



Exploring the interplay between website quality and consumer purchase behavior in e-commerce after the COVID-19 pandemic: A study of Shopee Vietnam

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ABSTRACT

Vietnam is recognized for its significant growth in e-commerce. Shopee has become the leading e-commerce platform in Vietnam in terms of revenue and market share. However, Shopee Vietnam faces several challenges, including how customers perceive its services. There is also a lack of academic studies on how the COVID-19 pandemic affected consumer buying habits, especially in relation to Shopee Vietnam. This research looks into how the quality of Shopee's website - including its system, information, and service quality - affects customer buying behavior. The study uses a theoretical framework and tests ten hypotheses using a quantitative approach. Data was collected from 309 Shopee users through a questionnaire and analyzed with SPSS and AMOS 22.0 software. The results show that only information quality and system quality significantly influence customer buying behavior, with service quality having no notable effect. Information quality is the most influential factor. The study concludes that customers view Shopee.vn not just as a place to buy, sell, and ship goods but also as a source of information for searching, exploring, and comparing data.

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1. Introduction

The COVID-19 pandemic has significantly impacted many facets of our world and brought about numerous significant changes (Eger et al., 2021; Paredes-Corvalan et al., 2023), particularly in terms of business operations and consumer behavior (Feng and Fay, 2020; Hashem, 2020; Guthrie et al., 2021). Many brick-and-mortar shops have closed as a result of government restrictions put in place during the COVID-19 period to protect citizens from the epidemic, which has led customers to progressively shift to online purchasing (Russo et al., 2022; Grashuis et al., 2020; Bhatti et al., 2020; Alrawad et al., 2023; Ngoh and Groening, 2022). Since that time, consumers' everyday routines have steadily ingrained their internet shopping habits

(Puriwat and Tripopsakul, 2021). The manner in which customers interact with businesses or buy goods and services demonstrates this (Sheth, 2020). Additionally, this fosters the conditions for e-commerce to expand quickly in the majority of nations (Shakibaei et al., 2021). There was a notable increase in the global population of internet users, reaching 5.3 billion in 2022, compared to the previous year's figure of 4.9 billion. Based on statistics published by the UN (2022), the global population reached a total of 8 million individuals on the 15th of November, 2022. This corresponds to an estimated internet usage rate of approximately 64.4 percent as of January 2023. In essence, more than half of the worldwide populace engages in internet usage. The Internet, being utilized by a vast number of individuals across the globe, presents a multitude of chances for e-commerce enterprises. The increasing prevalence of the fourth industrial revolution has coincided with the growing popularity of the e-commerce trend among consumers who engage in online shopping.

The interest of Vietnamese Internet users in online purchases is evident as a pervasive global trend. Vietnam has had a notable surge in internet

shopping, positioning itself as a dynamic player in the Southeast Asian region. This growth has been accompanied by a substantial rise in speed and has attracted major investments (Minh et al., 2022a). As a result of the significant growth in the sector, there has been an influx of foreign organizations investing in Vietnamese e-commerce enterprises. In 2018, the e-commerce enterprise Tiki secured financial backing from VNG Corporation and Chinese investor JD.com, amounting to US\$5.3 million and US\$44 million, respectively. In the same fiscal year, SBI Group, a prominent Japanese financial services corporation, together with other investors, provided a substantial investment of US\$51 million to Sendo, a separate entity. Lazada, a prominent e-commerce company in the country, was further infused with a substantial investment of US\$2 billion by Alibaba, a dominant player in the Chinese e-commerce industry. According to recent reports from the MOIT (2022) and Minh et al. (2022b), the Vietnamese e-commerce sector has experienced significant growth in the first half of 2022, positioning it as the second-largest market in Southeast Asia, trailing only behind Indonesia. Based on forecasts provided by GlobalData, a data and analytics organization, it is anticipated that Vietnam's e-commerce industry will experience significant growth, reaching a value of VND399.5 trillion (equivalent to US\$17.3 billion) by the year 2023. This represents a notable increase from its value of VND218.3 trillion (equivalent to US\$9.4 billion) in the year 2019, according to the report by the MOIT (2022), a significant proportion of internet users in Vietnam, specifically 74.8%, engaged in online transactions for the acquisition of various goods and services. Notably, the most sought-after items in these online purchases were apparel and cosmetics, household goods, as well as technological and electronic devices (MOIT, 2022). According to the aforementioned survey, the four leading platforms in the country, Shopee, Lazada, Tiki, and Sendo, made a significant contribution of \$5.73 billion in income to the Vietnamese economy. Despite not being an early entrant in the e-commerce sector in Vietnam, Shopee has managed to attain a prominent position in terms of revenues and market share inside the country, as reported by the MOIT (2022) in 2022. In keeping data for the first half of 2023, Shopee Vietnam has emerged as the leading e-commerce platform in terms of market share. With a substantial revenue of 59 trillion VND, Shopee Vietnam's contribution accounted for around 63.64% of the overall revenue generated by the five main e-commerce platforms in Vietnam, namely Shopee, Tiktok Shop, Lazada, Tiki, and Sendo. Shopee offers a user-friendly interface that facilitates seamless transactions for both buyers and sellers. This channel serves as an excellent platform for firms aiming to establish connections with a vast customer demographic. The marketplace has become renowned for its competitive pricing, frequent promotional offers, and comprehensive range of product categories encompassing electronics, apparel, and household items. The

