platforms for online shopping from my family.	0.606
19	SI6	I received support for using e-commerce platforms for online shopping from many people in my neighborhood.	0.675
FC		Cronbach's alpha = 0.837	
20	FC1	I am given permission to control the use of the e-commerce platform for online shopping.	0.682
21	FC2	I have knowledge of using e-commerce platforms for online shopping.	0.592
22	FC3	I am guaranteed trading conditions when I use the e-commerce platform.	0.619
23	FC4	I have all the necessary resources to shop online on e-commerce platforms.	0.608
24	FC5	My shopping is safe when I use e-commerce platforms.	0.608
25	FC6	I have smart devices and support from e-commerce platform providers for online shopping.	0.565
HM		Cronbach's alpha = 0.819	

26	HM1	I feel comfortable shopping online via e-commerce platforms.	0.546
27	HM2	I feel lucky to shop online through an e-commerce platform.	0.530
28	HM3	I find it interesting to shop online via e-commerce platforms.	0.675
29	HM4	I feel happy when shopping online through e-commerce platforms.	0.578
30	HM5	I feel excited when shopping online through e-commerce platforms.	0.732
	PV	Cronbach's alpha = 0.776	
31	PV1	Using e-commerce platforms helps me save time shopping online.	0.554
32	PV2	Using e-commerce platforms helps me save a lot of online shopping costs.	0.631
33	PV3	Using e-commerce platforms helps me pay the appropriate costs of internet subscriptions.	0.662
34	PV4	Using e-commerce platforms helps me avoid having to pay transaction check fees for online shopping.	0.515
35	PV5	Using e-commerce platforms helps me not have to pay any extra costs for online shopping.	0.509
	HA	Cronbach's alpha = 0.674	
36	HA1	I often shop online via e-commerce platforms.	0.403
37	HA2	I can do my own online shopping via e-commerce platforms.	0.477
38	HA3	I have a habit of shopping online through e-commerce platforms.	0.496
39	HA4	When shopping online, I also receive transaction guidance from e-commerce platform providers.	0.490
40	HA5	When no one is simulating, I can still use e-commerce platforms to shop online.	0.494
	PU	Cronbach's alpha = 0.679	
41	PU1	I believe that e-commerce platforms always ensure efficiency for all users to shop online.	0.426
42	PU2	I find that the e-commerce platform always ensures accurate information verification when shopping online.	0.456
43	PU3	I believe that e-commerce platforms are always secure when shopping online.	0.475
44	PU4	I believe that the e-commerce platform meets all the needs of online shopping users.	0.478
45	PU5	I believe that my online shopping data is kept securely on the e-commerce platform.	0.485
46	PU6	My online shopping is not subject to unauthorized access via using e-commerce platforms.	0.452
	UA	Cronbach's alpha = 0.654	

47	UA1	I believe that e-commerce platforms always ensure a variety of goods for selection when shopping online.	0.497
48	UA2	I find that e-commerce platforms always ensure freedom for online shopping.	0.426
49	UA3	I believe that e-commerce platforms always ensure online shopping according to users' wishes.	0.469
50	UA4	I believe that e-commerce platforms always respect the preferences of online shopping users.	0.464
51	UA5	I believe that e-commerce platforms promote the need for users to shop online.	0.436
52	UA6	My online shopping is not manipulated or coerced by other parties through the use of e-commerce platforms.	0.424
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	BI	Cronbach's alpha = 0.765	
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53	BI1	My online shopping will continue via e-commerce platforms.	0.599
54	BI2	When I need to buy goods, I will use e-commerce platforms.	0.587
55	BI3	I would recommend others to shop online via e-commerce platforms.	0.611
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	UB	Cronbach's alpha = 0.692	
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56	UB1	When I have difficulty using an e-commerce platform, certain people and communities will help me shop online.	0.479
57	UB2	I may not need help from others when shopping online via e-commerce platforms.	0.521
58	UB3	Although I have never used an e-commerce platform, I can use it for online shopping.	0.522

Source: Venkatesh et al. (2012) and the authors' suggestions

4.3 Exploratory factor analysis

The results of KMO (Kaiser-Meyer-Olkin) and Bartlett's tests for independent variables show that the KMO coefficient is 0.813 (greater than 0.5), so EFA is consistent with actual data. At the same time, observed variables are correlated with each other in the population when $\text{Sig} = 0.000 < 0.05$. Factor analysis for independent variables with principal components and varimax rotation (absolute value below: 0.3) showed 52 observed variables formed into 12 groups. The total value of variance extracted is 60.328%, these 12 factors explain 60.328% of the data variation. The 12th factor has the lowest Eigenvalues of 1,100 > 1, which can be seen in Table 3.

