Behavioral Intention and Behavior of Using E-Commerce Platforms for Online Purchases and Payments by Vietnamese Consumers

Van Duong Ha

Abstract The study was conducted to determine the factors affecting the behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers, through the application of the unified theory of acceptance and use of technology (UTAUT2) model. The methods of Cronbach's alpha test, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling analysis (SEM) were used with the SPSS and AMOS software. Besides inheriting the UTAUT2 model, this study has supplemented the UTAUT2 model by adding other related consumer constructs. The findings of the study indicate that there are four factors that have a positive effect on behavioral intention, such as effort expectancy, social influence, hedonic motivation, and autonomy. Besides, performance expectancy has a negative impact on behavioral intention. The factors that have a positive impact on use behavioral that are behavioral intention and facilitating conditions. The factors that have a negative impact on use behavioral that are habits and e-payment. This study has some important managerial implications, and it was proposed to primary stakeholders. This study may prove diagnostically useful to the behavioral intention and behavior of using e-commerce platforms for online purchases and payments of Vietnamese consumers.

Keywords Behavioral intention · Behavior of using · E-commerce · Price value · Use behavior

1 Introduction

E-commerce refers to economic activity that takes place online that includes all business models, such as retail shopping, banking, investments, and rentals. E-commerce applies technologies to marketing over the Internet, performing mobile commerce transactions, electronic payments, online transaction management and

V. D. Ha (✉)
Saigon Institute of Economics and Technology, Ho Chi Minh City, Vietnam
e-mail: dhv05@yahoo.com

A. T. Nguyen et al. (eds.), *Contemporary Economic Issues in Asian Countries: Proceeding of CEIAC 2022, Volume 1*,
https://doi.org/10.1007/978-981-19-9669-6_8

processing, electronic data interchange, electronic data management systems, automated inventory management, and data collection systems (Niranjanamurthy et al., 2013). Commerce is an exchange transaction between two parties, as the number of transactions conducted by electronic means has increased significantly since the spread of the Internet (Kaur & Joshi, 2012). E-commerce is usually associated with commercial transactions over the Internet, or the performance of any transaction involving the transfer of ownership or right to use goods or services through online transactions. E-commerce is also the use of electronic communication and digital technology in commercial business transactions to create, transform, and redefine relationships to create value between organizations, and between organizations and individuals (Gupta, 2014). Therefore, e-commerce is a business model that includes electronic payments and other activities related to online commercial transactions, it allows organizations and individuals to do their business over the Internet. This refers to economic activity that occurs online, which is not only buying and selling goods and products over the Internet, but also various business models within organizations and individuals.

In Vietnam, changes in consumers' behavioral intention and behavior of using e-commerce platforms for online purchases and payments promise to promote the Vietnamese e-commerce market to a new height. Major trends in Vietnam's e-commerce market include the trend of personalizing the buying experience, grocery shopping on e-commerce platforms, multi-channel retailing as well as joining e-commerce platforms, using available online marketing tools, etc. Many Vietnamese consumers spend more time on the e-commerce platforms, and they are willing to place orders of greater quantity and value. At the same time, diversifying payment methods brings convenience and safety for consumers, e-money payments are becoming more popular and are likely to dominate over payment on delivery.

The contribution of this study is to add to the UTAUT2 model other relevant consumer constructs. Besides inheriting the UTAUT2 model, the results of this study have added autonomy and electronic payment to the new research model. This study has several important management implications, and it has been suggested to key stakeholders. At the same time, this study proves the usefulness in terms of diagnostics for the behavioral intention and behavior of using e-commerce platforms to purchase and pay online of Vietnamese consumers.

2 Literature and Hypotheses

2.1 The Unified Theory of Acceptance and Use of Technology (UTAUT2) Model

The theoretical model of UTAUT was developed to represent the consumers' behavioral intentions and usage behavior for information technology applications. The UTAUT model conducted a test on four organizations for a period of six months, after

reviewing and comparing eight competing models with thirty-two factors, and the UTAUT model was established. This is a combined model of eight previous models based on the most common view of studying user acceptance of a new information system. Eight models include Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), motivation model (MM), theory of planned behavior (TPB), a model combining TAM and TPB—model of combining TAM and TPB (C-TAM-TPB), model of PC utilization (MPCU), innovation diffusion theory (IDT), and social cognitive theory (SCT). The UTAUT model is built with four main factors determining acceptance and use the technology. According to this theory, four factors play a direct role in consumer acceptance and usage behavior for information technology, including: performance expectancy; effort expectancy; social influence; and facilitation conditions. There are also extrinsic factors (age, gender, experience, and voluntariness of use) that influence the consumers' behavioral intentions. This model is considered as integrating essential elements of other models, considering the influence of factors on the consumers' behavioral intentions and usage behavior for information technology applications, and it has been tested and proven to be superior to other models (Venkatesh et al., 2003). However, the literature lacked the evidence of user behavior model that could explain consumer use of technology. Given these limitations, proposed an extension of UTAUT, named UTAUT2. The goal of this model was to predict the technology acceptance and use behavior of an organization or individual, and integrated with hedonic motivation, price value, and habits into the original UTAUT model. In addition, The UTAUT2 model removed voluntariness of use from the demographic variables in the original UTAUT model as can be seen in Fig. 1 (Venkatesh et al., 2012).

2.2 Research Model

From the practical conditions of using e-commerce platforms by Vietnamese consumers, based on the theoretical basis of the UTAUT2 model, synthesizing the theoretical basis related to the behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers to propose a research model. At the same time, the authors also combined the discussion with experts on the observed variables, and this study extended the UTAUT2 model, adding a new explanatory variable which is variable electronic payment. Because e-commerce refers to economic activity that includes electronic payments. Therefore, the research model of the behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers is proposed as shown in Fig. 2.

Performance expectancy (PE), which is described as the level of belief in the ability of the consumers to use the system to achieve benefits in performing certain activities (Venkatesh et al., 2012). The theoretical background of this factor comes from usefulness perceptions, extrinsic motivation, and job fit. Performance expectancy has positive significant influence on behavioral intention to use e-commerce (Mansur

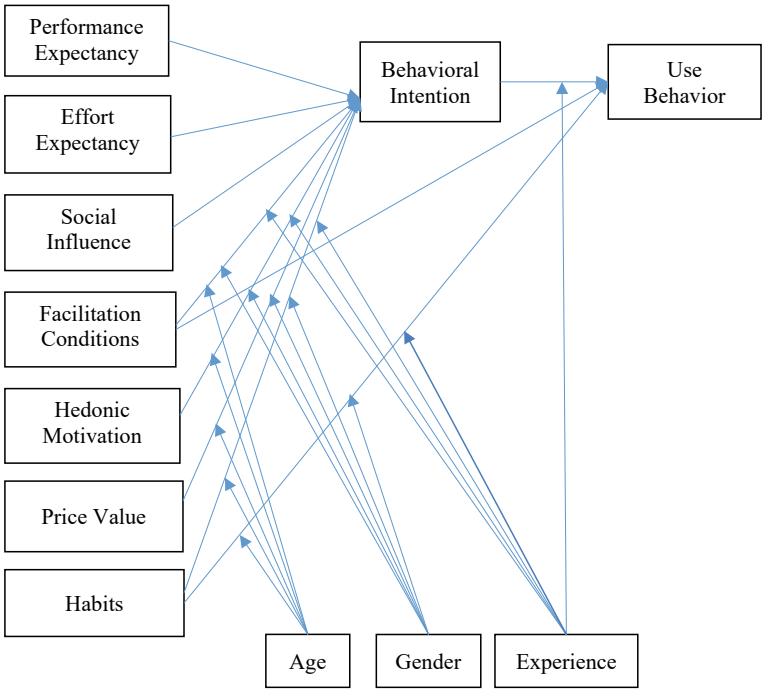

Fig. 1 UTAUT2 model. *Source* Venkatesh et al. (2012)

et al., 2019). Performance expectancy positively influences the behavioral intention of online transaction systems in e-commerce (Cabrera-Sánchez et al., 2020). At the same time, performance expectancy refers to consumers' belief that their purchases from an e-commerce platform will improve shopping efficiency and reduce costs (Chen et al., 2021) as well as there is a result study to show that the behavioral intention of e-commerce adoption is significantly influenced by performance expectancy (Ezennia & Marimuthu, 2022). Therefore, we formed a hypothesis:

