



Print ISSN: 2765-6934 / Online ISSN: 2765-7027
 AJBE website: <http://www.ajbe.or.kr/>
 Doi: 10.13106/ajbe.2023.vol13.no1.9

Consumer Behavior towards E-Commerce in the Post-COVID-19 Pandemic: Implications for Relationship Marketing and Environment

Hoang Linh DANG¹, Nguyen Van BAO², Yooncheong CHO³

Received: July 04, 2022. Revised: August 31, 2022. Accepted: January 05, 2023.

Abstract

Purpose: The purpose of this research paper is to explore what factors that affect customer purchase decisions in the online environment, particularly after the COVID-19 pandemic in the case of Vietnamese customers. **Research Design, Data and Methodology:** To clarify which factor has the most significant impacts on online purchasing decision-making process, this study proposed a research model including factors such as customer trust, propensivity to trust, system assurance, the quality of website design, attitude, and customer satisfaction. This study collected the data via online survey. Data analysis was conducted by AMOS 25.0 using the Structural Equation Modeling (SEM) method. **Result:** The results of this study shows that the purchase decisions were positively affected by customers' attitude, satisfaction, trust, and the quality of websites design. Additionally, factors such as perceived size and reputation and system assurance, have impacts on buyers' trust, while the propensity to trust has no significant impact. **Conclusion:** This study provides managerial implications. The results provide which factors should be improved to foster trust, attitude, customer satisfaction, and purchase decision in the online environment. The results also provide managerial implication on marketing strategies how to enhance better relationships with customers and to consider environmental issues in the era of post COVID-19.

Keywords: E-commerce, Purchase Decision, Customer Satisfaction, Relationship Marketing, Post-COVID-19

JEL Classification Code: M30, M31, M39

1. Introduction

During the explosive growth of the 4th industrial revolution, the role of digital economy has become pivotal in everyday lives. Digital economy is defined as an economy that is mainly based on digital technology; especially, it deals with electronic transactions based on the application of digital technology (Bukht & Heeks, 2017). Initially, a customer's decision-making process has been researched from the perspective of the traditional business concept that buying action was conducted directly at selling points (Verhoef & Franses, 2003). Hence, consumer behavior has

been studied within the market characterized by unstable demand for commodities together with high impulse buying decision which is made at the point of purchase (Koufaris et al., 2001). Recently, there has been an increasing number of businesses using the Internet to conduct business functions, including sales and distribution. The Internet has led to the rise of the computer-mediated market transactions in which products can be introduced and broadcasted to the buyers (Ngai, 2003). As a result, the process by which online customers' decisions are received great attention from global researchers (Teo, 2006). While there have been numerous studies on digital consumer behavior, the analysis

1 First Author. Senior Lecturer, Diplomatic Academy of Vietnam, Hanoi, Vietnam, Email: hoanglinh@dav.edu.vn

2 Second Author, Ph.D. Candidate, KDI School of Public Policy and Management, S. Korea, Email: baonguyen@kdis.ac.kr

3 Corresponding Author, Professor, KDI School of Public Policy and Management, S. Korea, Email: ycho@kdischool.ac.kr

© Copyright: The Author(s)

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

of customer behavior in the era of COVID-19 still needs to be examined. It is essential that more studies of consumer behavior in new context should be conducted to provide businesses and potential investors with meaningful implications.

The purpose of this paper is to explore factors that affect customer purchase decision in the online environment via digital business platforms, particularly after the COVID-19 pandemic and in the case of Vietnamese customers. Since the economic reforms started in 1986, Vietnam has rapidly grown from one of the poorest countries in the world to a lower middle-income country. By considering the rapid growth, investigating factors that affect Vietnamese customers' decisions is necessary for better development of businesses. In particular, due to the COVID-19 pandemic, customers decision making has been shifted toward online and environmental friendly issues. Based on the consideration, the purpose of this research is to examine the effects of propensity to trust, system assurance on customers' trust in purchasing decisions in the online environment and effects of trust, attitude, satisfaction, quality of web/app design on customers' purchasing decisions. This study proposes the following research questions: i) How do perceived size and reputation, propensity to trust, and system assurance affect customers' trust in purchasing decisions in the online environment? and ii) How do trust, attitude, satisfaction, quality of web/app design affect customers' purchasing decisions?

2. Literature Review

The term "consumer behavior," which refers to the way emotions, attitudes, and preferences affect purchasing behavior, first has appeared in the early 1950s as a separate social science concept closely related to the field of marketing (Tadajewski, 2009). Kardes et al. (2011) has defined consumer behavior as all consumer activities involved in the purchasing, utilizing, and removing of goods and services and in complying with the process of emotional, mental, and behavioral responses. Consumer behavior, in other words, has included personal thoughts and feelings experienced by individuals and the subsequent actions in purchasing processes (Familmaleki et al., 2015). The term also has dealt with all influential factors in the environment such as reviews from other consumers, commercials, price comparison, product labels and packaging (Chaniotakis et al., 2010). Consumers are the starting point and the end point of marketing; therefore, analyzing and understanding purchasing as well as consuming behavior are essential challenges for marketers (Lyons et al., 2005). Also, it is important to understand how purchase decisions are made and how products or services are consumed or experienced

(Kardes et al., 2011). Different approaches have been made to develop intention-based theories and provide comprehensive explanations of factors that affect purchasing decisions of consumers (Oliveira et al., 2017).

