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Conference Paper — Accepted Manuscript (Postprint)

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Suggested Citation: Nguyen Ngoc Xinh; Dang Quan Tri; Nguyen Thanh Luan (2022) : Understanding mobile shopping consumers' continuance intention during covid-19 epidemic, In: Trần Thị Bảo Ngọc (Ed.): Digital transformation for smart business - smart city in a post-pandemic world, ISBN 978-604-79-3072-2, Finance Publishing House, Ho Chi Minh City, Vietnam, pp. 96-117

This Version is available at:

<https://hdl.handle.net/10419/285119>

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Understanding mobile shopping consumers' continuance intention during covid-19 epidemic.

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ABSTRACT

Coronavirus compelled to customers to use internet and make it habit in their daily routine. That reason why e-commerce industry is growing rapidly due to Covid-19. Therefore, the aim of this study is to investigate the variables responsible for the persistence of mobile shopping intentions during the COVID-19 epidemic in Ho Chi Minh City by integrating perceived risks and social norm into Expectation Confirmation Theory. The survey is being conducted in Ho Chi Minh City and respondents were selected via non-probability, judgmental sampling method. Next, the study uses the partial least squares structural equation modeling method to investigate the relationship among variables. The study broadens and verify an integrative approach of continuity willingness, with a value in the inquiry of personal features, post-mobile shopping perspective, m-shopping experience, and continuance intention to use m-shopping. Besides, this study's contribution is to recognize how customers react to online purchasing; it is useful for organizations such as retailers, suppliers, and practitioners of fast-moving consumer products. The results showed that subjective norm has no effect on the intention to continue buying via mobile, which contradicts previous research. Moreover, confirmation increases consumers' satisfaction and intention to use mobile shopping, whilst perceived risks still have a huge impact on it.

Keyword: Covid 19, Mobile shopping, ECT-IS, E-commerce

1. Introduction

COVID-19 has had a major influence on global e-commerce, both positive and bad in certain situations, but generally e-commerce is developing quickly as a result of the virus (Bhatti et al., 2020). Customers were obliged to utilize the internet and incorporate it into their everyday routines as a result of the Coronavirus. Additionally, merchants confront several obstacles in e-commerce, such as extended shipping times, difficulties with movement management, social distance, and lockdown. As a result, people are gravitating toward technology as a result of the infection. In addition, Vietnam has been a fast-moving Internet country in recent years. According to the report on Southeast Asia's Digital Economy 2020, the e-commerce industry in Vietnam grows 46% and Vietnam is the country with the highest rate of new Internet users in Southeast Asia, 41%. Furthermore, according to the Vietnam E-Commerce Association (2018), the year 2015 saw a surge in the mobile commerce trend. Businesses have not only engaged in mobile infrastructure, but have also expanded their business activities on this digital platform. Vietnamese businesses have realized the significance of the new business channel and are upgrading their websites to make them mobile-

friendly, as well as creating mobile apps for doing business. Furthermore, in Covid 19 current situation, it's understandable when consumers accept to use online shopping sites to limit exposure and cause the spread of the disease to the community, which has made e-commerce significantly grow in 2020. The Deloitte survey shows that the pandemic has created a powerful shift to the omnichannel shopping trend. People increase in-house consumption, reduce shopping at traditional sales channels and increase the frequency of online transactions on e-commerce platforms (Deloitte, 2020). All arguments above indicated that the mobile shopping market in Vietnam has a lot of development opportunities. However, opportunities always go hand in hand with challenges, therefore in order to retain their customers, it is necessary to know how customers intend to continue using the product.

Consumers' continued preference for mobile commerce is a critical habit that has garnered considerable attention from academics and practitioners in the field of e-commerce (Lin & Shih, 2008; Shao et al., 2019; Zhou, 2011). It is defined as an individual's perceived proclivity to continue using mobile commerce. Continued use of mobile commerce may reflect a trade-off between emphasizing negative outcomes/risk (e.g., monetary loss, status loss, and privacy threat) and positive outcomes/security (e.g., service personalization, convenience, and secure financial transaction) (Kalinic & Marinkovic, 2016). Notably, prior research has been conducted primarily in industrialized nations where retail infrastructure technologies have advanced significantly, gradually lowering perceived costs. There is evidence that consumers' perceptions of the factors that influence their use of mobile technology vary between developed and emerging economies, resulting in varying levels of mobile shopping adoption. This necessitates an examination of the role of both promotion and barrier factors in shaping the intention to adopt mobile shopping in emerging markets (like Vietnam), with the goal of assisting policymakers and businesses in those countries in developing appropriate strategies for developing mobile shopping services that adequately meet customer requirements (Hsieh, 2007). Especially, this study took place during the Covid 19 epidemic, a completely new context compared to previous studies. Thus, the objective of this work is to extend previous findings into mobile commerce context on continuance intention to use mobile commerce during the Covid 19- epidemic in developing country like Vietnam

The study seeks to focus on people between the ages of 18 and 35 who are called Millennials because of their proximity to the new millennium and their upbringing in a more digital age (Kaifi et al., 2012). This generation was influenced by computers and increased acceptance of non-traditional families and values (Andert, 2011). They are the ones who could easily and quickly have an approach to advanced technology, or even make frequent use of online platforms. Besides that, age group, the author would like to examine whether people who are over 35 are in their readiness of continuously using online platforms to make purchase. It is mainly because the frequency and understand of using these platforms may be a difficult to them compared to the adults. Ho Chi Minh city is chosen to be a location to conduct the survey as this city is hustle and bustle with a great amount of citizen who are millennials.