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

Effort expectancy (EE), it is defined as the degree of facility associated with consumers' use of technology (Venkatesh et al., 2012). Effort expectancy refers to the ease and convenience for the consumers to purchase on the e-commerce platform. Effort expectancy has positive significant influence on behavioral intention to use e-commerce (Mansur et al., 2019). Consumers easily find the products they need on e-commerce platforms, and they have quick solutions to specific problems. There is research showing that effort expectancy significantly influences consumers' behavioral intention to purchase online via localization of e-commerce mobile applications or websites (Hungilo & Setyohadi, 2020). On the other hand, a significant relationship exists between efforts expectancy and e-shopping intention (Rehman

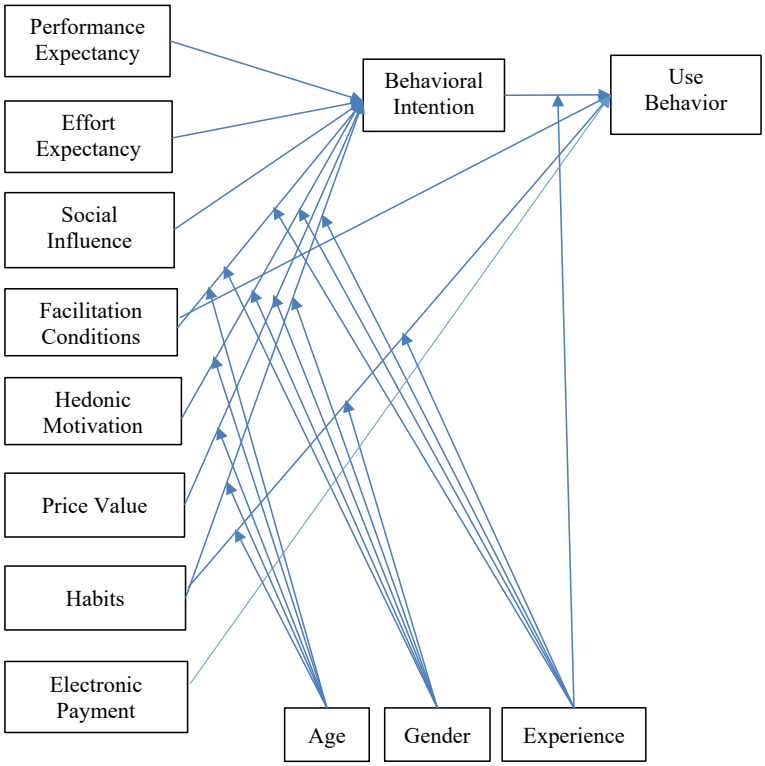

Fig. 2 Proposed model. *Source* Venkatesh et al. (2012) and author's supplement

et al., 2022) as well as there is a result study to show that the behavioral intention of e-commerce adoption is significantly influenced by effort expectancy (Ezennia & Marimuthu, 2022). Thus, we propose the following hypothesis:

Hypothesis 2 (H2): Effort expectancy has a direct positive and significant impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Social influence (SI), it measures the degree to which consumers are influenced by what others (e.g., family and friends), and an individual thinks the others should use a particular technology (Venkatesh et al., 2012). Social influence has positive significant influence on behavioral intention to use e-commerce (Mansur et al., 2019). Social influence has a significantly positive effect on consumers' behavioral intention of using an e-commerce platform (Chen et al., 2021). On the other hand, there is a result study to show that the behavioral intention of e-commerce adoption is significantly influenced by social influence (Ezennia & Marimuthu, 2022).Thus, the social influence for consumers' behavioral intention of using an e-commerce platform is the extent to which consumers think that those they consider important, believe that the person should use an e-commerce platform. Hypothesis H3 is stated as follows:

Hypothesis 3 (H3): Social influence has a positive effect on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Facilitating conditions (FC), these are defined as the extent to which consumers believe the organizations' infrastructure exists to support technological usage, the consumers are aware of the resources and supports available to perform their behavior (Venkatesh et al., 2012). Facilitating conditions showed a significant association with behavioral intention and facilitating conditions significantly influence the behavioral intention of consumers to adopt e-commerce (Pobee, 2021). A significant relationship exists between facilitating conditions and e-shopping intention (Rehman et al., 2022), and there is a result study to show that the behavioral intention of e-commerce adoption is significantly influenced by facilitating conditions (Ezennia & Marimuthu, 2022). Therefore, facilitating conditions for consumers' behavioral intention of using e-commerce platforms for online purchases and payments are the organization's degree of technological readiness or technical support for the use of e-commerce platforms. Therefore, two hypotheses were formed:

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

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

Hedonic motivation (HM), which is defined as the pleasure obtained from the use of technology. Hedonic motivation plays an important role in the acceptance and use of technology, and it has been shown to directly influence the acceptance and use of technology (Venkatesh et al., 2012). The consumers obtain a feeling of pleasure in utilizing e-commerce, and this revealed that hedonic motivation would positively affect behavioral intention to use e-commerce (Naruetharadhol et al., 2022). There are the study results show that behavioral intention of e-commerce adoption is significantly influenced by hedonic motivation (Ezennia & Marimuthu, 2022) as well as there is the study result which revealed customers' impulsive buying behavior is significantly affected by hedonic motivation on e-commerce platforms (Kamalia et al., 2022). We make the hypothesis H5 as following:

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

Price value (PV), it refers to the perceived benefits of using technology and the monetary cost of using it. Besides, there is also a cost and pricing structure, and it may have a significant impact on consumers' technology use (Venkatesh et al., 2012). Price value is a key concern for consumers, and they would tend to purchase online through e-commerce websites when they believe that they are ending up paying less and reasonably priced in addition to all other benefits (Singh et al., 2017). There is research showing that price value significantly influences consumers' behavioral intention to purchase online via localization of e-commerce mobile applications or websites (Hungilo & Setyohadi, 2020), as well as there are the study results show

that behavioral intention of e-commerce adoption is significantly influenced by price value (Ezennia & Marimuthu, 2022). Hypothesis H6 is stated as follows:

Hypothesis 6 (H6): Price value has a negative effect on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Habits (HA), they play an important role in the use of technology, which have been described various fundamental processes and habits that influence the use of technology. Because, habits are defined as the degree to which people tend to perform behaviors automatically as a result of learning (Venkatesh et al., 2012). There are the researches to show that habit influences consumers' use behavior for e-commerce (Mansur et al., 2019; Yoga & Triami, 2021). In other words, habits for e-commerce have a positive impact on consumers' behavioral intention as well as habits have a positive impact on consumers' use behavior (Wulandari et al., 2022). Therefore, two hypotheses were formed:

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

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

Electronic payment or e-payment (EP), which is a type of payment that allows consumers to pay for the products and services via electronic methods, such as Internet banking, mobile banking, card payments, e-wallet, and mobile wallet. (Josephine, 2021). The use of e-payment as a means of a payment system on e-commerce platforms causes consumers to buy more online and increasingly frequent transactions (Halim et al., 2020). E-payment offers a payment method which allows consumers to buy products or services via the e-commerce platforms with the delaying of payment (Pratika, 2021). E-payment is an important aspect of e-commerce, and it is a new driver of online shopping via the e-commerce platforms (Gupta et al., 2022). E-payment is a system that provides tools for payment of products and services in the e-commerce transactions. Using the e-payment has many benefits for consumers and contributes to increase behavior of using the e-commerce platforms. Therefore, we make the hypothesis as following:

Hypothesis 8 (H8): E-payment has a positive effect on the behavioral of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Behavioral intention (BI), this is defined as an individual subjective probability that person would like to use the technology continuously in the future. Therefore, the consumers' behavioral intention determines their technology use behavior (Venkatesh et al., 2012). There is a research to show that the acceptance and use of e-commerce was influenced by behavior intention. Researchers observed relationship between consumers' behavioral intention and use behavior for e-commerce and revealed this relationship between behavioral intention and the use behavior was proved significant (Yoga & Triami, 2021). Researchers also examined the behavioral intention correlates with use behavior and found a significant relationship between behavioral intention and actual adoption of the e-commerce platforms (Pobee, 2021). Therefore, hypothesis was formed:

Hypothesis 9 (H8): Behavioral intention has a positive effect on the behavioral of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Use behavior (UB), which refers to activity frequency to use the technology and the real conditions for the technology use. This is an important factor in determining the use of technology by consumers (Venkatesh et al., 2012). This case is using the e-commerce platforms, and the consumers' e-commerce use behavior in Vietnam is affected by the use behavioral intention of e-commerce.