implementation of the Shopee Guarantee serves to protect both buyers and sellers from fraudulent activities, thereby fostering a significant level of customer involvement.

Despite its notable achievements, Shopee has emerged as the prevailing e-commerce platform in Vietnam. Nevertheless, the firm encounters plenty of obstacles in supply chain management, which involves supplier selection, relationship maintenance, and various other issues, owing to its rapid expansion and intense competition within the industry. Subsequently, it becomes imperative for them to diligently and proficiently refine and augment the system in order to effectively cater to the demands of customers and the market. One of the most pressing issues that Shopee must prioritize pertains to the perception of its services among customers. These multiple characteristics and factors play a role in either motivating or moderating the fulfillment of customers' needs and the endorsement of their shopping process in Vietnam. Furthermore, a scarcity of scholarly research exists about the influence of the COVID-19 pandemic on customer purchasing behaviors, specifically within the context of the e-commerce platform Shopee.vn.

There have been compelling justifications for the author to undertake this investigation. This study aimed to investigate the factors that influence customer purchase behaviors towards online attributes on the website Shopee.vn. Consequently, it was categorized into three distinct aspirations:

- To determine the specific variables of website quality that impact consumer buying behaviors on Shopee Vietnam
- To evaluate the level of which variable in website quality has the strongest influence on customer purchasing behaviors on Shopee E-commerce platforms
- To propose recommendations for Shopee Vietnam on how to improve their current online markets, it is suggested that the company allocate resources towards appropriate aspects and customers that are relevant to various occupational and income categories

2. Literature review

2.1. E-commerce

As stated by Koe and Sakir (2020), e-commerce can be defined as the execution of commercial activities through electronic channels or the utilization of the Internet. E-commerce presents businesses with the opportunity to expand and prosper. Furthermore, irrespective of a country's stage of development, empirical evidence has consistently shown that electronic trade (e-commerce) exerts a favorable impact on economic growth (Kabir et al., 2020; Myovella et al., 2020). E-commerce refers to the commercial activity of purchasing and vending goods and services through internet platforms. The significance of this feature in

contemporary corporate practices cannot be overstated (Islam, 2018). Hence, the advent of e-commerce has brought about a significant transformation in company practices, as it has created numerous prospects for conducting commercial transactions online. The aforementioned activity assumes a crucial function in facilitating enterprises in the presentation, construction, design, introduction, and promotion of items or provision of diverse services to their customers. Additionally, it enhances the ease and convenience for consumers to engage in routine economic transactions.

2.2. Website quality

The presentation of goods or services on an e-commerce platform primarily occurs through a website, where intangible attributes are emphasized. Websites play a crucial role in enhancing the operational effectiveness of businesses by serving as an essential channel for facilitating communication between customers and companies (Chen et al., 2017; Kleinlercher et al., 2018). In addition, they proposed that it enhances the utilization of websites for conducting online commercial transactions. The information systems success model proposed by DeLone and McLean is widely recognized and frequently referenced in the academic literature on information systems. It has been extensively utilized across various contexts within the field of information systems. DeLone and McLean's model focuses solely on three primary factors: service quality, information quality, and system quality, which have the potential to yield efficient outcomes (DeLone and McLean, 2003). Despite the longevity of this approach, numerous scholars have recently employed it to conduct research across diverse domains, such as the realm of mobile banking (Purwati et al., 2021), e-commerce (Angelina et al., 2019), the direction of Artificial Intelligence speakers (Yoon and Kim, 2023).