Table 3. Exploratory factor analysis for independent variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	Cumulative %	
1	6.891	13.253	13.253	6.891	13.253	13.253	4.122	7.928	
2	3.633	6.986	20.238	3.633	6.986	20.238	3.541	14.738	
3	3.249	6.248	26.486	3.249	6.248	26.486	3.377	21.233	
4	2.801	5.386	31.873	2.801	5.386	31.873	3.324	27.624	
5	2.635	5.067	36.940	2.635	5.067	36.940	3.006	33.404	
6	2.563	4.929	41.869	2.563	4.929	41.869	2.748	38.689	
7	2.401	4.618	46.487	2.401	4.618	46.487	2.336	43.182	
8	2.064	3.969	50.456	2.064	3.969	50.456	2.308	47.621	
9	1.636	3.146	53.602	1.636	3.146	53.602	2.120	51.697	
10	1.262	2.427	56.030	1.262	2.427	56.030	1.503	54.588	
11	1.135	2.182	58.212	1.135	2.182	58.212	1.494	57.461	
12	1.100	2.116	60.328	1.100	2.116	60.328	1.490	60.328	
13	.991	1.905	62.233						

Extraction Method: Principal Component Analysis.

Source: The authors' calculation from SPSS 25.0

After performing a rotation, the independent variables along with the factor loadings are all greater than 0.5. This result also shows that there are 3 new factors (with observed variables HA1 and HA2; PU5 and PU6; UA5 and UA6). With the characteristics of the variables HA1 and HA2 in the factor HA is associated with users' proficiency in using e-commerce platforms. Therefore, this new factor is named Use Proficiently (UP). Hypothesis UP has a positive impact on users' behavioral intention in using e-commerce platforms and UP has a positive impact on users' behavior in using e-commerce platforms. With the characteristics of variables PU5 and PU6 in the PU factor is associated with the ease level in using e-commerce platforms of users. Therefore, this new factor is named Easy Level (EL). Hypothesis EL has a positive impact on users' behavioral intention in using e-commerce platforms and EL has a positive impact on user behavior in using e-commerce platforms. At the same time, the characteristics of variables UA5 and UA6 in the UA factor are associated with user skills in using e-commerce platforms. Therefore, this new factor is named User skills (US). Hypothesis US has a positive impact on users' behavioral intention in using e-commerce platforms and US has a positive impact on user behavior in using e-commerce platforms, as can be seen in Table 4.

Table 4. Rotated component matrix for independent variables.

Variable	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
PE6	.829											

PE1	.774		
PE7	.735		
PE3	.708		
PE2	.706		
PE5	.696		
PE4	.643		
SI6	.778		
SI1	.747		
SI3	.697		
SI4	.697		
SI2	.687		
SI5	.664		
FC1		.792	
FC3		.745	
FC5		.729	
FC2		.717	
FC4		.714	
FC6		.694	
EE1		.801	
EE3		.762	
EE5		.717	
EE6		.707	
EE4		.699	
EE2		.621	
HM5		.856	
HM3		.817	
HM4		.728	
HM1		.696	
HM2		.685	
PV3		.814	
PV2		.777	
PV1		.729	
PV5		.686	
PV4		.598	
UA2		.768	
UA4		.744	
UA3		.739	
UA1		.670	
PU2			.774
PU3			.750

PU4	.743	
PU1	.653	
HA5	.832	
HA4	.818	
HA3	.734	
HA1	.800	
HA2	.767	
PU6		.815
PU5		.798
UA6		.783
UA5		.769

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Source: The authors’ calculation from SPSS 25.0

The results of KMO (Kaiser-Meyer-Olkin) and Bartlett's tests for dependent variables show that the KMO coefficient is 0.873 (greater than 0.5), so EFA is consistent with actual data. At the same time, observed variables are correlated with each other in the population when Sig = 0.000<0.05. Factor analysis for dependent variables with principal components and varimax rotation (absolute value below: 0.3) showed 6 observed variables formed into 2 groups. The total value of variance extracted is 65.088%, these 2 factors explain 65.088% of the data variability. The 2nd factor has the lowest Eigenvalues of 1,100 > 1, which can be seen in Table 5.