Electronic commerce (E-commerce) has referred to the act of purchasing products and services via digital communications (Chaffey et al., 2019). The early stage of electronic commerce has been mainly focused on transactions among corporations though it was relatively restricted due to technical difficulties and financial costs (Gibbs et al., 2003). Nonetheless, by the 1990s, e-commerce rapidly has become popular among web due to the advancements and widespread accessibility of the Internet (Wymbs, 2000). From 1995 onwards, there have been several major digital commerce services available including household names such as Amazon or eBay (Javalgi et al., 2004). During this "golden age" era of online shopping, many businesses has started to utilize websites to build their presence and to transact online (Singhal, 2016). People also has begun to invest in Internet and e-commerce stocks; as a result, the "dot-com bubble" has been formed during this period (Wheale & Amin, 2003). Through the rises and falls, e-commerce has been proven its value to companies and customers (Tzavlopoulos et al., 2019). Progress in technology, as well as in the economy, has undoubtedly fueled the expansion of e-commerce (Nanda et al., 2021). Dai and Kauffman (2002) have been predicted that electronic commerce will play a crucial role in the economy's development as it promotes international trading and investments. As the market grows, corporations must conduct studies on online consumer behavior to adapt to the new age of digitalization (Wymbs, 2011). Examinations of buyers' perceptions in the purchasing process will allow us to forecast future e-commerce trends (Gudigantala et al., 2016). Additionally, consumer expectations such as product availability, delivery transparency, affordable shipping, and a smooth transaction are key factors to the success of a business (Goetzinger et al., 2006). Prior to this, there is a plethora of research on the consumer behavior of offline shopping (Pantano et al., 2020). However, unlike its conventional counterpart, e-commerce can have dissimilar influences on customers (Benlian et al., 2012).

The pandemic has had a great impact on the behavior of customers and has led to substantial changes in the way a typical customer makes buying decisions (Mehta et al., 2020). This has spurred several research to identify characteristics that influence customer behavior during this time. Mason et al., (2020) have analyzed the effects of ongoing COVID-19 pandemic and the authorities' interventions on U.S. consumer behaviors and concluded that consumers tended to increase their virtual shopping and online purchasing. There are research studies that confirmed the expected changes in customer behavior in the early stage

of crisis (e.g., Jha & Pradhan, 2020; Majercakova & Rostasova, 2021). Instead of applying preventive measures strictly to curb the pandemic through lockdown, isolation, and social distancing, some countries have now applied policies to maintain a safe threshold of cases, and gradually restore production and business activities (Jiang et al., 2021). Due to the insufficient number of research papers that examine changes in customer behavior in the era of the COVID-19 pandemic, more research needs to be conducted to fill the gap and continue to contribute to the understanding of customer behavior.

3. Theoretical Background

Psychological theories such as the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1985) have supported to explain consumer attitude, intention, and behavior. Fishbein and Ajzen (1975) have proposed the theories with a view to analyzing the psychological processes among beliefs, attitudes, intentions, and behaviors. According to TRA (Ajzen, 1988; Fishbein & Ajzen, 1975), there have been three main components of human behavior: 1) Attitude towards behavior as the key determinants of behavioral intention; 2) Subjective norm as the perceptions' way of some groups or individuals; and 3) Perceived behavioral control with factors which probably promote or impede the behavior's performance. Blackwell et al. (2001) have reported that consumers pass through several phases when they intend to buy certain products. The model of consumer behavior has been formed with buying processes including recognition of the problem, searching information, comparing consideration sets, purchasing, and after purchase behaviors (Blackwell et al., 2001). Demographic and social-economic characteristics have been analyzed in almost all studies that examine customer buying decision processes (e.g., Sarigollu et al., 2021). However, attitude and behavioral characteristics are also emphasized as important determinants of store brand proneness when compared to demographic and socio-economic characteristics (Baltas, 1997).

According to Szymanski and Busch (1987), perceptions of quality and products were major factors affecting individual buying decisions prior to demographic, psychological, and shopping behaviors. According to Gleim et al. (2019), two main factors that affect green behaviors of an individual include internal factors such as interest, altruism, willingness to conduct research and external factors such as organizational influence, media influence, and governmental influence. Manstead (2018) has stated external factors include culture, social class, personal influence, family, and situation. Cheung and To (2019) have addressed internal and external factors that affect the

relationship between consumers' attitude towards going green and green purchase behavior by applying an extended model of value-attitude-behavior.

With the advancement of modern science and technology, the Internet has become a crucial business platform for commercial activities (Clement et al., 2020). Therefore, the knowledge of consumers' decision-making process and their attitudes toward online shopping is essential for businesses in planning marketing strategies or adjusting existing strategies (Mazurova, 2017). There is a considerable number of discussions conducted to ascertain the factors affecting customers' buying decisions when purchasing products online at e-commerce vendors (Ali & Bhasin, 2019). Various aspects have been used to identify attitudes toward online shopping, namely, consumer trust (Doney & Cannon, 1997; Teo & Liu, 2007), the quality of e-commerce website design (Chen et al., 2010; Udo, Marquis, 2002), and consumer satisfaction (Giao et al., 2020; Muylle et al., 2004; Zviran et al., 2006). Researchers (e.g., Lee & Turban, 2001) has stated that empirical studies about consumer trust in online shopping are relatively insufficient, which to some extent obstructs an overall understanding of consumer trust in online buying actions. This research paper focuses on customers' purchasing intentions in the online environment in Vietnam. The suggested model is based on theories and related literature reviews on customer trust, customer satisfaction, and quality of e-commerce websites. Proposed factors affecting consumer buying decisions in this study include trust (perceived size and reputation, system assurance, propensity to trust), customer attitude, customer satisfaction, and the quality of website design.