The demographic factors, there are gender, age, and experience. These factors moderate the impact of facilitating conditions on behavioral intentions in the early stages of experience with the e-commerce platforms. They moderate the impact of hedonic motivation on behavioral intentions, so the effect is stronger in young consumers in the early stages of their experience with the e-commerce platforms. The demographic factors moderate the impact of price value on behavioral intentions, so the impact will be stronger for older consumers. These factors also moderate the impact of habit on behavioral intentions and habit on e-commerce use, so the impact will be stronger for older consumers with whom they have a high level of experience with the e-commerce platforms. The experience moderates the impact of behavioral intention on e-commerce use, so this impact will be stronger for consumers with less experience.

3 Research Methodology

3.1 Research Design

Qualitative research is used to explore the components of behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This research is carried out through one-on-one discussions with experts on observed variables. From there, the study adjusts and supplements observed variables used to measure in the research model.

For quantitative research, this is research based on the positivism philosophy, used quantitative data which were collected from primary sources to examine certain populations or samples. Through the application of the UTAUT2 model, this study was conducted to determine the factors affecting the behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers. The independent variables and dependent variable are presented in Table 1.

Table 1 Independent, moderating, and dependent variables in the research

No.	Code	Item
	PE	Performance expectancy
1	PE1	I use e-commerce platforms because it is easy for me to shop and pay online anywhere
2	PE2	I use e-commerce platforms because I can understand the interaction of online shopping and e-payment easily and clearly
3	PE3	I believe that the e-commerce platforms brings about the expected effect in online shopping and e-payment
4	PE4	By using e-commerce platforms, it will allow me to do online shopping and e-payment more rapidly
5	PE5	The use of e-commerce platforms is in accordance with all aspects of my work, and it would be beneficial in my everyday life
6	PE6	Using e-commerce platforms will increase my comfort in online shopping and e-payment transactions
7	PE7	Using e-commerce platforms will bring me more convenience, because I can online shopping and e-payment in 24 h
	EE	Effort expectancy
8	EE1	The use of e-commerce platforms can help me speed up online shopping and e-payment transactions
9	EE2	The use of e-commerce platforms can significantly improve the quality of the products as well as e-payment transaction results, because it does not take much time
10	EE3	The use of e-commerce platforms can help me make online shopping and e-payment more secure
11	EE4	The use of e-commerce platforms makes it easy for me to find out online shopping and e-payment information
12	EE5	The use of e-commerce platforms helps me always have full online shopping and e-payment information
13	EE6	The e-commerce platforms are practical, and they help me increase efficiency in online shopping and e-payment transactions
	SI	Social influence
14	SI1	Many people that have influence over my conduct advised me that I should use e-commerce platforms in online shopping and e-payment transactions
15	SI2	People who influence me think that I should use e-commerce platforms in online shopping and e-payment transactions
16	SI3	People who are familiar with me think that I should use e-commerce platforms in online shopping and e-payment transactions
17	SI4	I use e-commerce platforms for online shopping and e-payment transactions, because my coworkers and friends use it
18	SI5	My family supports me by using e-commerce platforms for online shopping and e-payment transactions

(continued)

Table 1 (continued)

No.	Code	Item
19	SI6	My neighborhood helped me with using e-commerce platforms for online shopping and e-payment transactions
	FC	Facilitating conditions
20	FC1	I have control over the use of e-commerce platforms in online shopping and e-payment transactions
21	FC2	I have the necessary knowledge to adopt e-commerce platforms in online shopping and e-payment transactions
22	FC3	I am certain that my online shopping and e-payment transactions are guaranteed the transaction conditions when I use e-commerce platforms
23	FC4	I possess the requisite resources to engage in online shopping and e-payment transactions
24	FC5	I am certain that online shopping and e-payment transactions are safe when I use e-commerce platforms
25	FC6	I have a smartphone and have received support from the e-commerce platform suppliers to use the e-commerce platforms in online shopping and e-payment transactions
	HM	Hedonic motivation
26	HM1	I feel comfortable when I use e-commerce platforms for online shopping and e-payment transactions
27	HM2	I feel blessed when I use e-commerce platforms for online shopping and e-payment transactions
28	HM3	I sincerely revel when I use e-commerce platforms for online shopping and e-payment transactions
29	HM4	I feel happy when I use e-commerce platforms for online shopping and e-payment transactions
30	HM5	I feel entertained when I use e-commerce platforms for online shopping and e-payment transactions
	PV	Price value
31	PV1	I can save time in doing online shopping and e-payment transactions when I use e-commerce platforms
32	PV2	I can save a lot of online shopping and e-payment transaction costs when I use e-commerce platforms
33	PV3	By using e-commerce platforms, I agree to pay the costs incurred for Internet registration
34	PV4	I do not have to pay fees to check my transactions when I use e-commerce platforms for online shopping and e-payment transactions
35	PV5	By using e-commerce platforms, I do not have to pay any extra costs in my transactions
		Habits
36	HA1	I regularly use the e-commerce platforms for online shopping and e-payment transactions

(continued)

Table 1 (continued)

No.	Code	Item
37	HA2	I can autonomously use the e-commerce platforms for online shopping and e-payment transactions
38	HA3	The usage of the e-commerce platforms for online shopping and e-payment transactions has turned out to be an addiction for me
39	HA4	I have received direct guidance from the e-commerce platform suppliers related to online shopping and e-payment transactions
40	HA5	I can use the e-commerce platforms for online shopping and e-payment transactions when no one is simulating
	EP	Electronic payment
41	EP1	I believe that e-payment always ensures security and privacy for all consumers when they use the e-commerce platforms for online shopping
42	EP2	I realize that e-payment always ensures the correct verification of information among the involved when I use the e-commerce platforms for online shopping
43	EP3	I believe that the e-payment system always has a plan to deal with attacks on security when I pay for my online shopping via the e-commerce platforms
44	EP4	I believe that e-payment has developed in parallel with the application of e-commerce platforms for online shopping
45	EP5	I believe my private data and e-payment transactions to be kept confidential when I use the e-commerce platforms for online shopping
46	EP6	I realize that the privacy of e-payment always ensures me to keep information undisclosed, free from unauthorized access when I use the e-commerce platforms for online shopping
		Behavioral intention
47	BI1	I intend to continue to use the e-commerce platforms for online shopping and e-payment transactions
48	BI2	I will use e-commerce platforms if I need to do online shopping and e-payment transactions
49	BI3	I would recommend e-commerce platforms for online shopping and e-payment to other people
		Use behavior
50	UB1	There are certain people and communities to help me when there are difficulties in using the e-commerce platforms for online shopping and e-payment transactions
51	UB2	I am able to carry out online shopping and e-payment via the e-commerce platforms without help from other people
52	UB3	I am able to use the e-commerce platforms for online shopping and e-payment transactions even though I have never used it beforehand

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

3.2 Sample and Data

The population in this study was all consumers who were doing online shopping and e-payment transactions via the e-commerce platforms in the southern regions of Vietnam. The southern region of Vietnam is the most important center of economic activity in the country. This region is a leading zone for advanced manufacturing and is encouraging investments in knowledge-based and high-tech industries and services as well as the most important financial and trading hub of the whole country. Regarding the sample size, which is determined if the number of the population is unknown, the sampling is done using the size 5–10 multiplied by the question item, since the number of question items is 52, so the sample size in this study ($10 \times 52 = 520$) respondents. Therefore, the number of 650 samples collected from customers ensures a sufficient sample size for this study.