Table 5. Exploratory factor analysis for dependent variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	Cumulative %
1	2.269	37.809	37.809	2.269	37.809	37.809	2.046	34.095
2	1.637	27.279	65.088	1.637	27.279	65.088	1.860	65.088
3	.652	10.869	75.958					

Extraction Method: Principal Component Analysis.

Source: The authors’ calculation from SPSS 25.0

After performing a rotation (absolute value below: 0.3), the dependent variables along with the factor loadings are all greater than 0.5. Two factors were found as can be shown in Table 6.

Table 6. Rotated component matrix for dependent variables

Variable	Component	
	1	2
BI3	.834	
BI1	.819	
BI2	.814	
UB3		.802
UB2		.788
UB1		.762

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Source: The authors' calculation from SPSS 25.0

4.4 Confirmatory factor analysis

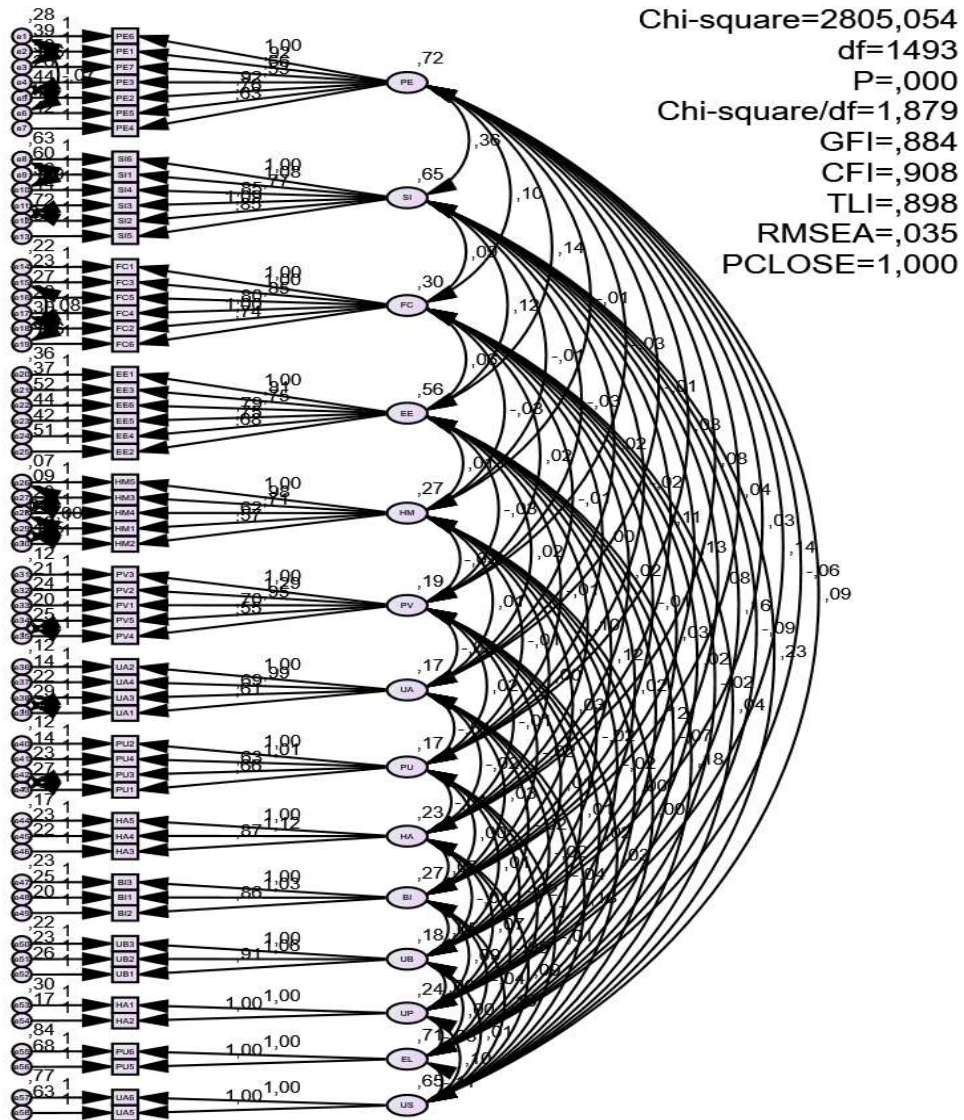


Figure 2. Confirmatory factor analysis

Source: The authors' calculation from AMOS 24.0

CFA is suitable for real data, because KMO coefficient is 0.808 (greater than 0.5) and the observed variables are correlated with each other in the population when Sig = 0.000 < 0.05. With promax rotation (absolute value below: 0.3) and the number of observations is 718 as well as linking e1 and e3, e4 and e5, e4 and e6, e8 and e10, e11 and e12, e15 and e18, e17 and e19, e26 and e28, e27 and e28, e28 and e30, e29 and e30, e34 and e35, e38 and e39, e42 and e43 to correct for covariance show that this model has a Chi-square = 2805.054, with 1493 degrees of freedom (df); Chi-square/df = 1,879 < 3 with p value = 0.000 and other indicators such as CFI = 0.908; TLI = 0.898; GFI = 0.884; RMSEA = 0.035 < 0.06; PCLOSE = 1,000 > 0.05. The total variance values are greater than 0.5 and the standardized and unstandardized coefficients are greater than 0.5.

Therefore, the model is completely consistent with the market data in this study.

4.5 Structural equation modeling

The results of SEM analysis show the fit of the research model. Chi-square = 2827,495; df = 1498; p = 0.000; Chi-square/df = 1,888; CFI = 0.907; TLI = 0.897; GFI = 0.883; RMSEA = 0.035; PCLOSE = 1,000. This research model achieves compatibility with the market data can be seen in Figure 3.