2.2.1. System quality

The system quality pertains to the overall portrayal of the website system. The evaluation of user-friendliness when engaging in online buying at an e-commerce platform can be determined based on the extent of customer perception. System quality refers to the ability of a website system to effectively deliver information in a manner that is easily comprehensible to users. It encompasses the efficient utilization of technology (Ajay Kaushik and Potti Srinivasa, 2017). Therefore, the quality of the system plays a crucial role in the context of an e-commerce website (Tsao et al., 2016). Besides, Ali and Younes (2013) conducted a study to investigate the utilization of information systems by employees in Tunisia. Their research also examined the impact of system quality on perceived usefulness and perceived ease of use. Another study explained that system quality had a significant influence on perceived usefulness and perceived ease of use

(Saputra et al., 2023). Thus, the hypothesis related to system quality is as follows:

- Hypothesis 1a: The system quality has a positive and significant effect on perceived ease of use of E-commerce websites Shopee.vn
- Hypothesis 2a: The system quality has a positive and significant effect on the perceived usefulness of E-commerce websites Shopee.vn

2.2.2. Information quality

The concept of information quality relates to the standard of reporting facilitated through the website's system. In addition to seeking customer service and sales support, online consumers also expect assistance related to marketing as an integral component of the information system that distinguishes online platforms from previous forms of e-commerce. The assessment of consumer satisfaction in e-commerce platforms can be influenced by the quality of information pertaining to reviews, product descriptions, payment, and delivery details (Zhang et al., 2018). The creation of value for customers on e-commerce websites is contingent upon the quality of information, which can be assessed by several factors such as product quality, system design, and the quality of software products provided to consumers (Sharma and Lijuan, 2015). In previous studies, (Machdar, 2016; Legramante et al., 2023; Saputra et al., 2023) found that the quality of information positively affects perceived usefulness and perceived ease of use. Based on the description above, the hypothesis formulated in this study as follows:

- Hypothesis 1b: The information quality has a positive and significant effect on perceived ease of use of E-commerce websites Shopee.vn
- Hypothesis 2b: The information quality has a positive and significant effect on the perceived usefulness of E-commerce websites Shopee.vn

2.2.3. Service quality

The expansion of e-commerce marketplaces is contingent upon the provision of services. Service quality is widely regarded as the comprehensive level of support provided by the e-commerce service provider. As demonstrated by Olawole (2021), the level of customer satisfaction is significantly influenced by the quality of service provided. The range of services provided encompasses system, product, logistical, and delivery-related matters. In the opinion of Roy et al. (2022), the provision of appropriate and easily navigable payment alternatives, accurate transaction processing, satisfactory customer support, and dependable website design are among the system-related services offered. Besides, the success of e-commerce websites depends on the quality of service they provide (Tsao et al., 2016). Service quality can be conceptualized as the holistic assessment made by

consumers regarding the performance of a service provided inside the market (Zehir and Narcikara, 2016). Pratiwi et al. (2022) and Farhadi and Maroosi (2022) found that service quality significantly influences perceived usefulness and perceived ease of use. Thus, the hypotheses related to service quality are as follows:

- Hypothesis 1c: The service quality has a positive and significant effect on perceived ease of use of E-commerce websites Shopee.vn
- Hypothesis 2c: The service quality has a positive and significant effect on the perceived usefulness of E-commerce websites Shopee.vn

2.3. Perceived usefulness and perceived ease of use

The technology acceptance model (TAM) is a widely used theoretical framework that offers perceived usefulness and perceived ease of use as the core elements of user acceptance of information technology. According to Davis et al. (1989), perceived usefulness in an organizational context can be defined as the extent to which an individual believes that the utilization of a specific system would improve their job performance. On the other hand, perceived ease of use pertains to the extent to which an individual believes that the utilization of a specific system would require minimal effort. In the research area, many scholars have proved the relationship between perceived ease of use and perceived usefulness. According to Machdar (2016), Legramante et al. (2023), and Chen et al. (2015), perceived ease of use is the predecessor of perceived usefulness. Consequently, the author has built the hypothesis as follows:

- Hypothesis 3: The perceived ease of use of E-commerce websites has a positive and significant effect on the perceived usefulness of E-commerce websites Shopee.vn.