2. LITERATURE REVIEW

2.1. Mobile commerce

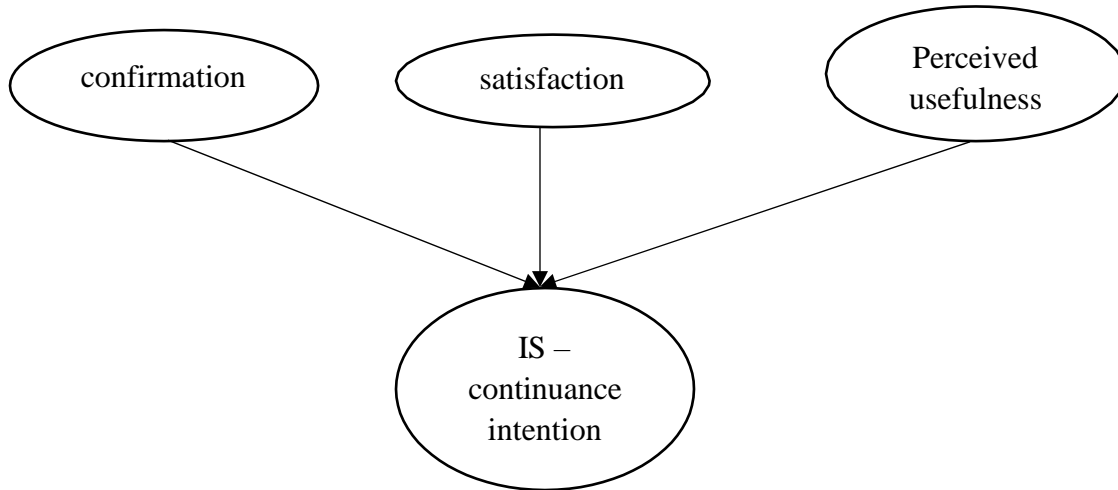
Mobile commerce is described as the practice of conducting business transactions via mobile devices (smartphones, tablets) through the use of wireless networks such as 3G or 4G mobile internet or wireless internet (Khoi et al., 2018). Consumers could indeed conduct financial activities either through mobile commerce anywhere via they have connected to a wireless device or the internet (Hsieh, 2007; Khoi et al., 2018). The term "mobile commerce" represents an extension of traditional electronic commerce, which is defined as the conduct of online transactions in a computer-mediated environment over the Internet (Zwass, 1996), to include mobile devices (Chong et al., 2012; Kourouthanassis & Giaglis, 2012). Additionally, previous research has addressed social commerce, which is defined as e-commerce that incorporates Web 2.0 elements such as user-generated content and content sharing, as well as the use of social media sites such as Facebook and Twitter in conjunction with e-commerce transactions (Lam et al., 2019; Wu et al., 2015). Thus, social commerce, like Facebook commerce, is a subset of conventional commerce. This research encompasses not only electronic commerce but also social and Facebook commerce. One of the primary benefits of social commerce and Facebook commerce is that customers can consult their social networks for purchasing advice, exchange product information with their friends, and sell items or services via social media (Lam et al., 2019; Wu et al., 2015).

Additionally, it's worth noting that mobile commerce has a number of disadvantages. More precisely, online shopping on mobile devices may present greater risks than traditional and electronic commerce, owing to a variety of factors, including hidden and unconscious computing, location awareness services, and instant activities, as well as the small screens and limited computing capabilities of mobile devices (Yang and Zhang, 2009). Additionally, because mobile services are classified as self-service technology, customers are expected to take responsibility for their behaviors and activities, imposing a psychological burden on them. For obvious reasons, prior to making an online purchase on a mobile device, customers should conduct an exhaustive search for product information, sellers, and intermediaries in order to determine the cost and quality of the product (Law and Leung, 2000).