Explanatory research design will be used to analyze the data which is collected from the Vietnamese consumers. A necessary and feasible condition to participate in the survey was that the consumers who use the e-commerce platforms for online purchases and payments by Vietnamese consumers, and the method of purposive sampling was used. The questionnaire was derived from the constructs as shown in Table 1, and the data were collected through a structured questionnaire measured on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

SPSS 25.0 and AMOS 24.0 are two statistical software which were used and this study did a descriptive analysis, reliability test, and validity test. Descriptive statistics and demographic presentation of 650 sample data were analyzed using SPSS 25.0 software. The analysis method through Cronbach's alpha coefficient, EFA, and CFA analysis was also analyzed using SPSS 25.0 software. The SEM was established, CFA diagram and hypothesis verification analysis were conducted using AMOS 24.0 software.

4 Research Results

4.1 Demographic Statistics

A total of 650 respondents are consumers who completed the whole survey. The results of the hypothesized analysis of each path obtained from the path analysis results using SPSS 25.0 software are as follows as Table 2.

In terms of age composition, the respondents' age ranges from 20 years old and up, and a large number of them are a young generation with the age range of 20–40 years. In terms of gender, it was found that 60.62% of the respondents were female. This shows that females' participation is high when it comes to online shopping and e-payment transactions. Because women show more interest in online shopping and e-payment transactions on e-commerce platforms. The characteristics of respondents

Table 2 Demographic profile

Item	Optional	Frequency	Percentage
Age	20–30 year old	238	26.62
	31–40 year old	162	24.92
	41–50 year old	136	20.92
	51–60 year old	58	8.92
	61 years old and up	56	8.62
Gender	Male	256	39.38
	Female	394	60.62
Experience	Start–6 months	72	11.08
	Over 6 months–1 year	118	18.15
	Over 1–2 years	322	49.54
	Over 2 year	138	21.23
Education level	Vocational college graduation	159	24.46
	College graduation	485	74.62
	Postgraduate level	6	0.92
Income level	600 USD–800 USD/month	345	53.08
	Over 800 USD–1000 USD/month	176	27.08
	Over 1000 USD–1500 USD/month	62	9.54
	Over 1500 USD–2000 USD/month	55	8.46
	Over 2000 USD/month	12	1.84

Source Primary data, processed in 2022

when viewed from their experience of using e-commerce platforms for online shopping and e-payment transactions turned out to be the biggest answer at over 1–2 years, or around 49.54%. In terms of education, with 74.62% of respondents are at a college graduation, this percentage represents the majority of respondents. The respondents also found that 24.46% are at a vocational college graduation, and the rest at postgraduate level. In terms of the monthly disposable income, the respondents' income range is from 600 USD and up per month and 53.08% of them are over 600 USD to 800 USD per month.

4.2 Cronbach's Alpha Reliability Analysis

To conduct factor analysis, it is necessary to first conduct reliability analysis through Cronbach's alpha coefficient and total variable correlation coefficient. A scale with Cronbach's alpha coefficient >= 0.60 is acceptable in terms of reliability. Variables with a total correlation coefficient less than 0.3 will be excluded (Hulin et al., 2001). The results of the reliability analysis of this study show that the variables have an

alpha coefficient greater than 0.6 and a total correlation coefficient greater than 0.3, as shown in Table 3. All scales of this study are the same eligible to perform EFA.

4.3 Exploratory Factor Analysis

The study implements the EFA method to test the influencing factors and identify the factors that are considered suitable for inclusion in the CFA. For independent variables, the results of Kaiser–Meyer–Olkin (KMO) and Bartlett's test show that KMO coefficient = 0.817 (greater than 0.5), so EFA is suitable for the reality data. At the same time, Sig = 0.000 < 0.05 shows that the observed variables are correlated with each other in terms of the population.

This study performed factor analysis for the independent variables with the principal components and varimax rotation (absolute value below: 0.3). The results show that 46 observed variables were initially grouped into ten groups. The total value of variance extracted is 59.371%, which is greater than 50% and EFA is considered satisfactory. It can be said that these ten factors explain 59.731% of the variability of the data. The eigenvalues of the factors are all high (>1). The tenth factor has the lowest eigenvalues of 1.114 > 1. Therefore, there are ten factors that are defined as shown in Table 4.

Ten factors were found after performing the rotation (absolute value below: 0.3) for the independent variables together with the factor loading factors all that are greater than 0.5. This result also showed there were two new factors (with the observed variables: HA1 and HA2; EP5 and EP6) to be explored, as can see in Table 5. With the characteristics of two observed variables in the factor HA associated with customers' autonomy (HA1 and HA2 as shown in Table 1) in using the e-commerce platforms for online shopping and e-payment transactions. Therefore, this new factor is named autonomy (AU). The hypothesis for AU is similar to the hypothesis for HA. AU has a positive effect on consumers' behavioral intention of using the e-commerce platforms for online shopping and e-payment transactions, and AU has a positive effect on consumers' behavior of using the e-commerce platforms for online shopping and e-payment transactions. At the same time, with the characteristics of two observed variables in the factor EP associated with security and privacy (EP5 and EP6 as shown in Table 1). Therefore, this new factor is named security and privacy (SP). The hypothesis for SP is similar to the hypothesis for EP. SP has a positive effect on consumers' behavior of using e-commerce platforms for online shopping and e-payment transactions.

For dependent variables, the results of Kaiser–Meyer–Olkin (KMO) and Bartlett's test show that KMO coefficient = 0.678 (greater than 0.5), so EFA is suitable for the reality data. At the same time, Sig = 0.000 < 0.05 shows that the observed variables are correlated with each other in terms of the population. This study also performed factor analysis for the dependent variables with the principal components and varimax rotation. The results show that six observed variables were initially grouped into two groups. The total value of variance extracted is 65.162%, which

Table 3 Item reliability test

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Performance expectancy: Cronbach's alpha = 0.873				
PE1	20.71	16.251	0.718	0.846
PE2	20.70	16.353	0.681	0.851
PE3	20.40	19.070	0.599	0.864
PE4	20.50	18.204	0.579	0.864
PE5	20.56	17.230	0.623	0.859
PE6	20.65	15.945	0.775	0.837
PE7	20.61	17.548	0.608	0.860
Effort expectancy: Cronbach's alpha = 0.828				
EE1	18.07	10.629	0.689	0.781
EE2	17.85	11.870	0.538	0.815
EE3	17.94	11.413	0.634	0.793
EE4	18.02	11.735	0.581	0.804
EE5	18.08	11.486	0.593	0.802
EE6	17.96	11.584	0.556	0.810
Social influence: Cronbach's alpha = 0.838				
SI1	18.19	15.490	0.669	0.800
SI2	18.13	15.591	0.606	0.815
SI3	17.78	17.448	0.599	0.815
SI4	18.02	17.391	0.584	0.818
SI5	17.98	17.163	0.576	0.819
SI6	18.28	15.778	0.663	0.801
Facilitating conditions: Cronbach's alpha = 0.826				
FC1	12.91	7.096	0.676	0.786
FC2	12.89	7.183	0.580	0.807
FC3	12.76	7.331	0.605	0.801
FC4	12.83	7.547	0.586	0.805
FC5	12.82	7.431	0.603	0.801
FC6	12.85	7.585	0.550	0.812
Hedonic motivation: Cronbach's alpha = 0.816				
HM1	14.55	3.613	0.543	0.798
HM2	14.54	3.565	0.523	0.805
HM3	14.41	3.352	0.668	0.761
HM4	14.46	3.491	0.575	0.789
HM5	14.46	3.266	0.729	0.742

(continued)

Table 3 (continued)

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Price value: Cronbach's alpha = 0.778				
PV1	14.17	3.249	0.557	0.736
PV2	13.91	2.871	0.632	0.710
PV3	13.93	3.291	0.669	0.702
PV4	14.92	3.751	0.413	0.779
PV5	13.91	3.583	0.515	0.750
Habit: Cronbach's alpha = 0.678				
HA1	14.47	3.529	0.285	0.695
HA2	14.71	3.508	0.378	0.649
HA3	14.70	3.259	0.503	0.597
HA4	14.45	3.034	0.507	0.591
HA5	14.50	3.224	0.508	0.594
Security and privacy: Cronbach's alpha = 0.663				
EP1	17.70	7.486	0.410	0.623
EP2	17.72	7.582	0.428	0.623
EP3	17.75	7.739	0.367	0.636
EP4	17.69	7.435	0.462	0.613
EP5	17.78	5.355	0.463	0.604
EP6	17.69	5.169	0.448	0.621
Behavioral intention: Cronbach's alpha = 0.759				
BI1	7.31	1.326	0.592	0.676
BI2	7.54	1.531	0.578	0.692
BI3	7.32	1.369	0.602	0.662
Use behavior: Cronbach's alpha = 0.700				
UB1	7.36	1.267	0.484	0.648
UB2	7.27	1.176	0.529	0.591
UB3	7.22	1.216	0.536	0.584

Source The authors' calculation from SPSS 25.0

is greater than 50% and EFA is considered satisfactory. It can be said that these two factors explain 65.162% of the variability of the data. The eigenvalues of the factors are all high (>1). The second factor has the lowest eigenvalues of 1.572 > 1. Therefore, there are two factors that are defined as shown in Table 6.