4. Hypothesis Development

4.1. Effects of Consumer Trust on Online Purchasing Decisions

B2C e-commerce activities are indirect interactions that take place between customers and e-commerce vendors through websites or applications (Vakeel et al., 2017). Since there are uncertainties involved with online transactions, consumer trust plays a pivotal role in many financial interactions. As a result, trust has been argued as an essential factor affecting successful proliferation (Gefen, 2000). Lee and Turban (2001) have concluded that trust is formed by customer expectations and behavioral intentions. Based on literature review, trust is a multi-dimensional concept. The significant dimensions of trust rely on the condition of interactions (Bendoly et al., 2005; Walczuch & Lundgren, 2004), and trust contains two behavioral elements: intention and cognition (Bollen, 1989). This research paper uses three sub-factors of trust: perceived size and reputation, system

assurance, and propensity to trust. Prior research has provided sufficient evidence that lacking customer trust is the main obstacle to attracting the participation of consumers on e-commerce vendors (Jarvenpaa & Tractinsky, 1999). In other words, trust is the most effective method of reducing perception of risk and an essential antecedent to actual purchasing decisions (Doney & Cannon, 1998; Mayer et al., 1995). Therefore, this study hypothesizes the following:

H1: Consumer trust positively affects purchasing decisions in the online environment.

4.2. Effects of Propensity to Trust on Trust of Online Purchasing Decisions

Regarding trustor attributes, the propensity to trust is an individual's willingness or the tendency to trust or distrust others. Individual's propensity to trust is influenced by cultural background, personality type and previous experiences (Mayer et al., 1995). Individuals are considerably different from each other in their propensity to trust due to dispositional trust rooted in the good nature of people (Mcknight & Chervany, 2001). When information about trustworthiness is ambiguous, propensity to trust, or an individual's inclination to trust, is connected with intention to trust, but not when information about trustworthiness is explicit (Gill et al., 2005). Researchers have had a comparatively consistent conclusion that propensity to trust is related to customer trust. Therefore, this study hypothesizes the following:

H2: The individual's propensity to trust is positively related to customer trust in purchasing decisions in the online environment.

4.3. Effects of System assurance on Trust of Online Purchasing Decisions

Teo and Liu (2007) have defined system assurance as the reliability and security of an online transaction system. As mentioned by Ganguly et al. (2010), the ambiguity or uncertainty of online transactions could have led to insufficient trust. The assessment of system assurance originally has taken place in the realms of security and dependability of the transactions on e-commerce websites. These transactions have involved sharing private information of credit or debit cards (Kini & Choobineh, 1998). Therefore, ensuring system safety has been considered as one of the important factors that make customers trust and, thereby, promote online purchases. Therefore, this study hypothesizes the following:

H3: System assurance positively influences customer trust in purchasing decisions in the online environment.

4.4. Effects of Perceived size and reputation on Trust of Online Purchasing Decisions

The term reputation refers to "the extent to which buyers believe a seller is professionally competent or honest and benevolent" (Doney & Cannon, 1997). A company's reputation is a valuable intangible asset based on its past performance and behavior (Iwu-Egwuonwu, 2010). However, reputation is a delicate asset that can be easily tarnished or damaged, as in cases of scandals (Teo & Liu, 2007). Furthermore, a vendor's size refers to its overall size and market position (Son et al., 2014). Consumers have been aware of the size and reputation differences among Internet retailers, and these differences influenced their perceptions of store trustworthiness, risk perception, and proclivity to patronize a store (Jarvenpaa et al., 2000). Large brands typically have better consumer credit than e-commerce vendors. Therefore, this study hypothesizes the following:

H4: The perceived size and reputation positively affect customer trust in purchasing decisions in the online environment.

4.5. Effects of Quality of website design on Attitude, Satisfaction, and Online Purchasing Decisions

Websites are mediate platforms designed and developed by organizations to enable and facilitate business activities using the Internet (Udo & Marquis, 2002). While there exists no universally accepted definition for quality of website design, the following issues have applied to measure the quality of website design including cohesion and consistency, navigation, response time, advertisement, interactivity, graphics and aesthetics issues, frames and other features such as payment or discount (Chen, 2006). Quality of website/ application is found to influence other antecedents of purchasing decisions like satisfaction, loyalty, and trust (Yoon, 2002). In B2C e-commerce, quality of website/ application is concluded to affect customer satisfaction (Lin, 2007). Some studies have showed the significance of these impacts on customers' purchasing intention that elicit or spur purchasing decisions (Abou-Shouk & Khalifa, 2017; Mulyana et al., 2020). Therefore, this study hypothesizes the following:

H5: The quality of website design positively influences on trust, attitude, satisfaction, and purchasing decisions in the online environment.

4.6. Effects of Attitude on Online Purchasing Decisions

According to Eagly and Chaiken (1998), attitude is defined as a psychological tendency expressed by evaluating a particular entity with some degree of favor and disfavor. It

is a long-lasting favorable or negative appraisal system, feelings, and a proclivity towards pros or cons action of a social object (Erevelles & Fukawa, 2013). It affects an individuals' decision in every action and the way they respond to obstacles, incentives, and rewards. Attitude includes the following four distinct components: (1) emotions or feelings, (2) beliefs or opinions held consciously, (3) inclination for action, and (4) positive or negative responses to stimuli (Teo & Pian, 2004). The effects of attitude on purchasing decisions on online environment have been confirmed by studies of Warayuant and Suyanto (2015) and Gunawan and Huarng (2015). Therefore, this study hypothesizes the following:

H6: Attitude has a positive impact on customers' purchasing decisions in the online environment.

4.7. Effects of Satisfaction on Online Purchasing Decisions

Customer satisfaction refers to the feeling of happiness or disappointment after perceiving the performance of a product or service in comparison to customers' expectations (Ullah, 2012). Manufacturers and sellers should put themselves in customers' position to see expectation and consumers' satisfaction from products or services (Ramani & Kumar, 2008). Prior studies have analyzed both consumers' formulation of their pre-purchase decisions and the way they form their long-term relationships with website vendors. The results have indicated that satisfaction plays a pivotal role in consumer's purchasing decisions, both in direct and indirect ways (Kidane & Sharma, 2016). Therefore, this study hypothesizes the following:

H7: Customer satisfaction positively affects online customers' purchasing decisions in the online environment.