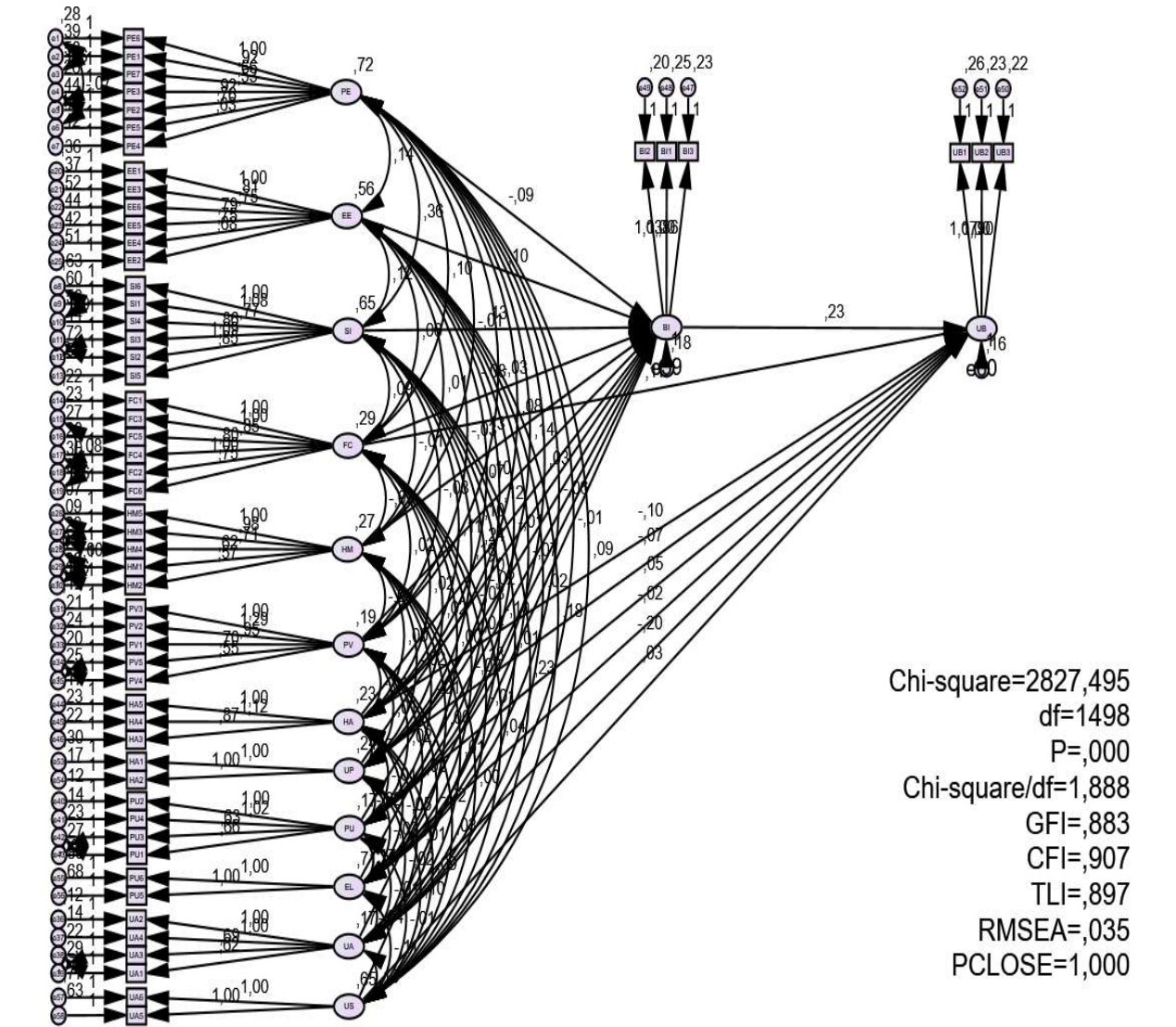


Figure 3. Structural equation modeling

Source: The authors' calculation from AMOS 24.0

With 95% confidence standard, the sig of PE on BI is $0.005 < 0.05$, the sig of EE on BI is $0.006 < 0.05$, the sig of SI on BI is $0.000 < 0.05$, the sig of HM on BI is $0.002 < 0.05$, sig of UP on BI is $0.000 < 0.05$, sig of US on BI is $0.003 < 0.05$ show that the variables PE, EE, SI, HM, UP and US

have effect on BI. At the same time, the sig of FC on UB is $0.006 < 0.05$, the sig of BI on UB is $0.000 < 0.05$, the sig of UA on UB is $0.002 < 0.05$ show that the variables UB, BI, and UA have effect on UB. The remaining variables are not significant with $\text{sig} > 0.05$, as can be seen in Table 7. There are five variables that have a positive effect on BI: EE, SI, HM, UP and US. The variable PE has a negative effect on BI. There are two variables that have a positive effect on UB, respectively, such as: FC and BI. The variable UA has a negative effect on UB as can be seen in Table 7.

Table 7. Regression Weights and Standardized Regression Weights