Two factors were found after performing the rotation (absolute value below: 0.3) for the dependent variables together with the factor loading factors all that are greater than 0.5, as can be seen in Table 7.

Table 4 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	6.417	13.950	13.950	6.417	13.950	13.950	4.066	8.839
2	3.537	7.689	21.639	3.537	7.689	21.639	3.464	16.369
3	3.277	7.123	28.762	3.277	7.123	28.762	3.322	23.590
4	2.851	6.197	34.960	2.851	6.197	34.960	3.299	30.762
5	2.540	5.521	40.480	2.540	5.521	40.480	2.986	37.253
6	2.465	5.359	45.839	2.465	5.359	45.839	2.744	43.219
7	2.199	4.780	50.619	2.199	4.780	50.619	2.318	48.258
8	1.651	3.590	54.209	1.651	3.590	54.209	2.137	52.903
9	1.260	2.740	56.950	1.260	2.740	56.950	1.498	56.161
10	1.114	2.421	59.371	1.114	2.421	59.371	1.477	59.371
11	0.922	2.005	61.376					
Extraction method: principal component analysis								

Source The authors' calculation from SPSS 25.0

4.4 Confirmatory Factor Analysis

In the CFA, the results of Kaiser–Meyer–Olkin (KMO) and Bartlett's test show that KMO coefficient = 0.808 (greater than 0.5), so CFA is suitable for real data. At the same time, Sig = 0.000 < 0.05 shows that the observed variables are correlated with each other in terms of the population. This study performed factor analysis for the variables with the principal axis factoring and promax rotation (absolute value below: 0.3). The results of CFA showed that the number of observations is 650 as shown in Fig. 3. After linking e4 and e5, e4 and e6, e10 and e12, e21 and e24, e28 and e30, and e38 and e39 to correct for covariance show that this model has a chi-square = 2183. 213, with 1204 degrees of freedom (df); chi-square/df = 1813 < 3 with p-value = 0.000 and other indicators such as CFI = 0.915; TLI = 0.906; GFI = 0.888; RMSEA = 0.035 < 0.06; and PCLOSE = 1000 > 0.05. Thus, the model is completely consistent with the market data, and it can be concluded that the factors are convergent values because the standardized and unstandardized coefficients are greater than 0.5, and the total variance values are greater than 0.5 in this study.

4.5 Structural Equation Modeling

The results of performing SEM model analysis through AMOS software show the suitability of the research model. The estimated results of the proposed model are

Table 5 Rotated component matrix for independent variables

Variables	Component									
	1	2	3	4	5	6	7	8	9	10
PE6	0.829									
PE6	0.833									
PE1	0.780									
PE7	0.726									
PE2	0.720									
PE3	0.719									
PE5	0.711									
PE4	0.632									
SI6		0.773								
SI1		0.758								
SI3		0.717								
SI4		0.685								
SI2		0.685								
SI5		0.652								
EE1			0.800							
EE3			0.769							
EE5			0.711							
EE4			0.708							
EE6			0.702							
EE2			0.637							
FC1				0.788						
FC3				0.741						
FC5				0.732						
FC4				0.708						
FC2				0.707						
FC6				0.684						
HM5					0.853					
HM3					0.807					
HM4					0.728					
HM1					0.702					
HM2					0.681					
PV3						0.818				
PV2						0.780				
PV1						0.732				
PV5						0.686				

(continued)

Table 5 (continued)

Variables	Component									
	1	2	3	4	5	6	7	8	9	10
PV4						0.590				
EP2							0.781			
EP4							0.739			
EP3							0.731			
EP1							0.642			
HA5								0.839		
HA4								0.805		
HA3								0.760		
HA1									0.822	
HA2									0.776	
EP6										0.780
EP5										0.736

Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization

Source The authors' calculation from SPSS 25.0

Table 6 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	2.338	38.968	38.968	2.338	38.968	38.968	2.032	33.863
2	1.572	26.195	65.162	1.572	26.195	65.162	1.878	65.162
3	0.656	10.937	76.100					

Extraction method: principal component analysis

Source The authors' calculation from SPSS 25.0

shown in Fig. 4. The indicators include chi-square = 2216,852; df = 1211; p = 0.000; chi-square/df = 1,831; CFI = 0.913; TLI = 0.905; GFI = 0.886; RMSEA = 0.036; and PCLOSE = 1000. Thus, the proposed research model achieves compatibility with the market data.

Using 95% confidence standard, the sig of FC on BI is 0.103 > 0.05, variable FC has no effect on BI; sig of PV on BI is 0.388 > 0.05, variable PV has no effect on BI; sig of HA on BI is 0.091 > 0.05, variable HA has no effect on BI; sig of AU on UB is 0.103 > 0.05, variable AU has no effect on UB; sig of SP on UB is 0.198 > 0.05, variable SP has no effect on UB. The remaining variables all have sig < 0.05, so these relationships are significant as can be seen in Table 8.

Table 7 Rotated component matrix for dependent variables

Variable	Component	
	1	2
BI3	0.830	
BI1	0.815	
BI2	0.808	
UB3		0.809
UB2		0.788
UB1		0.763
Extraction method: principal component analysis		
Rotation method: varimax with Kaiser normalization		

Source The authors' calculation from SPSS 25.0

The variables that have a positive effect on BI are EE, SI, HM, and AU, in which the variable SI is the variable that has the strongest impact on BI. Besides, there is a variable that has a negative impact on BI that is the PE variable. The variables have a positive impact on UB that are BI and FC, where BI is the variable that has the strongest impact on UB. At the same time, there are two variables that have a negative impact on UB, which decrease in the following order: HA and EP as shown in Table 9.

The bootstrap method is used to estimate summary statistics such as the mean or standard deviation to evaluate the robustness of the theoretical model. This study used the number of replicate samples $N = 1500$. Compare the C.R value with 1.96 (since 1.96 is the value of the normal distribution at 0.9750). The results show that C.R < 1.96, p-value > 5%, so the estimated model can be reliable as can see in Table 10.

4.6 Testing for Differences in Demographic Characteristics

The results of testing the differences according to demographic variables for behavioral intention and behavior of using e-commerce platforms are presented in Table 11. Accordingly, gender has sig value in independent sample T-test is greater than 0.05, which shows that there is no statistically significant difference in behavioral intention for the respondents of different genders.

Age and experience have sig value in the Levene test higher than 0.05, the variance between the choices of these variables is not different for the behavioral intention of using e-commerce platforms. The Anova test has a sig value greater than 0.05, this shows that there is no statistically significant difference in behavioral intention of using e-commerce platforms for the respondents of different age groups.