5. Methodology

The purpose of the study is to sample opinions of customers in the online environment to determine critical factors that affect their behaviors. The respondents were selected randomly to represent Vietnamese consumers. An online survey was designed and utilized to collect data from customers who have experiences of e-commerce. Questionnaire items were developed based on the previous literatures. Before the main survey was conducted, the questionnaire was tested by some experienced internet users, who were asked to fill in the form and critically evaluate each item. After questionnaire items were modified, the main survey was distributed to the most well-known social networks in Vietnam including Facebook, Zalo, and Lotus. To attract more respondents, public groups on Facebook were selected and offered gifts. The sample size was

estimated according to the formula proposed by Kaufmann et al., (2012). The survey was open for about 2 weeks and a total of 356 respondents completed the survey with the response rate of 83%.

The survey questionnaire was designed with two sections. In the first section, general questions including demographic information such as age, gender, residence, monthly income and Internet usage experience such as frequency, and purposes of using internet and online purchasing experience such as percentages of buying goods and products online, preferred e-commerce, product types that were purchased, intention to buy goods and products online, etc. In the second section, respondents were asked to indicate the extent to which they agree or disagree with the statements on the google form survey. Five-point Likert scale ranging from 1 - Strongly Disagree to 5 - Strongly Agree were applied for main questions. As the survey targeted Vietnamese internet users, the survey was translated into Vietnamese. Table 1 below summarizes the list of indicators used to measure each variable and the source.

Table 1: Measures of Model Variables

	Description
Trust_1 Trust_2 Trust_3	Trust E-commerce vendors are reliable E-commerce vendors provide trustworthy information. E-commerce vendors keep promises and commitments.
PSR_1 PSR_2 PSR_3 PSR_4	Perceived size and reputation (PSR) I will choose the e-commerce vendor that has a good reputation in the market I will choose the e-commerce vendor that has a reputation for being consumer-oriented I will choose the e-commerce vendor that is one of the biggest suppliers I will choose the e-commerce vendor that is globally popular.
SA_1 SA_2 SA_3	System assurance (SA) I can return the products easily by requesting after-sales services and get the refund for products I bought online The online transaction system on e-commerce vendors is stable and reliable The prices on websites and physical stores are usually the same.
PTT_1 PTT_2 PTT_3	Propensity to trust (PTT) People, in general, appear to be trustworthy. Unless they give me a reason not to, I generally trust people. I believe that people are generally dependable.
Att_1 Att_2 Att_3 Att_4 Att_5	Attitude (Att) Buying items on the Internet is a good option. I plan to buy it online within the next three months. Next year, I plan to make purchases online. I have willingness to purchase product(s)/service(s) online. I believe that the risk of making an online purchase is low.
	Quality of website design (Qua)

Qua_1	It's easy to find the products that I need online. The website/ app can be accessed quickly. The information on the website and the app is consistent. I meet no difficulty in using the website/ app to buy things The high-quality graphics on the website/ app are easy to attract my attention I often get discounts or coupon when buying online
Qua_2	
Qua_3	
Qua_4	
Qua_5	
Qua_6	
Sat_1	Satisfaction (Sat) I am pleased with the online vendor that I am considering. I am delighted with the purchases I have made from my current online vendor. I made the correct decision when I decided to use my current online vendor.
Sat_2	
Sat_3	
Dec_1	Purchase decision (Dec) I would consider purchase products online next time. I think that I made right decision to purchase products online.
Dec_2	
Dec_3	

Source: Doney and Cannon (1997), Gefen (2000), Jarvenpaa et al. (2000), Jarvenpaa and Tractinsky (1999), Teo and Liu (2007), Kini and Choobineh (1998), Gefen (2000), Tadajewski (2009), Udo and Marquis (2002), Palvia (2009)

6. Data Analysis

6.1. Demographics

Online customers frequently have used the internet for multiple reasons, including studying, working, entertaining, searching for news and information, and shopping online. The results have showed that the majority of online shoppers in Vietnam were women under 35. As shown in the survey, the most common scale of monthly income has been \$220; individuals with the salary of \$220 to \$440 have taken up 58.4% to 25.8% of the whole nation's population. Besides, Shopee is the most popular e-commerce vendor in Vietnam, where nearly 90% of Vietnamese customers have made transactions. Cosmetics have been the most popular commodities which account for 61.2% of consumers' visits, followed closely by clothes (49.9%), gadgets (44.7%), food (40.4%). Nearly 85% of Vietnamese indicated their intentions to continue buying products online, which implies positive prospects for e-commerce vendors in Vietnam. Respondents' demographic characteristics are summarized in Table 2 below:

Table 2: Summary of Demographics

Characteristics	%
Age	
18-25	57%
26-35	27.5%
36-45	8.7%
Over 46	6.7%
Gender	
Female	69.7%

Male	30.3%
Frequency of using Internet	
No	1.7%
Once per month	3.4%
One per week	5.1%
Several times per day	15.2%
From 4 to 6 hours per day	46.1%
From 6 to 8 hours per day	2.2%
More than 8 hours per day	26.4%
Purposes of using Internet	
Shopping	69.1%
Entertainment	90.2%
Searching for information	72.8%
Working	65.4%
Studying	81.5%
Others	0%
Monthly income	
Less than \$220	58.4%
From \$220 to \$440	25.8%
From \$440 to \$880	9.8%
From \$880 to \$1320	3.1%
From \$1320 to \$1760	1.7%
Over \$1760	1.1%
Commodities frequently bought	
Food	40.4%
Gadgets	44.7%
Cosmetics	61.2%
Clothes	49.9%
Books	25.7%
Intention to buy things online	
Yes	84%
No	16%

This study conducted reliability test. As shown in Table 3, Cronbach's alphas were greater than 0.7.