			Unstandardized Coefficients				Standardized Coefficients
			Estimate	S.E.	C.R.	P	Estimate
BI	<---	PE	-,093	,033	-2,838	,005	-,153
BI	<---	EE	,096	,035	2,743	,006	,139
BI	<---	SI	,133	,039	3,449	***	,208
BI	<---	FC	-,080	,042	-1,896	,058	-,084
BI	<---	HM	,127	,042	3,052	,002	,128
BI	<---	PV	-,072	,056	-1,290	,197	-,061
BI	<---	HA	,099	,054	1,833	,067	,093
BI	<---	UP	,241	,066	3,637	***	,228
BI	<---	PU	,096	,071	1,353	,176	,077
BI	<---	EL	-,026	,037	-,700	,484	-,043
BI	<---	UA	,035	,071	,495	,621	,028
BI	<---	US	,134	,045	2,976	,003	,210
UB	<---	FC	,107	,039	2,772	,006	,136
UB	<---	HA	-,096	,050	-1,904	,057	-,108
UB	<---	BI	,233	,053	4,369	***	,281

		Unstandardized Coefficients				Standardized Coefficients	
UB	<---	UP	-,074	,056	-1,309	,191	-,084
UB	<---	PU	,046	,064	,717	,473	,045
UB	<---	EL	-,020	,035	-,570	,569	-,039
UB	<---	UA	-,202	,067	-3,030	,002	-,195
UB	<---	US	,028	,040	,708	,479	,053

Source: Authors' calculation

Implementation of Bootstrap method and repeated sampling of N=1200 was used to estimate summary statistics and gave reliable results with C.R < 1.96 deducing p-value > 5% as can be shown in Table 8.