2.2. ECT-IS (Expectation-confirmation theory – Information Technology)

The ECT hypothesis is a well-established model that many marketing professionals use to predict and explain consumer happiness, post-purchase behavior (such as repurchase), and marketing effectiveness (Tien, Luan, et al., 2023). ECT was originally made up of several components, including anticipation, performance, confirmation, satisfaction, and repurchase intention. Customer satisfaction is the most critical factor in determining repurchase intention. Expectations and confirmation have a direct effect on user satisfaction. Expectations have a detrimental effect on confirmation, whereas perceived performance has a beneficial effect. The ECT-IS model was introduced, which is an expectation-confirmation model of information security continuation that was developed from the ECT model of information security (Bhattacharjee, 2001). He asserts that IS users' desire to continue using the system is comparable to consumers' desire to repurchase the system. According to the ECT-IS, three

variables influence an individual's desire to continue using information technology: the users' level of satisfaction with the technology, the extent to which the users' expectations are met, and the perceived utility of the technology. ECT-IS continuation is a model that has been adapted and expanded from the literature on information systems to describe users' desire to continue using information systems in a variety of contexts (C. M. Chiu et al., 2005a; McKinney et al., 2002; Oghuma et al., 2016; Shiau & Luo, 2013). We review previous research on the ECT-IS (see Figure 2.5) and show that constructs and findings vary according to the context and purpose of each investigation (see Figure 2.5).



(Source: (Shiau & Chau, 2012))

Figure 1. ECT - IS Model

2.3. Perceived risks

Consumer uncertainty and a view of negative consequences in buying goods and services may be characterized as perceived risk (Dowling & Staelin, 1994; Yang et al., 2016). This notion of perceived risk applies to e-commerce and has been widely recognized within the community (S. M. Forsythe & Shi, 2003). These various hazards may be interpreted in terms of the perceived risks involved with online purchasing in this particular scenario. One of the main motivations for customer behavior is risk perception. When taking a risk as a consumer, there is ambiguity around the outcome since consumers cannot know how it will turn out. In order to limit the perceived risk of engaging in the transaction, customers are actively looking for information on the internet (Bauer, 1960).

This allows them to behave with some faithfulness in the face of uncertainty. A purchase's perceived risk is a part of both the total amount of money that is on the line and the consumer's perceived level of confidence in regard to the positive effect of the purchase (Cox, 1967). E-commerce is more likely to provide ambiguous communications, therefore leading to perceived risk (Dang et al., 2023; Nguyen et al., 2023; Nguyen, 2023). Under unverified, impersonal situations, internet transactions take occur without human interactions, and customers are unable to fully assess goods before they buy them. With this transaction, the customer may believe that he or she doesn't know the outcome of the purchase. Online traders are considered a source of perceived risk in transactions.

2.4. Subjective norms

Subjective norms (SN) originate from the theory of reasoned action and is defined as "the perception of the person that most of the people who are important to him believe that he should or should not perform the behavior in question" (Fishbein & Ajzen, 1975). According to TRA theory (Fishbein & Ajzen, 1975) subjective norms can be formed through the perception of normative beliefs from people or social factors that influence consumers (such as family, friends, colleagues, media ...). The degree to which the subjective normative belief factors affect a consumer's buying trend depends on: (1) the degree of support / opposition to the consumer purchase and (2) the motivation of consumers follow the wishes of their influencers. The degree of influence of those involved in the consumer behavioral trends and the consumer motivations to follow the relevant people are two fundamental factors for subjective benchmarking. The stronger the affiliation of the relevant people to the consumer, the greater the influence on their buying decision. The greater consumers' confidence in their stakeholders, the more affected their buying tendencies are.

2.5. The impact of Covid – 19

The pandemic of Covid-19 has wreaked havoc on the world's economic system. Numerous countries, including Viet Nam, have implemented preventive measures such as nationwide lockdowns and social distancing laws in order to slow the spread and impact of the Covid-19 outbreak. The Indian economy has been harmed by the lockdown, resulting in a near-term negative growth rate. To avoid leaving the house and thus slow the spread of the virus, purchasing food online has become a widespread trend, with e-commerce platforms serving as the new "food basket" for customers. According to a new study, the prevalence of verified COVID-19 cases increases consumers' likelihood to shop online (Gao et al., 2020). Meanwhile, consumer habits have evolved as a result of social distance; e-commerce and abnormal shopping have gained popularity; and takeout and home delivery have provided an alternative to closed restaurants (Bakalis et al., 2020; Wang et al., 2020). Numerous studies emphasized the importance of e-commerce, stating that it revolutionized the way goods were delivered and introduced new options (Bao et al., 2012; Parker et al., 2016; Qi et al., 2019; Zeng et al., 2017).

2.6. Research Framework

The author has suggested the model below based on the theories mentioned above. The model is integrated the ECT-IS, Subjective norm and perceived risk impact on satisfaction and continuane intention to use mobile shopping.