Table 3: Results of Construct Reliability

	Cronbach's alpha
Trust	0.875
Perceived Size and Reputation	0.729
System Assurance	0.702
Propensity to trust	0.610
Quality of web/ app design	0.825
Attitude	0.886
Satisfaction	0.828
Purchasing decisions	0.952

6.2. Hypothesis Testing

The results of structural equational modeling using the data from 356 respondents are shown in Figure 1:

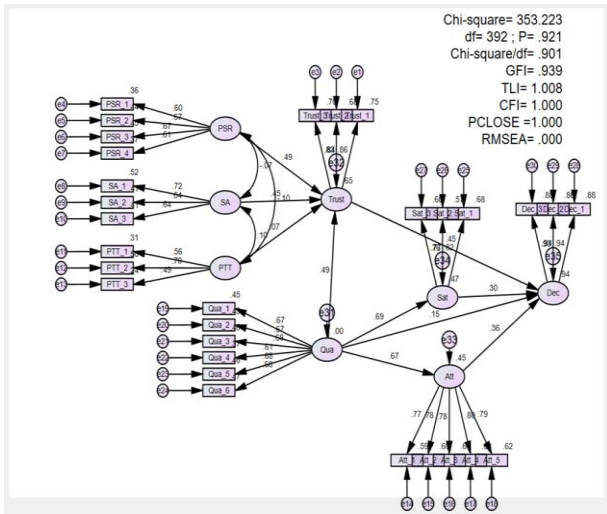


Figure 1: Structural Equation Modelling

The results of indicators from the structural equation modeling have showed the results of CMIN/df are good fit. The results of GFI has been 0.939 that is acceptable as it is greater than 0.9. The results of GFI have showed 1.000, therefore, the results are satisfactory. The results of RMSEA was 0.000, therefore the results have showed good as it is smaller than 0.06. In addition, the results of PCLOSE showed 1.000, therefore the results have confirmed the model fit as it is smaller than 0.08. Therefore, overall, the result have showed acceptable. Meanwhile, SEM assumptions have fulfilled in terms of normality, reliability test, and validity test. The results were summarized in Table 4:

Table 4: Results of Regression Analysis

			Estimate	S.E.	P
Perceived size and reputation	→	Trust	.602	.081	***
Propensity to Trust	→	Trust	.104	.086	--
System assurance	→	Trust	.421	.061	***
Quality of website design	→	Trust	.557	.064	***
Quality of website design	→	Satisfaction	.868	.088	***
Quality of website design	→	Attitude	.715	.074	***
Attitude	→	Purchase decision	.484	.053	***
Satisfaction	→	Purchase decision	.346	.046	***
Trust	→	Purchase decision	.561	.040	***

Quality of website design	→	Purchase decision	.216	.078	***
---------------------------	---	-------------------	------	------	-----

*** Significant at 0.01 level ; ** Significant at 0.05 level

Based on the results of regression analysis, *p*-value of propensity to trust showed greater than significance level of 0.05. Therefore, the effects of propensity to trust on trust showed insignificant, while other hypotheses have been accepted. The results of hypotheses testing using the structural equation modeling have been summarized in Table 5:

Table 5: Results of Hypothesis Testing

Hypothesis	Result
H1. Consumers' trust has a significant effect on the customer online purchasing decision.	Accepted
H2. The individual's propensity to trust is positively related to customer trust while purchasing online.	Rejected
H3. System assurance positively influences customer trust in online shopping decision.	Accepted
H4. The perceived size and reputation positively affects the customer trust in online purchasing decision.	Accepted
H5. The quality of website design positively influences the customer's decision to buy products online.	Accepted
H6. The attitude positively relates to the customer's decision to buy things online.	Accepted
H7. The satisfaction positively affects the online customer's purchasing decision.	Accepted

6.3. Results of ANOVA test and Independent Sample T-Test

One-way ANOVA test and independent sample T-test were conducted to check the statistical differences between the means of age, income, and gender. In other words, ANOVA test has been applied to check whether age, gender and income influence the decision to buy products on website or mobile application. Therefore, ANOVA results can provide useful information for e-commerce vendors to adjust their business to fit each group of the customers. Another ANOVA test results have showed that online purchasing decision of the respondents were not different based on age groups and income levels. The ANOVA result in this research study showed inconsistent with that of Slabá (2019), who proved that there were statistically significant differences among several age groups. The inconsistency in the research results have revealed the diversity of customer behaviors in different contexts. Regarding gender, independent sample's *t*-test has showed that there is no significant difference in the purchasing decision based on gender.

7. Conclusions

7.1. Summary

This study empirically investigated antecedents for Vietnamese consumers' purchasing decisions in e-commerce vendors. The results of this research have revealed that perceived size and reputation and system assurance positively affect customers' trust while the effect of propensity to trust on trust has not been significant. The results also have showed that effects of consumers' trust, attitude, satisfaction, and the quality of website design on purchase decisions in the online environment have showed significant. The result of the model has provided useful implications for B2C businesses that target the Vietnamese market and consumers. The results of the structural equation model have showed that customers' attitudes toward purchasing products, satisfaction with online shopping experiences, customer trust, and the quality of web/app design all influenced Vietnamese customers' purchasing decisions in an online environment conducted via websites or mobile applications. Regarding the effect size, customer trust has had the highest impact on customer decision among the variables with implication that increasing customer trust in e-commerce vendors can significantly increase purchasing decision of goods and services. Perceived size and reputation have had significant impacts on customer trust, therefore large-scale e-commerce suppliers with a high reputation would be more likely to gain customer trust than smaller-scale e-commerce vendors. Customer purchase decisions have been influenced by the quality of web/app design. Consumers' purchasing decisions are influenced by the quality of web/ app design both directly and indirectly; therefore, improving the quality of web/app design would aid businesses in cultivating a favorable customer attitude, providing satisfying buying experiences, and gaining customers' trust.