Table 8. Bootstrap method on SEM

Parameter	SE	SE-SE	Mean	Bias	SE-Bias	C.R = Bias / SE-Bias	
BI <---	PE	,039	,001	-,095	-,001	,001	-1.0
BI <---	EE	,043	,001	,095	-,001	,001	-1.0
BI <---	SI	,048	,001	,135	,001	,001	1.0
BI <---	FC	,047	,001	-,080	,000	,001	0
BI <---	HM	,044	,001	,129	,001	,001	1.0
BI <---	PV	,056	,001	-,073	-,001	,001	-1.0
BI <---	HA	,055	,001	,099	,000	,001	0
BI <---	UP	,077	,001	,243	,001	,002	0.5
BI <---	PU	,078	,001	,099	,003	,002	1.5
BI <---	EL	,041	,001	-,027	,000	,001	0
BI <---	UA	,080	,001	,033	-,002	,002	1.0

BI <---	US	,055	,001	,137	,003	,001	1.5
UB <---	FC	,039	,001	,107	,000	,001	0
UB <---	HA	,055	,001	-,097	-,001	,001	-1.0
UB <---	BI	,058	,001	,234	,001	,001	1.0
UB <---	UP	,067	,001	-,076	-,003	,002	-1.5
UB <---	PU	,072	,001	,047	,001	,002	0.5
UB <---	EL	,040	,001	-,020	,000	,001	0
UB <---	UA	,077	,001	-,212	-,001	,002	-0.5
UB <---	US	,051	,001	,032	,001	,001	1.0

Source: The authors' calculation from AMOS 24.0

5. Discussions Results

5.1 Factors affecting Behavioral Intention

Vietnamese consumers' behavioral intention to use e-commerce platforms is negatively influenced by Performance Expectations. This finding is not consistent with the expected signs and hypotheses according to the study of Venkatesh et al. (2012), Cabrera-Sánchez et al. (2020), Chatsirichai et al., (2022), Ezennia and Marimuthu (2022). This result is because e-commerce regulations in Vietnam still need to be amended, supplemented and completed. Distribution and retail networks remain one of the major challenges for e-commerce service providers, which has affected the use of e-commerce platforms by Vietnamese consumers.

Vietnamese consumers' behavioral intention to use e-commerce platforms is positively influenced by Effort Expectancy. These findings are related and consistent with the studies of Venkatesh et al. (2012), Hungilo and Setyohadi (2020), Chatsirichai et al. (2022), Ezennia and Marimuthu (2022), Ha (2023). These results show that consumers' clear understanding of using e-commerce platforms can significantly improve product quality and positively impact customers' behavioral intentions.

The relationship between social influence factors and behavioral intention to use e-commerce platforms by Vietnamese consumers is considered to be very significant. These findings coincide with studies conducted by researchers by Venkatesh et al. (2012), Chen et al. (2021), Ezennia and Marimuthu (2022), Ha (2023). This result shows that consumers are very interested in the recommendations and incentives of friends, family, colleagues, and neighbors in forming behavioral intention to use e-commerce platforms.

Vietnamese consumers' behavioral intention to use e-commerce platforms is positively influenced by Hedonic Motivation. This result is compatible with the findings of Venkatesh et al. (2012), Ezennia and Marimuthu (2022), (Kamalia et al. (2022), Ha (2023). This reflects that customers feel comfortable, excited, lucky and happy when using e-commerce platforms, which can motivate Vietnamese customers to have behavioral intention to use e-commerce platforms.

This result is compatible with the proposed signs and hypotheses. E-commerce platforms include many different structures and software to carry out processes for customers' online shopping. Therefore, proficient use of e-commerce platforms can motivate Vietnamese customers to increase their behavioral intention in using e-commerce platforms.