3. Hypotheses

3.1. *Perceived Usefulness (PU) and the continuance intention to use mobile shopping.*

Attempting to draw on information technology (IT) literature, PU has been cited as a significant construct for the evaluation of the user's acceptance of a particular technology. PU is an important motivator for the consumer's intention to use technology (Revels et al., 2010). PU usually refers to the user's perception that performing a particular technical task would require a mental effort on his or her part (Dao et al., 2023; L.-T. Nguyen, Duc, et al., 2023). Perceived usefulness is defined as "the degree of usefulness" which is believed by a person to use a specific method. It would improve the performance of his or her job" (Davis, 1989). Hence, the proposed hypothesis is as followed:

H1: PU is positively associated with the intention to continue using mobile shopping.

H2: PU is associated with increased satisfaction with mobile shopping.

3.2. *Confirmation (CO) and the continuance intention to use mobile shopping*

Confirmation, as a significant predictor of perceived utility in ECT-IS, results in an increase in perceived utility (L.-T. Nguyen et al., 2022; P. Van Nguyen & Nguyen, 2017). Due to the ambiguity surrounding users' expectations for information technology use, users' initial perceived usefulness may be unstable, and the perceived usefulness of information technology use may be altered through experience confirmation (Bhattacharjee, 2001). As a result, consumer validation of expectations increases perceived value, which in turn increases customer satisfaction and retention intention (Bhattacharjee, 2001; Fu et al., 2018) and demonstrated the significant effect of confirmation on perceived utility in specific contexts by applying ECT-IS continuation to smartphone services. As a result, we present the following hypothesis:

H3: CO is positively related to consumers' satisfaction with mobile shopping

H4: CO is positively related to continuance intention to use mobile shopping

3.3. *Perceived risks (PR)*

Chaudhuri (1997) discovered a significant connection between risk perceptions and negative consumption feelings in his research (Chaudhuri, 1997). These same consumption-related emotions may have an immediate impact on pleasure and discontent (Mano & Oliver, 1993). Risk perception, in particular, has a negative impact on satisfaction (M. S. Johnson et

al., 2008). As a result, risk-related emotions such as fear or concern may have a detrimental effect on overall satisfaction as below hypothesis proposed:

H5: PR has negative relationship with satisfaction.

Investigation on the impact of perceived risk factors connected with mobile shopping, including product performance, delivery, time, and privacy concerns on consumer purchase intention. According to the findings, risk perception has a significant negative impact on purchasing intention. Nonetheless, differences across risk dimensions are identified, with customers perceiving greater performance and time risks in mobile shopping. Furthermore, when it comes to mobile buying, customers see privacy concerns as less important than performance and time hazards and proposed hypothesis is as below:

H6: PR has negative relationship with continuance intention to use mobile shopping.

3.4. Subjective norm (SN) and the continuance intention to use online shopping

A research of US consumers' ability to support mobile devices for fashion products corroborated the suggestion (Kim et al., 2009). A meta-analysis of the aggregate effect on the subjective norm used with TAM confirmed the beneficial relationship between SN and PU (Schepers & Wetzels, 2007). The subjective norm is defined as the societal influence on an individual's decision to engage in mobile purchasing (Ajzen, 1991). This effect could be the result of friends, family, or the establishment media. In certain developed countries, empirical evidence indicates that the subjective norm (or social influence) has a significant effect on the intention to adopt mobile shopping. As a result, we believe that subjective norms play a major role in the development of mobile shopping in Vietnam and propose the following hypothesis:

H7: SN is positively associated with mobile shopping satisfaction.

H8: SN is positively associated with the intention to continue using mobile shopping.

3.5. Satisfaction (SAT) toward continuance intention to use mobile shopping

Satisfaction is often defined as a customer's post-purchase evaluation of a product or service (Hunt, 1977). That is, prior to engaging with the business, the client develops expectations/goals about a certain element of the product and service. If there is a gap between expectations/goals and reality following consumption, contentment results (Bagozzi and Dholakia, 1999; Oliver Richard, 1997). Numerous academics have asserted that user happiness is a critical factor in determining the effectiveness of an information system (IS) (Szajna and Scamell, 1993; Al-Khaldi and Wallace, 1999; Somers et al., 2003; Wu and Chen, 2005; Zviran et al., 2005). According to Oliver's (1993) expectation confirmation model, a customer's behavioral intention to repurchase is anticipated by customer satisfaction, which is directly related to disconfirmation between a customer's pre-purchase expectations and the product or service's post-purchase performance. Satisfaction is considered to have an effect on post-purchase attitude and intention to repurchase.

H9: SAT is positively associated with the intention to continue using mobile shopping

4. Methodology

4.1. Research Paradigm

A technique is only one of three components of a paradigm, which researchers utilize directly or indirectly; a paradigm also includes the components ontology and epistemology (L.-T. Nguyen, 2023). In its simplest form, ontology refers to "reality," epistemology to the relationship between that reality and the researcher, and methodology to the procedures by which the researcher uncovers that reality. In a nutshell, a paradigm is a theoretical structure within which a researcher may function; it can be assumed of as the investigator's "fundamental belief system or worldview" (T. Q. Dang, Nguyen, et al., 2023; L.-T. Nguyen, Nguyen, et al., 2023; Tien, Tri, et al., 2023). With the purpose of researching through collected surveys as well as examine the relevances of theories through quantitative methods, the author decided to choose common methodologies with positivism form.