7.2. Managerial and Policy Implication

Apart from the traditional business model where buyers can interact with sellers directly and examine goods cautiously, buyers first interact with e-commerce vendors through a website or application. Most Vietnamese people are still not used to buying goods online due to their apprehension about the quality of goods or insecurity of online payment. Many consumers are attracted by stunning images and graphics on websites or applications, while other consumers may not be attracted by those that vendors post themselves since there are chances that sellers might not be truly honest about their products. Therefore, the best way for businesses to build customer trust is to improve website effectiveness. Short loading time, ease of navigation, high-

quality graphics usage, and interactivity are factors that can be improved. Secondly, e-commerce vendors should avoid exaggerating product quality and provide detailed information to build the trust. Thirdly, a secure payment system needs to be developed by a professional who can support customers' purchase decision. Minimizing unnecessary procedures to make the purchase process secure, quick, and convenient will help improve efficiency the buying process. Customers are becoming more and more cautious about providing payment information on the internet. Therefore, various forms of payment provide customers with more options in paying, including those who are afraid of paying in advance. There are many popular payment methods, such as payment on delivery, advance payment by bank transfer, payment through 3rd party, payment via ATM cards or Mastercard, etc.

This study provides managerial implications. With the presence of Internet, the role of customer relationship management has been addressed to build better relationships with customers in the context of online environment. Online businesses have adopted advanced technologies, such as recommender system, customized services, and interactivity via virtual reality to enhance satisfaction and loyalty, while such technologies also help minimize customer dissatisfaction and complaints. The results of this study have confirmed that building customer loyalty and trust are key factors for the success of an online business. Online businesses should put better effort to improve customer satisfaction, minimize complaints with prompt and customized responses, and make suggestions to customers about product services or after-sale services in professional manner. In particular, the results of this study implied that business transactions with considerations of sustainability and environment issues should be addressed in the era of post COVID-19.

7.3. Limitations

Due to the time and financial constraints, the research has some limitations as listed below. (1) The coverage of the study is limited to a sample of 356 respondents who are mostly Vietnamese. Future research can be carried out with surveys conducted on global customers to examine the differences in consumer behavior due to cultural backgrounds. (2) Together with technology innovation, there might emerge new selling channels that affect customers' buying decisions. Future researchers can extend and update the model for better evaluation and examination.

References

- Abou-Shouk, M. A., & Khalifa, G. S. (2017). The influence of website quality dimensions on e-purchasing behaviour and e-loyalty: a comparative study of Egyptian travel agents and hotels. *Journal of Travel & Tourism Marketing*, 34(5), 608-623.
- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In J. Kuhl, & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (pp.11-39), Berlin, Heidelberg, New York: Springer-Verlag.
- Ajzen, I. (1988). Attitudes, personality, and behaviour. Chicago: Dorsey Press
- Ali, A., & Bhasin, J. (2019). Understanding customer repurchase intention in e-commerce: role of perceived price, delivery quality, and perceived value. *Jindal Journal of Business Research*, 8(2), 142-157.
- Baltas, G. (1997). Determinants of store brand choice: a behavioral analysis. *Journal of Product & Brand Management*, 6(5), 315-324.
- Bendoly, E., Blocher, D., Bretthauer, K., Krishnan, S., & Venkataramanan, M. A. (2005). Impacts of availability and perceptions of integration in multi-channel operations. *Journal of Service Research*, 7(4), 313-327.
- Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2001). *Consumer Behavior*. Ft. Worth, Texas: Dryden Press, Harcourt College Publishers.
- Benlian, A., Titah, R., & Hess, T. (2012). Differential effects of provider recommendations and consumer reviews in e-commerce transactions: An experimental study. *Journal of Management Information Systems*, 29(1), 237-272.
- Bollen, K.A. (1989) *Structural Equations with Latent Variables*. New York, NY: John Wiley and Sons, Inc.
- Bukht, R., & Heeks, R. (2017). Defining, Conceptualising and Measuring the Digital Economy. *Development Informatics Working Paper Series*, 68, 1-24.
- Chaffey, D., Edmundson-Bird, D., & Hemphill, T. (2019). *Digital business and e-commerce management*. UK: Pearson.
- Chaniotakis, I. E., Lymperopoulos, C., & Soureli, M. (2010). Consumers' intentions of buying own-label premium food products. *Journal of Product & Brand Management*, 19(5), 327-334.
- Chen, C. (2006). Identifying significant factors influencing consumer trust in an online travel site. *Information Technology & Tourism*, 8(3-4), 197-214.
- Chen, Y. H., Hsu, I. C., & Lin, C. C. (2010). Website attributes that increase consumer purchase intention: A conjoint analysis. *Journal of business research*, 63(9-10), 1007-1014.
- Cheung, M. F., & To, W. M. (2019). An extended model of value-attitude-behavior to explain Chinese consumers' green purchase behavior. *Journal of Retailing and Consumer Services*, 50(C), 145-153.
- Clement, A. P., Jiaming, F., & Li, L. (2020). Green advertising and purchase decisions in live-streaming B2C and C2C interactive marketing. *International Journal of Information and Management Sciences*, 31(2), 191-212.
- Dai, Q., & Kauffman, R. J. (2002). B2B e-commerce revisited: Leading perspectives on the key issues and research directions. *Electronic Markets*, 12(2), 67-83.
- Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61(2), 35-51.
- Doney, P. M., & Cannon, J. P. (1998). Understanding the Influence of National Culture on the Development of Trust. *The Academy of Management Review*, 23, 601-620.
- Eagly, A. H., & Chaiken, S. (1998). Attitude, Structure and Function. In D. T. Gilbert, S. T. Fisk, & G. Lindsey (Eds.), *Handbook of Social Psychology* (pp.269-322), New York, NY: McGowan-Hill.
- Erevelles, S., & Fukawa, N. (2013). The role of affect in personal selling and sales management. *Journal of personal selling & sales management*, 33(1), 7-24.
- Familmaleki, M., Aghighi, A., & Hamidi, K. (2015). Analyzing the influence of sales promotion on customer purchasing behavior. *International Journal of Economics & Management Sciences*, 4(4), 1-6.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Ganguly, B., Dash, S. B., Cyr, D., & Head, M. (2010). The effects of website design on purchase intention in online shopping: the mediating role of trust and the moderating role of culture. *International Journal of Electronic Business*, 8(4/5), 302-330.
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega*, 28(6), 725-737.
- Giao, H., Vuong, B., & Quan, T. (2020). The influence of website quality on consumer's e-loyalty through the mediating role of e-trust and e-satisfaction: An evidence from online shopping in Vietnam. *Uncertain Supply Chain Management*, 8(2), 351-370.
- Gibbs, J., Kraemer, K. L., & Dedrick, J. (2003). Environment and policy factors shaping global e-commerce diffusion: A cross-country comparison. *The Information Society*, 19(1), 5-18.
- Gill, H., Boies, K., Finegan, J. E., & McNally, J. (2005). Antecedents of trust: Establishing a boundary condition for the relation between propensity to trust and intention to trust. *Journal of Business and Psychology*, 19(3), 287-302.
- Gleim, M. R., Smith, J. S., & Cronin, Jr. J. J. (2019). Extending the institutional environment: the impact of internal and external factors on the green behaviors of an individual. *Journal of Strategic Marketing*, 27(6), 505-520.
- Goetzinger, L., Park, J. K., & Widdows, R. (2006). E-customers' third party complaining and complimenting behavior. *International Journal of Service Industry Management*, 17(2), 193-206.
- Gudigantala, N., Bicen, P., Eom, M. (2016). An examination of antecedents of conversion rates of e-commerce retailers. *Management Research Review*, 39(1), 82-114.
- Gunawan, D. D., & Huarng, K. H. (2015). Viral effects of social network and media on consumers' purchase intention. *Journal of Business Research*, 68(11), 2237-2241.
- Iwu-Egwuonwu, R. C. (2010). Corporate reputation & firm performance: Empirical literature evidence. *International Journal of Business and Management*, 6(4), 197-206.
- Javalgi, R., Cutler, B., & Todd, P. (2004). An Application of an Ecological Model to Explain the Growth of Strategies of Internet Firms: The Cases of eBay and Amazon. *European Management Journal*, 22(4), 464-470.