User skills have a positive effect on the behavioral intention of using the e-commerce platforms by Vietnamese consumers. This result is similar to the proposed signs and hypotheses. User skills for using e-commerce platforms, such as understanding the e-commerce landscape, product selection, transaction security compliance, etc. This suggests that these skills will contribute to a heightened sense of behavioral intention and help users meet their online shopping needs.

5.2 Factors affecting Use Behavioral

Vietnamese consumers' behavior in using e-commerce platforms is positively influenced by Favorable Conditions. This finding is not consistent with the signs and prediction hypotheses according to the study of Venkatesh et al. (2012), Pobe (2021). This shows that consumers have many technical knowledge and resources, installation and internet data connection and other favorable conditions, which will contribute to motivating Vietnamese consumers to increase their behavior in using e-commerce platforms.

Behavioral intention and e-commerce platform usage behavior of Vietnamese consumers have a complementary relationship. These results coincide with studies conducted by researchers by Venkatesh et al. (2012), Ha and Nguyen (2022), Ha (2023). This describes appropriate behavioral intentions that influence Vietnamese consumers' behavior in using e-commerce platforms. The more consumers' behavioral intention is always towards using e-commerce platforms, the greater their behavior towards using e-commerce platforms.

The consumers' behavior of using e-commerce platforms is negatively influenced by User Autonomy. This result is not compatible with research conducted by Fan and Liu (2022), Ha (2023). This indicates that the trend of online shopping through e-commerce platforms is gradually becoming a popular trend in Vietnam. However, some consumers need time to get used to business transactions via e-commerce platforms for online shopping to proactively approach and prefer online shopping.

6. Conclusions and Recommendations

The UTAUT2 model has been inherited and supplemented with other related consumer structures such as Platform Usability, User Autonomy to objectively consider the intention and behavior of using e-commerce platforms in online purchases by Vietnamese consumers. This study shows that Behavioral Intention are positively influenced by Social Influence, Use Proficiently, Hedonic Motivation, User Skills, Effort Expectancy. While Performance Expectancy has a negative impact on Behavioral Intention. Usage Behavior is positively affected by Behavioral Intentions and Favorable Conditions, and negatively affected by User Autonomy in Vietnam. These findings have some important implications, it is proposed to stakeholders, help managers and the providers of e-commerce platforms by online shopping identify factors that influence the adoption of e-commerce platforms by online shopping by Vietnamese consumers as follows.

- Behavioral intention to use e-commerce platforms is positively affected by social influence. Therefore, e-commerce platform providers need to implement marketing campaigns, promote brand building and promote the provider's image, professional customer care and employ public influencers, etc. Investing in after-sales activities will play an important role in attracting more new customers from positive reviews from loyal customers and influencers. E-commerce platforms are more widely known and used and attract a larger customer base.

- E-commerce platform providers increase customer purchase intention by providing accurate and complete information about the product, location, and delivery time to customers. Suppliers should improve and develop highly compatible e-commerce platforms with friendly interfaces, helping customers find products that best suit their needs and contributing to increased trust. of customers when shopping online.

- E-commerce platform providers and managers should pay attention to the impact of hedonic motivation on customers' behavioral intention to use e-commerce platforms. Suppliers need to perfect their information technology infrastructure to meet all consumer needs, helping customers feel comfortable and happy when using e-commerce platforms for online shopping. Suppliers should also clearly understand consumers' needs to provide timely customer care, thereby increasing customers' behavioral intention to use e-commerce platforms more and more.

- E-commerce platform providers should create conditions for customers to proficiently use and promote the platform usability. Through connecting with available means from smart devices as well as fully installing information, technology, and techniques to ensure adaptation, it will promote the behaviour intention using e-commerce platforms to online purchases by customers.

- User autonomy plays an important role in behavioral intention to use e-commerce platforms. Therefore, e-commerce platform providers need to improve shopping transactions as well as innovate and make efforts to increase user autonomy. Suppliers help users choose products easier and more effectively, contributing to enhancing users' sense of autonomy and improving their behavioral awareness of using e-commerce platforms in Vietnam.

- E-commerce platform providers need to improve their e-commerce platforms, focusing on information to diversify products and services, ensuring online transactions at reasonable prices. These are the best ways for suppliers to meet customer needs, enhance behavioral intention, and contribute to promoting customers' e-commerce platform usage behavior in Vietnam.

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