4.2.1. Research technique

The partial least squares structural equation modelling (PLS-SEM) method, which is based on route and regression analysis, offers several advantages over covariance-based SEM when dealing with stable parameter values from a small sample, including the capacity to overcome multicollinearity (Chen and Lin, 2015). As a result, our research made use of the PLS-SEM technique and the SmartPLS 3.0 software package. Because it does not properly test for statistical significance, a re-sampling by bootstrapping technique was used (MacKinnon et al., 2002, 2004). Following that, we conducted statistical testing and evaluation using the suitable simulated sample. Through indicators, the Structural Equation Model enables the assessment of unobservable variables. This is essential for the social capital theory, as there are variables for which descriptive indicators are necessary. This is a substantial benefit for scientific research. The indicators can be used to define the model's reflecting and formative components (C. M. Ringle & Sinkovics, 2009).

4.3. Sampling techniques

The data to be utilized are primary data obtained using a process known as nonprobability judgmental sampling. Judgmental sampling is a technique in which researchers use their judgment to choose a group of individuals who are knowledgeable about the issue (Rahi, 2017). The findings from this sample approach are expected to be quite accurate, with a very small margin of error. The present model of research is explanatory. The model investigates the relationship between cause and effect and makes an attempt to explain the hypothetical conjectures using the principles of the underlying theory, as well as making additional predictions. The primary rationale for selecting these sample approaches is that the study is geared around the continuation of the plan to utilize m-shopping. As a result, processed data are appropriate for the current investigation.

Besides, sample size is also important. As through the calculator by (Soper, 2015), which is suggested by (J.C. Westland, 2010) (J. Christopher Westland, 2012), the recommended minimum sample size is 171. However, 524 participants were recruited for the study to guarantee adequate data collection.

4.5. Data collection

This research uses a survey to collect data in order to evaluate the measurement and test hypotheses. A language teacher translated previously published research into Vietnamese and then back into English. Two identical copies of the English questionnaire were reviewed to confirm that the Vietnamese version was properly drafted.

This study's empirical data was obtained using an online survey. Online surveys offer a variety of advantages over paper surveys, including increased response speed, cost savings, and geographic flexibility. For this project, a questionnaire will be circulated over social media and created using Google Forms. Readers of this site who responded received an overview of the study and a link to the online questionnaire.

The city of Ho Chi Minh was chosen as the location for data gathering in this study. This is mostly because Ho Chi Minh City is the country's economic and political capital, as well as one of the fastest-growing online commerce hubs (Vietnam E-Commerce Association, 2019).

4.6 Questionnaire design

To have a good structure of questionnaire. This study applied the items and questionnaire from the previous studies, the table 1 indicated the detail of questionnaire and source adapted. In addition, due to the survey concept's specification of scale items, the 7-point scale may perform better in terms of the dependability of survey participants' replies than the 5-point scale. The seven-point scale gives additional possibilities, increasing the likelihood that the scale will reflect people's true experience. Because a seven-point scale provides more information about the subject, participants find it more appealing with 1 indicating full disagreement, 4 suggesting neither disagreement nor agreement, and 7 indicating complete agreement. After discussing with experts, all observed variables are enough to measure latent constructs in Vietnamese context.

Table 1. Questionnaire

Perceived of usefulness (PU)	Source adapted
PU1: Mobile shopping save my time in purchasing in during Covid 19	(Wu & Wang, 2005)
PU2: Mobile shopping is convenient in payment during Covid 19	
PU3: Mobile shopping improve my effectiveness in daily work during Covid 19	
PU4: I find mobile shopping would be an advantage during Covid 19	
Social Norm (SN)	
SN1: Relatives and friends have an influence on my decision to use mobile shopping during Covid 19	(Kalinic & Marinkovic, 2016)
SN2: Mass media (e.g. TV, radio, newspapers) have an influence on my decision to use mobile shopping during Covid 19	
SN3: I would use mobile shopping more often if the service was widely used by people in my community	
SN4: It is the current trend to use mobile shopping during Covid 19	