- Jha, S., & Pradhan, V. (2020). Factors causing change in customer behaviour during COVID-19 pandemic. *Journal of Critical Reviews*, 7(19), 3792-3804.
- Jarvenpaa, S. L., Tractinsky, N., Vitale, M. (2000). Consumer trust in an internet store. *Information Technology and Management*, 1, 45-71.
- Jarvenpaa, S. L., & Tractinsky, N. (1999). Consumer trust in an internet store: a cross-cultural validation. *Journal of Computer Mediated Communication*, 5(2), 1-35.
- Jiang, P., Van Fan, Y., & Klemeš, J. J. (2021). Impacts of COVID-19 on energy demand and consumption: Challenges, lessons and emerging opportunities. *Applied energy*, 285(116441), 1-15.
- Kardes, F. R., Cline, T. W., & Cronley, M. L. (2011). *Consumer Behavior: Science and Practice*. Mason, Ohio: South Western, Cengage Learning.
- Kaufmann, H. R., Panni, M. F. A. K., & Orphanidou, Y. (2012). Factors affecting consumers' green purchasing behavior: An integrated conceptual framework. *Amfiteatru Economic Journal*, 14(31), 50-69.
- Kidane, T. T., & Sharma, R. R. K. (2016). Factors Affecting Consumers' purchasing Decision through ECommerce. *Proceedings of the 2016 International Conference on Industrial Engineering and Operations Management* (pp.159-165). March, Kuala Lumpur, Malaysia.
- Kini, A., & Choobineh, J. (1998). Trust in electronic commerce: definition and theoretical considerations. *Proceedings of the thirty-first Hawaii International conference on System sciences of IEEE* (pp.51-61). January, Kohala Coast, Hawaii, USA.
- Koufaris, M., Kambil, A., & LaBarbera, P. A. (2001). Consumer behavior in web-based commerce: an empirical study. *International Journal of Electronic Commerce*, 6(2), 115-138.
- Lee, M. K., & Turban, E. (2001). A trust model for consumer internet shopping. *International Journal of electronic commerce*, 6(1), 75-91.
- Lin, H. F. (2007). The impact of website quality dimensions on customer satisfaction in the B2C e-commerce context. *Total Quality Management and Business Excellence*, 18(4), 363-378.
- Lyons, A. C., Cude, B., Lawrence, F. C., & Gutter, M. (2005). Conducting research online: Challenges facing researchers in family and consumer sciences. *Family and Consumer Sciences Research Journal*, 33(4), 341-356.
- Majercakova, M., & Rostasova, M. (2021). Customer behaviour and sentiment due to the COVID-19 global pandemic. *SHS Web of Conferences*, 92 (pp.1-10).
- Manstead, A. S. (2018). The psychology of social class: How socioeconomic status impacts thought, feelings, and behaviour. *British Journal of Social Psychology*, 57(2), 267-291.
- Mason, A., Narcum, J., & Mason, K. (2020). Changes in consumer decision-making resulting from the COVID-19 pandemic. *Journal of Customer Behaviour*, 19(4), 299-321.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of management review*, 20(3), 709-734.
- Mazurova, E. (2017). Exploratory analysis of the factors affecting consumer choice in e-commerce: conjoint analysis. *Journal of Information Systems Engineering & Management*, 2(2), 12.
- McKnight, D. H., & Chervany, N. L. (2001). What trust means in e-commerce customer relationships: An interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(2), 35-59.
- Mehta, S., Saxena, T., & Purohit, N. (2020). The new consumer behaviour paradigm amid COVID-19: permanent or transient?. *Journal of Health Management*, 22(2), 291-301.
- Mulyana, M., Mashadi, M., & Syahputri, A. W. (2020). Determinants of Millennial Consumer Purchasing Decisions in Bukalapak. *Advances in Economics, Business, and Management Research*, 143, 113-115.
- Muylla, S., Moenaert, R., & Despontin, M. (2004). The conceptualization and empirical validation of web site user satisfaction. *Information & Management*, 41(5), 543-560.
- Nanda, A., Xu, Y., & Zhang, F. (2021). How would the COVID-19 pandemic reshape retail real estate and high streets through acceleration of E-commerce and digitalization?. *Journal of Urban Management*, 10(2), 110-124.
- Ngai, E. W. (2003). Internet marketing research (1987-2000): a literature review and classification. *European Journal of Marketing*, 37(2), 24-49.
- Oliveira, T., Alinho, M., Rita, P., & Dhillon, G. (2017). Modelling and testing consumer trust dimensions in e-commerce. *Computers in Human Behavior*, 71, 153-164.
- Palvia, P. (2009). The role of trust in e-commerce relational exchange: A unified model. *Information & Management*, 46(4), 213-220.
- Pantano, E., Pizzi, G., Scarpi, D., & Dennis, C. (2020). Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak. *Journal of Business Research*, 116, 209-213.
- Ramani, G., & Kumar, V. (2008). Interaction orientation and firm performance. *Journal of Marketing*, 72(1), 27-45.
- Singhal, R. (2016). E-marketing: Growth and challenges in Indian perspective. *International Journal of Advanced Research Foundation*. 3(7), 5-9.
- Sarigöllü, E., Hou, C., & Ertz, M. (2021). Sustainable product disposal: Consumer redistributing behaviors versus hoarding and throwing away. *Business Strategy and the Environment*, 30(1), 340-356.
- Slabá, M. (2019). The impact of the age on the customers buying behaviour and attitude to price. *Littera Scripta*, 12(2), 1-14.
- Son, I., Lee, D., Lee, J. N., & Chang, Y. B. (2014). Market perception on cloud computing initiatives in organizations: An extended resource-based view. *Information & Management*, 51(6), 653-669.
- Szymanski, D. M., & Busch, P. S. (1987). Identifying the generic-prone consumer: A meta-analysis. *Journal of Marketing Research*, 24(4), 425-431.
- Tadajewski, M. (2009). A History of Marketing Thought, In E. Parsons, & P. Maclaran (Eds), *Contemporary Issues in Marketing and Consumer Behaviour* (pp.24-25), Oxfordshire, England, UK: Routledge.
- Teo, T. S., & Pian, Y. (2004). A model for web adoption. *Information & Management*, 41(4), 457-468.