At the same time, experience has sig value in the Levene test higher than 0.05, the variance between the choices of these variables is not different for the behavior of

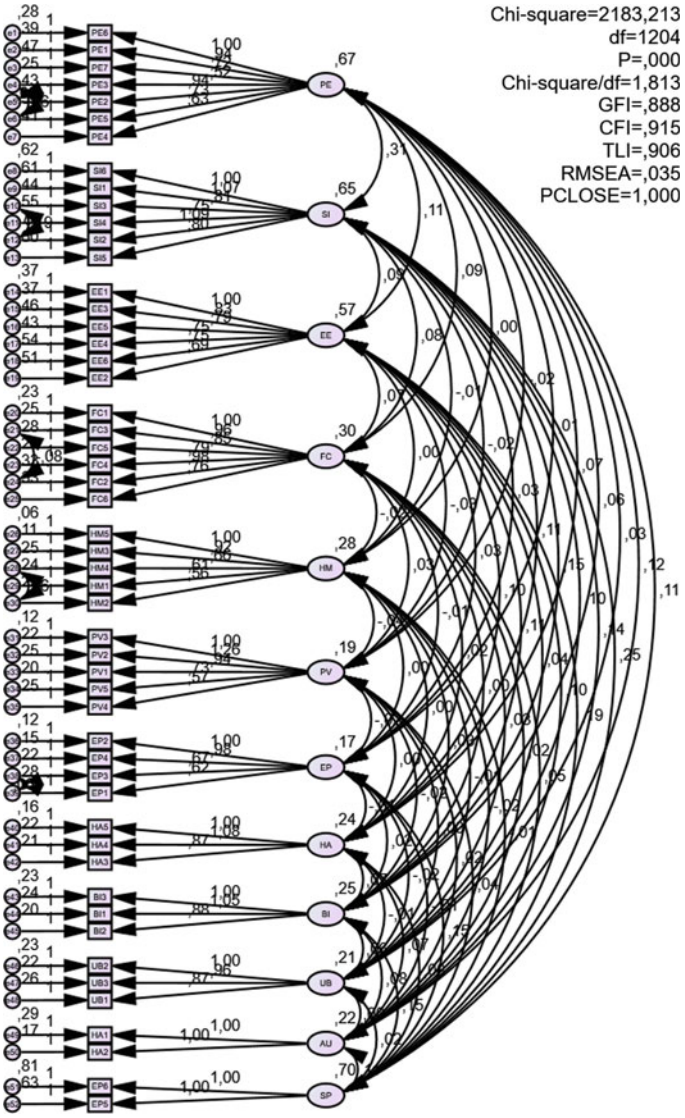

Fig. 3 Confirmatory factor analysis. *Source* The authors' calculation from AMOS 24.0

using e-commerce platforms. The Anova test has a sig value greater than 0.05, and this shows that there is no statistically significant difference in the behavior of using e-commerce platforms for the respondents of different age groups.

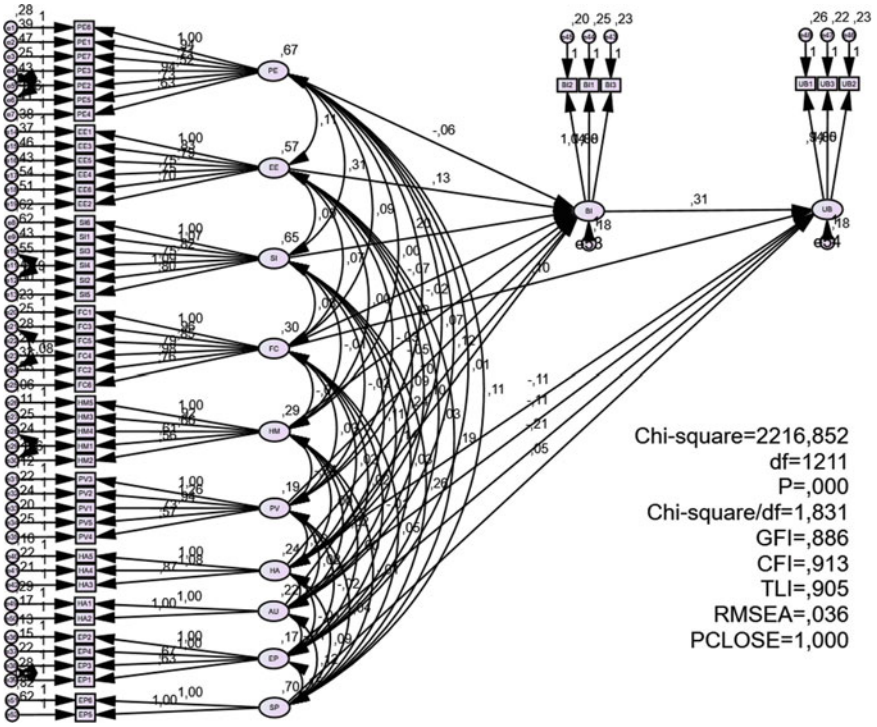

Fig. 4 Structural equation modeling. *Source* The authors' calculation from AMOS 24.0

Table 8 Regression weights

			Estimate	S.E	C.R	*P*
BI	⟵	PE	−0.065	0.032	−2.022	0.043
BI	⟵	EE	0.132	0.034	3.915	***
BI	⟵-	SI	0.203	0.036	5.597	***
BI	⟵	FC	−0.070	0.043	−1,631	0.103
BI	⟵	HM	0.116	0.042	2.791	0.005
BI	⟵	PV	−0.047	0.054	−0.863	0.388
BI	⟵	HA	0.090	0.053	1.689	0.091
BI	⟵	AU	0.235	0.067	3.513	***
UB	⟵	BI	0.312	0.059	5.260	***
UB	⟵	FC	0.104	0.042	2.444	0.015
UB	⟵	HA	−0.113	0.055	−2.051	0.040
UB	⟵	AU	−0.111	0.068	−1.632	0.103
UB	⟵	EP	−0.205	0.076	−2.719	0.007
UB	⟵	SP	0.054	0.042	1.287	0.198

Source The authors' calculation from AMOS 24.0

Table 9 Standardized regression weights

			Estimate
BI	⟵	PE	−0.106
BI	⟵	EE	0.199
BI	⟵	SI	0.326
BI	⟵	FC	−0.077
BI	⟵	HM	0.124
BI	⟵	PV	−0.041
BI	⟵	HA	0.088
BI	⟵	AU	0.219
UB	⟵	BI	0.338
UB	⟵	FC	0.124
UB	⟵	HA	−0.120
UB	⟵	AU	−0.112
UB	⟵	EP	−0.184
UB	⟵	SP	0.098

Source The authors' calculation from AMOS 24.0

Table 10 Bootstrap method on SEM

Parameter			SE	SE-SE	Mean	Bias	SE-Bias	C.R = Bias/SE-Bias
BI	⟵	PE	0.061	0.001	−0.105	0.001	0.002	0.5
BI	⟵	EE	0.055	0.001	0.197	−0.001	0.001	−1.0
BI	⟵	SI	0.063	0.001	0.328	0.002	0.002	1.0
BI	⟵	FC	0.053	0.001	−0.078	−0.001	0.001	−1.0
BI	⟵	HM	0.046	0.001	0.124	0.000	0.001	0
BI	⟵	PV	0.050	0.001	−0.040	0.001	0.001	1.0
BI	⟵	HA	0.052	0.001	0.089	0.001	0.001	1.0
BI	⟵	AU	0.074	0.001	0.220	0.001	0.002	0.5
UB	⟵	BI	0.068	0.001	0.339	0.001	0.002	0.5
UB	⟵	FC	0.051	0.001	0.124	0.000	0.001	0
UB	⟵	HA	0.063	0.001	−0.122	−0.002	0.002	−1.0
UB	⟵	AU	0.078	0.001	−0.111	0.001	0.002	0.5
UB	⟵	EP	0.072	0.001	−0.185	−0.001	0.002	−0.5
UB	⟵	SP	0.087	0.002	0.099	0.002	0.002	1.0

Source The authors' calculation from AMOS 24.0

Table 11 Testing for differences in demographic characteristics

Demographic characteristics	Sig value		
	Levene	T-test	Anova
Difference in behavior intention			
Gender		0.886	
Age	0.073		0.643
Experience	0.278		0.109
Difference in use behavior			
Experience	0.681		0.058