Perceived Risk (PR)	
PR1: I think using mobile shopping in monetary transactions has potential risk	(Nguyen Huu Khoi, 2020)
PR2: I think using mobile shopping in product purchases has potential risk	
PR3: I think using mobile shopping puts my privacy at risk	
PR4: My personal information will be used inadvertently	
Confirmation (CO)	
CO1: My experience with using mobile shopping was better than what I expected during Covid 19	(Nguyen Huu Khoi, 2020)
CO2: The service level provided by mobile shopping platforms was better than what I expected during Covid 19	
CO3: I would encourage many others to use it	
CO4: Convenience is a key element of my use of Mobile shopping	
Continuance Intention (CI)	
CI1: I plan to increase the use of mobile shopping during Covid 19	(Nguyen Huu Khoi, 2020)
CI2: I plan to continue using mobile shopping during Covid 19	
CI3: I would encourage many others to use it	
CI4: I am willing to ignore the immediate joy and benefits of using mobile shopping to get the long-term benefits	
Satisfaction (SAT)	
ST1: Purchasing through an online-based mobile shopping app is more economical than other methods.	(Kim et al., 2021)
ST2: I am pleased to be able to compare various products through mobile shopping	
ST3: Satisfaction is higher after using mobile shopping app than other product purchasing methods during Covid 19	
ST4: Overall satisfaction after using mobile shopping during Covid 19	

4.6. Demographic information

Table 2. Respondent profile

Demographic characteristics		Frequency	Percentage
Gender	Male	189	36.00%
	Female	335	64.00%
Educational level	Diploma	69	13.00%
	Bachelor's degree	402	77.00%
	Master/PhD degree	52	10.00%
Occupation	Full time Student	163	31.00%
	Unemployed	47	9.00%
	Working professional	227	43.00%
	Self employed	87	17.00%
Monthly income	Below VND 10,000,000 (\$420)	250	47.00%
	VND 10,000,000 to VND 20,000,000 (\$840)	150	28.00%
	VND 20,000,000 to VND 30,000,000 (\$1,250)	85	16.00%
	Above VND 30,000,000 .	47	9.00%
Experience of using mobile shopping	0-2 years	12	2.00%
	2-4 years	50	10.00%
	4-6 years	211	40.00%
	More than 6 years	251	48.00%

To gather survey questionnaires, five questions were distributed among the variables that describe the participants' demographic information. As it can be seen from the figure supplied that the respective proportion of female is greater than that of male, at 64% and 36%. This phenomenon could be explain by the fact that female may obtain a sense of keen for mobile shopping rather than male. There are three sectors that were surveyed including high school, third education and post – graduate education. While the majority of surveyors are taking tertiary education at 77%, the others are now high school learners and Master or PhD degree holders, accounting for 13% and 10% respectively. In terms of experience in using mobile devices, most of the the survey participants have been using their mobile phone for over 4 years which occupied for 88%, whereas it is clear that the number of people using their mobile devices under 4 years is 12%. When taking occupation aspect into consideration, it is undoubted that the portion of surveyors having jobs outnumbered the rest groups of the unemployed, taking up at 60%. The percentage of full-time students ranked the second highest as they are mostly tech-savy or their earning may be from their parents.

5. Statistical analysis

5.1. Assessing the outer measurement model

According to (Hair et al., 2017), the reliability and validity of each model must be established and evaluated throughout the outer model's measurement stage. To begin, the research evaluated construct dependability using composite reliability (CR) and Dijkstra-rho Henseler's (pA) measures (G. W. H. Tan & Ooi, 2018a; Teo et al., 2015). Prior research (CR) and pA 0.7 indicate a high degree of reliability (Fornell & Larcker, 1981; G. W. H. Tan & Ooi, 2018b). As indicated in Table 3, the CR for both indices is more than the minimum value of 0.7, indicating that the research instrument is trustworthy.

Following that, the average variance extracted (AVE) and individual factor loading were used to assess convergent validity (FL). External loading should be greater than 0.7, and AVE should be greater than 0.5. (Hair, J., et al., 2017). According to Table 4, all factor loadings are greater than 0.7 and AVE values are greater than the 0.5 threshold in this study. As a consequence, convergent validity is acceptable for the model.

Table 3. Convergent Validity and Construct Reliability

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CI	0.871	0.874	0.912	0.721
CO	0.854	0.856	0.901	0.696
PR_	0.82	0.822	0.881	0.649
PU	0.873	0.879	0.913	0.724
SAT	0.858	0.86	0.904	0.703
SN	0.841	0.867	0.892	0.675

Table 4. Factor loading

Constructs	CI	CO	PR_	PU	SAT	SN
CI1	0.82					
CI2	0.843					
CI3	0.864					
CI4	0.868					
CO1		0.792				
CO2		0.851				
CO3		0.85				
CO4		0.843				
PR1			0.796			
PR2			0.798			

PR3			0.834			
PR4			0.795			
PU1				0.84		
PU2				0.849		
PU3				0.871		
PU4				0.843		
SAT1					0.779	
SAT2					0.837	
SAT3					0.856	
SAT4					0.878	
SN1						0.749
SN2						0.81
SN3						0.881
SN4						0.84

Discriminant validity (DV) was evaluated using the conventional (Fornell & Larcker, 1981) method. Table 5 revealed that the DV in which the square root of the AVE for all constructs on the diagonal was greater than the correlation coefficients with other constructs. Furthermore, the table 6 show that the heterotrait-monotrait correlations (HTMT) of all constructs are less than the 0.85 recommended conservative level (Joseph F. Hair et al., 2019). As a result, discriminant validity is satisfied.