- Teo, T. S. (2006). To buy or not to buy online: adopters and non-adopters of online shopping in Singapore. *Behaviour & Information Technology*, 25(6), 497-509.
- Teo, T. S., & Liu, J. (2007). Consumer trust in e-commerce in the United States, Singapore and China. *Omega*, 35(1), 22-38.
- Tzavlopoulos, I., Gotzamani, K., Andronikidis, A., & Vassiliadis, C. (2019). Determining the impact of e-commerce quality on customers' perceived risk, satisfaction, value and loyalty. *International Journal of Quality and Service Sciences*, 11, 576-587.
- Udo, G. J., & Marquis, G. P. (2002). Factors Affecting E-Commerce Web Site Effectiveness. *Journal of Computer Information Systems*, 42(2), 10-16.
- Ullah, S. (2012). Customer satisfaction, perceived service quality and mediating role of perceived value. *International Journal of Marketing Studies*, 4(1), 68-76.
- Vakeel, K. A., Das, S., Udo, G. J., & Bagchi, K. (2017). Do security and privacy policies in B2B and B2C e-commerce differ? A comparative study using content analysis. *Behaviour & Information Technology*, 36(4), 390-403.
- Verhoef, P. C., & Franses, P. H. (2003). Combining revealed and stated preferences to forecast customer behaviour: three case studies. *International Journal of Market Research*, 45(4), 1-8.
- Walczuch, R., & Lundgren, H. (2004). Psychological antecedents of institution-based consumer trust in e-retailing. *Information & Management*, 42(1), 159-177.
- Warayuanty, W., & Suyanto, A. M. A. (2015). The influence of lifestyles and consumers attitudes on product purchasing decision via online shopping in Indonesia. *European Journal of Business and Management*, 7(8), 74-80.
- Wheale, P. R., & Amin, L. H. (2003). Bursting the dot. com" bubble': a case study in investor behaviour. *Technology Analysis & Strategic Management*, 15(1), 117-136.
- Wymbs, C. (2000). How e-commerce is transforming and internationalizing service industries. *Journal of Services Marketing*. 14(6), 463-477
- Wymbs, C. (2011). Digital marketing: The time for a new "academic major" has arrived. *Journal of Marketing Education*, 33(1), 93-106.
- Yoon, S. J. (2002). The antecedents and consequences of trust in online-purchase decisions. *Journal of Interactive Marketing*, 16(2), 47-63.
- Zviran, M., Glezer, C., & Avni, I. (2006). User satisfaction from commercial web sites: The effect of design and use. *Information & Management*, 43(2), 157-178.