Source The authors' calculation from SPSS

5 Discussions Results

5.1 Factors Affecting Behavioral Intention

Performance expectancy is a factor that has a negative impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result disagreed with the expected sign and hypotheses, and it was not consistent with the findings of previous researchers (Venkatesh et al., 2012; Mansur et al., 2019; Cabrera-Sánchez et al., 2020; Chen et al., 2021; Ezennia & Marimuthu, 2022). Performance expectancy is a factor that has a negative impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result disagreed with the expected signs and hypotheses, and it was not consistent with the findings of previous researchers. In Vietnam, e-commerce has been regulated in a number of legal documents in the past years, but these regulations still need to be revised, supplemented, and perfected in recent years. On the other hand, logistics services are still a challenge for e-commerce businesses in Vietnam due to the lack of qualified businesses and the small and fragmented logistics industry. Although it has been and is being improved, Vietnam's infrastructure is still considered inadequate, and moving between provinces is still expensive. The road network as well as the main retail and distribution network is one of the major challenges for e-commerce businesses, which has affected the use of e-commerce platforms. Therefore, performance expectancy has a negative impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Effort expectancy is a factor that has a positive impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers. These findings are relevant and support previous studies (Venkatesh et al., 2012; Mansur et al., 2019; Ezennia & Marimuthu, 2022; Hungilo & Setyohadi, 2020; Rehman et al., 2022), and they agree with the expected signs and hypotheses in this study. The effort expectancy of good e-commerce platforms can affect the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This shows that consumers' clear understanding of the

interaction between e-commerce with online shopping and e-payment, as well as the use of e-commerce platforms can significantly improve the quality of the products and e-payment transactions, because it does not take much time.

The relationship of social influence toward the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers is proved to be significant. These findings are the following research conducted by previous researchers (Venkatesh et al., 2012; Mansur et al., 2019; Chen et al., 2021; Ezennia & Marimuthu, 2022) on using e-commerce platforms, which shows that social influence can explain behavioral intention. This happens because consumers are very interested in the recommendations and attitudes of family, friends, neighbors, and colleagues in forming intentions to use e-commerce platforms.

Hedonic motivation is a factor that has a positive impact on the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result agreed with the expected signs and hypotheses, and it was consistent with the findings of previous researchers (Venkatesh et al., 2012; Ezennia & Marimuthu, 2022; Naruetharadhol et al., 2022; Kamalia et al., 2022). This indicates that the comfortable, excited, blessed, happy, and entertained of using e-commerce platforms for online purchases and payments can encourage Vietnamese consumers to intend to use the platform.

Autonomy has a positive effect on consumers' behavioral intention of using the e-commerce platforms for online shopping and e-payment transactions. This result agreed with the expected signs and hypotheses in this study. This shows that the e-commerce platforms, absorption, and autonomy of online shopping and e-payment transactions positively enhance the sense of behavioral intention, and that it helps consumers meet their psychological needs, which ultimately affects consumers' behavioral intention of using the e-commerce platforms for online shopping and e-payment transactions.

5.2 Factors Affecting Use Behavioral

There was a complementing relationship that exists between the behavioral intention and behavioral of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result is in line with research conducted by previous researchers, and it agreed with the expected signs and hypotheses in this study (Venkatesh et al., 2012; Pobee, 2021; Yoga & Triami, 2021). This means that good behavioral intentions can influence the behavior of using e-commerce platforms for online shopping and e-payment transactions by Vietnamese consumers. The more the consumers' behavioral intention of using the e-commerce platforms, the greater the desire to use e-commerce platforms of Vietnamese consumers.

Facilitating conditions are a factor that has a positive impact on the behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers. These findings are consistent with previous research (Venkatesh et al., 2012; Ezennia & Marimuthu, 2022; Rehman et al., 2022). This shows that good

facilitating conditions of e-commerce platforms can influence the use behavior of e-commerce platforms. The consumers have enough facilities for using e-commerce platforms, facilitating settings and resources connected to the usage of Internet data can have a favorable influence on the behavioral of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Habit has a negative effect on consumers' behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result is not in line with research conducted by previous researchers (Venkatesh et al., 2012; Mansur et al., 2019; Yoga & Triami, 2021; Wulandari et al., 2022), and it disagreed with the expected signs and hypotheses in this study. The e-commerce platform is one of the options for modern and convenient purchases and payment methods. However, in Vietnam, e-commerce has been regulated in a number of legal documents in the past years, but these regulations still need to be revised, supplemented, and perfected in recent years. Besides, the habit of using cash of Vietnamese consumers is also a big barrier to the development of e-commerce. Although the government has made many efforts to promote non-cash payment, the rate of cash use in Vietnam is still high compared to other countries in the region. Therefore, habits have a negative impact on the behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Electronic payment is a factor that has a negative impact on the behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers. This result disagreed with the expected signs and hypotheses, and it was not consistent with the findings of previous researchers (Josephine, 2021; Halim et al., 2020; Pratika, 2021; Gupta et al., 2022). As analyzed, e-payment is a type of payment that allows consumers to pay for products and services via electronic methods. It offers a payment method which allows consumers to buy products or services via e-commerce platforms. However, the payment transactions in Vietnam are mainly in cash, which has affected the use of e-payment in payment transactions. This is also a big barrier to the development of e-commerce. Therefore, e-payment has a negative impact on the behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

6 Conclusions and Recommendations

To find out the factors affecting the behavioral intention and behavior of using e-commerce platforms for online purchases and payments of Vietnamese consumers, this study used the UTAUT2 model with its purpose being to improve understanding of UTAUT2 and how to apply this model in different fields. Besides inheriting the UTAUT2 model, this study has supplemented the UTAUT2 model by adding other related consumer constructs such as e-payment. The theoretical contribution of this study is the addition and discovery of new factors such as e-payment and autonomy to the UTAUT2 model. At the same time, the present study critically examined the behavioral intention and behavior of using e-commerce platforms for online

purchases and payments of Vietnamese consumers. The findings of the study indicate that there are four factors that have a positive effect on behavioral intention, such as effort expectancy, social influence, hedonic motivation, and autonomy. Besides, performance expectancy has a negative impact on behavioral intention. The factors that have a positive impact on use behavioral that are behavioral intention and facilitating conditions. On the other hand, the factors that have a negative impact on use behavioral that are habits and e-payment. This study has some important managerial implications, and it was proposed to primary stakeholders. This research helps managers to develop their e-commerce platforms, offers valuable insights for e-commerce founders, and the approach taken in this study may prove diagnostically useful to the behavioral intention and behavior of using e-commerce platforms for online purchases and payments of Vietnamese consumers. At the same time, based on the study results, this study provides a relevant recommendation to increase the behavioral intention and behavior of using e-commerce platforms for online purchases and payments by Vietnamese consumers as follows.

Firstly, the social influence exerts a significantly positive effect on the behavioral intention of using e-commerce platforms for online purchases and payments of Vietnamese consumers. So, e-commerce founders and managers should make e-commerce platforms prevalent and fashionable, such as advertising and promotion. They need to implement marketing campaigns that employ public influencers and should timely and quickly update attractive consumer care programs on online channels. This will help the e-commerce platforms be spread to many consumers, and it is very important to maintain a consumer base as well as to attract new consumers.

Secondly, effort expectancy in the use of e-commerce platforms can help consumers speed up online purchases and payment transactions, can significantly improve the quality of online purchases and payment transaction results because it does not take much time, can make the online purchases and payment transactions more secure, helps customers always have full information and increase efficiency in the online purchases and payment transactions. The e-commerce providers should research and develop e-commerce platforms with high compatibility with many devices, diversify the utility of online purchases and payment transactions to suit many consumers, as well as the ability to expand and develop e-commerce platforms in the future. Therefore, the improvement in the use of e-commerce platforms by the e-commerce providers will help consumers to achieve higher efficiency without much effort in online purchases and payment transactions and increase the behavioral intention of using e-commerce platforms for online purchases and payments by Vietnamese consumers.

Thirdly, the e-commerce founders and managers should understand the extent of the hedonic motivation toward the behavioral intention and behavior of using e-commerce platforms for online purchases and payments of Vietnamese. They should regularly upgrade the e-commerce platforms to ensure that the transaction is done quickly, accurately in the online purchases and payment transactions, ready to support consumers when needed as well as immediately handle problems arising if any, and meet all the needs of consumers. These help many consumers feel entertained, excited, blessed, comfortable, and happy when they use the e-commerce

platforms for online purchases and payment transactions. On the other hand, the e-commerce providers should research to understand the needs of consumers to take care of the consumers in a timely manner, help them beyond merely providing online purchases and payment transactions, and make them feel as comfortable and efficient as possible. It was these things that have made the consumers increase their behavioral intention of using e-commerce platforms for online purchases and payments in Vietnam.