Table 5. Forenell – Lacker Test

	CI	CO	PR_	PU	SAT	SN
CI	0.849					
CO	0.617	0.834				
PR_	0.219	0.228	0.806			
PU	0.471	0.498	0.149	0.851		
SAT	0.665	0.561	0.109	0.484	0.838	
SN	0.454	0.481	0.28	0.609	0.402	0.822

Table 6. HTMT ratio

	CI	CO	PR_	PU	SAT	SN
CI						
CO	0.712					

PR_	0.257	0.272				
PU	0.538	0.575	0.174			
SAT	0.767	0.655	0.135	0.556		
SN	0.518	0.56	0.338	0.696	0.461	

5.4. Inspecting the inner structural model

Before the inner structural analysis, the variance inflation factors (VIF) values for all constructs varied highest 2.396, which is below the cut-off value of 5.0, confirming that multicollinearity did not exist (Dang et al., 2023).

Then, according to Table 7, it is apparent that there are four hypotheses being supported. CO (= 0.287, p0.00) and (= 0.419, p<0.00) are both substantially related to SAT respectively. The following variables are substantially related with PU to use mobile shopping toward SAT (= 0.242, p<0.000). SAT (= 0.435, p0.000) is positively related to CI, while PU (= 0.053, p>0.05) is not. SN (= 0.089, p>0.05) was unable to explain an individual's continuance intention to use mobile shopping, while SAT (= 0.435, p<0.000) did.

Table 7. Hypothesis testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
CO -> CI	0.287	0.289	0.064	4.506	0.000
CO -> SAT	0.419	0.417	0.059	7.07	0.000
PR_ -> CI	0.073	0.075	0.04	1.853	0.041
PR_ -> SAT	-0.041	-0.036	0.04	1.028	0.304
PU -> CI	0.053	0.056	0.06	0.879	0.380
PU -> SAT	0.242	0.241	0.061	3.988	0.000
SAT -> CI	0.435	0.424	0.079	5.485	0.000
SN -> CI	0.089	0.092	0.056	1.591	0.112
SN -> SAT	0.064	0.066	0.047	1.351	0.177

The R^2 values should be sufficiently large to ensure that the model has a minimal degree of explanatory power (Tien, Luan, et al., 2023). R^2 should be equal to or greater than 0.1 according to variance, according to (Falk & Miller, 1992). The minimal R^2 value in this situation is 0.374 (higher than 0.1), which is rather significant (Cohen, 1988). As a result, it may be explained why a specific endogenous component is regarded sufficient.

Table 8. R square

	R Square	R Square Adjusted
CI	0.547	0.543
SAT	0.374	0.369

The R^2 values should be sufficiently large to ensure that the model has a minimal degree of explanatory power (Urbach Frederik, 2010). R^2 should be equal to or greater than 0.1 according to variance, according to (Falk & Miller, 1992). The minimal R^2 value in this situation is 0.131 (higher than 0.1), which is rather significant (Cohen, 1988). As a result, it may be explained why a specific endogenous component is regarded sufficient.

6.1. Findings

Various sets of independent variables have been utilized in previous research to get a better understanding of continued intention to use, taking into account the context of each study. In this study, a comprehensive framework is established in the context of mobile shopping by integrating with Expectation-Confirmation Information Technology Theory, in which perceived risk, perceived usefulness, confirmation, customers' satisfaction, continuance intention, and subjective norm, as well as their complex interrelationships, are all taken into account to help explain the continuance. Four of the ten relationships are expected to follow the suggested hypotheses, while the others are statistically negligible. Additionally, when the variance is investigated in subjects of interest, a significant explanatory power is shown when accounting for perceived risk. This study confirms earlier research by demonstrating the predictors of ECT - IS in identifying a variety of behaviors. Additionally, the findings show that ECT-IS is viable and resilient in a mobile retail environment (Zhang et al., 2012) in an emerging nation such as Vietnam in general, and Ho Chi Minh City in particular.

To initiate, it is revealed that subjective norm has no effect on the intention to continue using mobile shopping, which contradicts past study (Ovjak et al., 2015; 2015; Zhang et al., 2012). This indicates that buyers are more receptive to the new trend of purchasing independently (e.g. friends, family, colleagues) Additionally, while mobile shopping is a unique and innovative purchasing trend, buyers no longer want assurance that it will become common or typical, successful, and accepted. Subjective norm is a weaker predictor of attitude in the current circumstance than attitude is, according to those analyses. The data consistently demonstrates that norms are poor in predicting purpose or behavior (Armitage and Conner, 2001). Numerous scholars suggest that while norms are essential, they should be understood as normative (social, subjective, or injunctive) and informational (descriptive) social impacts, rather than as a unified concept. As a result, the relationships between subjective norm and confirmation, as well as satisfaction, are relatively tenuous and unsupported by the sample mean ($SN - CI = 0.089$; $SN - SAT = 0.064$). Similarly, during the COVID-19 epidemic, user behavior is more likely to be impacted by a range of concepts of personal safety, such as usefulness and security, which all contribute to the maintenance of transaction processes in a variety of ways.