Fourth, the e-commerce platforms are the virtual markets, where secure electronic transactions take place. Therefore, consumers and e-commerce providers meet in this virtual space to do online shopping and e-payment transactions. Consumers use e-commerce platforms to speed up the exchange of information, gain improved service levels, and reduce transaction costs. At the same time, autonomy plays an important role in the consumers' behavioral intention of using the e-commerce platforms for online shopping and e-payment transactions. It implies that the e-commerce platforms need to not only improve its online shopping and e-payment transactions but also present the improvement and its effort to increase the autonomy of consumers. On the one hand, the e-commerce founders and managers should contribute to consumer well-being by making consumer choices easier, more practical, and more efficient. On the other hand, they should also contribute to increasing consumers' sense of autonomy and enhancing the sense of behavioral intention, and that it helps consumers meet their psychological needs, which ultimately affects consumers' behavioral intention of using the e-commerce platforms for online shopping and e-payment transactions in Vietnam.

Fifthly, the good facilitating conditions of e-commerce platforms can influence the use behavior of e-commerce platforms. Hence, the e-commerce founders and managers should provide good facilitating conditions for the consumers. These include management of the e-commerce platforms and resources connected to the usage of e-commerce platforms. Therefore, consumers already have facilities in the form of a smartphone and adequate settings will boost their behavior of using e-commerce platforms for online purchases and payment transactions.

Sixthly, behavioral intention was considered as one of the important factors influencing consumers' behavior of using e-commerce platforms for online purchases and payment transactions by Vietnamese consumers. Therefore, the e-commerce founders and managers should improve the usefulness of online purchases and payment transactions, focus on the information about buying and selling, products, and services via the e-commerce platforms, ensure online purchases and payment transactions at cost, and increasingly expand their product portfolio and capabilities. These are the best ways for the e-commerce providers to respond to the consumers' needs and bring more convenience. Thereby, it also cultivates relationships with consumers and designs products that meet consumer needs well. These results are the top concern and contribute to promoting the behavior of using e-commerce platforms for online purchases and payment transactions by Vietnamese consumers.

Seventhly, consumers are faced with more choices and more information about e-commerce platform options than ever before. The growth of e-commerce platforms will help consumers search and select options that best suit their needs, allowing them

to reduce search costs and enhance the utility they get from their options. Hence, e-commerce providers should enhance customer experience, design e-commerce application platforms that meet optimal standards of service quality so that consumers can easily and conveniently log in and make online purchases and payment transactions. It is necessary to use an easy to understand and simple language, and Internet-connected devices must be secure and safe in online purchases and payment transactions. At the same time, they should provide specific and detailed instructions for consumers on how to use the e-commerce platforms in writing, video, online, or by phone when requested by consumers. Thereby, helping consumers become more and more familiar with using e-commerce platforms in Vietnam.

Eighthly, marketers, researchers, policy-makers research to promote the development of e-commerce platforms with synchronous mechanisms and policies. Regulations are needed to ensure that for online retailers specializing in standardized products, and the new e-commerce platform is expected to improve product quality, improve delivery and refunds, enhance payment security, and more. At the same time, it is necessary to have an incentive policy to empower consumers and increase consumer welfare as well as increase efficiency and lower costs brought by the e-commerce platforms as a decisive factor to attract consumers in using e-commerce platforms in Vietnam.

References

Cabrera-Sánchez, J.-P., Ramos-de-Luna, I., Carvajal-Trujillo, E., & Villarejo-Ramos, Á. F. (2020). Online recommendation systems: Factors influencing use in e-commerce. *Sustainability, 12*(21), 8888.

Chen, L., Rashidin, M. S., Song, F., Wang, Y., Javed, S., & Wang, J. (2021). Determinants of consumer's purchase intention on fresh e-commerce platform: perspective of UTAUT model. *SAGE Open, 11*(2), 21582440211027876.

Ezennia, C. S., & Marimuthu, M. (2022). Factors that positively influence e-commerce adoption among professionals in Surulere, Lagos, Nigeria. *African Journal of Science, Technology, Innovation and Development, 14*(2), 405–417.

Gupta, A. (2014). E-commerce: Role of e-commerce in today's business. *International Journal of Computing and Corporate Research, 4*(1), 1–8.

Gupta, S., Kiran, R., & Sharma, R. K. (2022). Validating the role of digital payment mode as a new driver of online shopping: A modified UTAUT2 model. *Journal of Public Affairs, 22*(2), e2434.

Halim, E., Januardin, R., & Hebrard, M. (2020). The impacts of e-payment system and impulsive buying to purchase intention in e-commerce. In *2020 International Conference on Information Management and Technology (ICIMTech)*, Bandung, Indonesia.

Hulin, C., Netemeyer, R., & Cudeck, R. (2001). Can a reliability coefficient be too high? *Journal of Consumer Psychology, 10*(1/2), 55–58.

Hungilo, G. G., & Setyohadi, D. B. (2020). Factors influencing acceptance of online shopping in Tanzania using UTAUT2. *Journal of Internet Banking and Commerce, 25*(1), 1–23.

Josephine, C. O. (2021). The effects of e-payment system on the efficiency of banks in Nigeria. *International Research Journal of Management, IT and Social Sciences, 8*(6), 548–558.

Kamalia, D., Djajadinata, M., Gunawan, F. H., & Gunadi, W. (2022, March 7–10). The role of hedonic motivation and FOMO on the Impulsivity of e-commerce users during COVID-19 Pandemics in Indonesia. In *Proceedings of the International Conference on Industrial Engineering and Operations Management Istanbul*, Turkey.

Kaur, P., & Joshi, M. M. (2012). E-commerce in india: A review. *IJCST*, *3*(1), 802–804.

Mansur, D., Sule, E., Kartini, D., & Oesman, Y. (2019). Understanding Factors Influence E-Commerce Use Behavior in Indonesia. *Opción: Revista de Ciencias Humanas y Sociales*, *35*(20), 742–754.

Naruetharadhol, P., Wongsaichia, S., Zhang, S., Phonthanukitithaworn, C., & Ketkaew, C. (2022). Understanding consumer buying intention of e-commerce airfares based on multivariate demographic segmentation: A multigroup structural equation modeling approach. *Sustainability, 14*(15), 89–97.

Niranjanamurthy, M., Kavyashree, N., Jagannath, S., & Chahar, D. (2013). Analysis of e-commerce and m-commerce: Advantages, limitations and security issues. *International Journal of Advanced Research in Computer and Communication Engineering, 2*(6), 2360–2370.

Pobee, F. (2021). Modeling e-commerce adoption factors among Gen-Z in a developing country: The case of Ghana. *Marketing and Menedzsment, 55*(1), 81–94.

Pratika, Y. (2021). UTAUT model: Identifying the driving factors of the intention to use paylater. *Jurnal Bisnis Dan Manajemen, 8*(2), 345–352.

Rehman, A. U., Bashir, S., Mahmood, A., Karim, H., & Nawaz, Z. (2022). Does e-shopping service quality enhance customers'e-shopping adoption? An extended perspective of unified theory of acceptance and use of technology. *PLoS ONE, 17*(2), e0263652.

Singh, A., Alryalat, M. A. A., Alzubi, J. A., & Sarma, H. (2017). Understanding jordanian consumers' online purchase intentions: Integrating trust to the UTAUT2 framework. *International Journal of Applied Engineering Research, 12*(20), 10258–10268.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157–178.

Wulandari, A., Junipriansa, D., Suryawardani, B., & Marcelino, D. (2022). Integration the UTAUT2 model: Adoption of e-commerce as solution for fashion industry in Bandung facing the COVID-19 pandemic. *PalArch's Journal of Archaeology of Egypt/Egyptology, 19*(1), 1609–1630.

Yoga, I. M. S., & Triami, N. P. S. (2021). The online shopping behavior of Indonesian generation X toward e-commerce. *Journal of Economics, Business, and Accountancy Ventura, 23*(3), 441–451.