As a result, understanding of perceived danger and increase of pleasure are significant or surmountable factors affecting continued mobile shopping usage during and after the epidemic.

Furthermore, consistent with Bhattacharjee (2001a), confirmation has a significant positive effect on consumers' intention to continue using mobile shopping as well as their satisfaction ($CO - CI = 0.287$, $P0.000$) and ($CO - SAT = 0.419$, $P0.000$), implying that users' perceptions of m-shopping may be influenced by the extent of confirmation during a particular period of the COVID-19 pandemic (T. Q. Dang, Tan, et al., 2023). M-shopping confirmation is a cognitive notion that expresses the amount to which actual use can contribute to the formation of consumers' expectations. Users have certain expectations of the services supplied by m-commerce platforms, including individualized investment management solutions, financial derivatives with greater yields and decreased risk, precise and comprehensive product and service descriptions, and efficient customer service. E-commerce enterprises should improve their communication in order to better grasp their users' expectations. When these expectations are met through the use of m-commerce, people will believe that these platforms may truly assist them in maximizing their benefits during times of rigorous lockdown.

Finally, but certainly not least, the distinction here is that PU has a direct effect on satisfaction. As can be seen from the model, the level of PU toward SAT is significantly greater than the level of CI toward SAT. Similarly, one's trust in one's ability to manage cellphones and mobile shopping software might have a favorable effect on the perceived utility of these products. Consumer satisfaction is a stronger predictor of consumers' continued desire to use mobile devices for purchasing. The more the consumers' reported level of pleasure, the more likely they are to create positive behaviors to continue using mobile shopping, and the more likely they are to regard m-commerce as being really beneficial. As a result of their perception of a website's utility, they express satisfaction with the website's use during online buying. This finding gives new light on the critical relationship that the literature frequently addresses. This observation is congruent with the existing body of knowledge (Bhattacharjee, 2001; Koufaris, 2002; Wen et al., 2011; Phan et al., 2023). In the situation of Covid-19 pandemic, perceived usefulness of mobile shopping should be biased in order to remain the safety and avoid direct transaction as well as operating social distancing methods, especially in warning areas such as Ho Chi Minh city.

6.2. Limitations of the study and future research directions

This study does have limitations. To begin, while this study establishes that trust and perceived risk have the greatest influence on the willingness to continue using mobile shopping, it makes no attempt to determine their antecedents. Prior research has stressed the need of comprehending the variables that affect trust and risk (Coulter et al., 2012; Kim et al., 2008; Lin et al., 2013; Pavlou, 2003). Consideration of these antecedents would benefit both researchers and practitioners by enhancing understanding of how trust and risk are established and sustained, therefore enabling the development of more successful mobile commerce solutions (Lin et al., 2013). Thus, we recommend that future study integrate antecedents of trust and risk to provide a more comprehensive picture. Second, intention to continue using is a self-reported outcome variable that is commonly employed in consumer behavior research. However, depending exclusively on this variable may produce erroneous findings, as intention and actual behavior may differ significantly. As a result, we recommend that future research

incorporate an evaluation of actual use. Additionally, this study drew its sample from a single province. If the study's sample size were expanded, the findings would be more regionally applicable. The current study is limited to the Covid-19 model or other chronic diseases in which social isolation and avoidance of physical touch remain critical protective measures. Hence, it is recommended future studies that they should refer the sources with the most current period for a better accuracy.

Conclusion

We are primarily concerned about the spread of coronavirus and its impact on countrywide e-commerce, not only in Ho Chi Minh. Awareness of this issue may result in increased public awareness and debate regarding how e-commerce, business, and economics in coronavirus-affected nations provide alternative means for individuals to meet their requirements. COVID-19 is unquestionably beneficial to e-commerce. How it impacted e-commerce will spur more academic research on the issue, including e-commerce patterns impacted by the corona and future tendencies. These policy ramifications can be used in two ways. On the one hand, while the pandemic's origins are questionable and many of its repercussions are temporary, this paper's conclusion is that the development of mobile shopping during the pandemic era based on an e-commerce site is not just of practical relevance in the near term. These models will be essential in the long run in the event of future epidemics or public security threats. In terms of managerial implications, the results of this study could be useful to business management and marketing practitioners who want to enter the mobile shopping sector. The research suggests how both facilitator and obstacle factors influence m - shopping intention. Moreover, as consumers are no longer affected by surrounding factors, a mobile shopping platform should constantly update information, extend its coverage, and fulfilling customer request for information.

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