The initial TAM provided evidence supporting the relationship between perceived usefulness, perceived ease of use, and attitude toward using. Based on his research, attitude towards using is delimited by perceived ease of use and perceived usefulness. Numerous further research has also corroborated these associations. Furthermore, Velarde (2012) highlighted the significant influence of perceived ease of use and perceived usefulness on individuals' attitudes toward online buying. Consumers exhibit a strong appreciation for the advantages associated with engaging in online purchases and experiencing seamless interactions during their online shopping endeavors. These positive encounters are likely to foster a favorable disposition toward engaging in future online transactions. According to the results of recent studies, perceived usefulness, perceived ease of use, and perceived trust are three variables that affect a person's interest in shopping through online

channels, according to Patel et al. (2020) research on m-commerce adoption. A similar finding was made by Indarsin and Ali (2017), who claimed that perceived usefulness, perceived ease of use, and perceived trust of use all had an impact on the attitude of use. Based on this, we propose the following hypotheses:

- Hypothesis 4: The perceived ease of use of E-commerce websites has a positive and significant effect on the attitude towards using E-commerce websites Shopee.vn
- Hypothesis 5: The perceived usefulness of E-commerce websites has a positive and significant effect on the attitude towards using E-commerce websites Shopee.vn

2.4. Attitude toward using

According to Davis et al. (1989), an individual's attitude is not the only determinant delimiting his use of a system but also its impact on his performance. Attitude toward using is one of the troublesome notions in the area of user behavior attitude as a summary of the subject evaluation (Malhotra, 2005). Moreover, attitudes become a predictor of behavior and intention (Morris et al., 2009; Demoulin and Djelassi, 2016; Shin and Perdue, 2019). According to Marangunić and Granić (2015), a person's attitude toward using is described as their feelings, whether favorable or bad, if they must engage in the behavior in order to be judged.

On top of that, in the contemporary era, scholarly research has been undertaken to examine the aforementioned correlation and has determined that attitudes exert a significant impact on consumer marketing and consumer behavior. Furthermore, empirical evidence suggests that customer behavior encompasses the actions and attitudes displayed by individuals both prior to, during, and after their acquisition of goods or utilization of services. Hence, it may be inferred that customer attitudes towards services or commodities play a crucial role in predicting and sustaining customer behavior. In addition, Jaafar et al. (2012) asserted that customer buying intents are influenced by internal aspects, external elements, and customer attitudes towards items.

The planned behavioral theory suggests that there is a significant correlation between individuals' attitudes toward adopting a particular technology and their purchasing behavior as consumers. This relationship is particularly evident in various applied technologies, where individuals are more likely to accept and adopt new applications based on their attitudes. Moreover, numerous studies on e-commerce have also substantiated the existence of a favorable association between them. The ultimate hypothesis in this study is formulated to establish the association in the following manner:

- Hypothesis 6: The attitude towards using e-commerce websites has a positive and significant

effect on consumer purchasing behavior on E-commerce websites Shopee.vn.

2.5. Consumer purchasing behavior

The study of consumer buying behavior has garnered significant attention from scholars and marketers over the course of several decades. There exists a divergence in the perspectives of numerous researchers about the theory of consumer buying behavior. Consumer buying behavior refers to the systematic process by which people and groups make decisions regarding the selection, acquisition, utilization, and evaluation of products or services in order to fulfill their requirements and aspirations (Solomon, 2019). The performance of a business is significantly influenced by consumer purchasing behavior (Kotler, 2017). Consumer buying behavior encompasses the temporal, rational, and procedural aspects that individuals employ while deciding whether or not to acquire items. The interdisciplinary nature of this field incorporates elements from other disciplines, including sociology, psychology, economics, and social anthropology. The objective is to examine the decision-making process of customers, both at an individual level and within organizational contexts (Kotler, 2017). Consumer buying behavior is the term used to describe the decision-making process, acquisition, and utilization of goods and services by individuals in order to

satisfy their requirements (Gupta, 2020). Cici and Özsaatci (2021) asserted that several factors, including social, cultural, demographic, and situational elements, might exert influence on alterations in consumer purchasing behavior. While the aforementioned definitions may vary, they collectively converge on the notion that consumers' purchasing behavior encompasses the process of selecting, acquiring, and evaluating goods and services in order to meet their desires and expectations.

2.6. The proposed research model

Drawing upon two seminal studies by Davis et al. (1989) and Vahdati et al. (2015), as well as other pertinent research, the author has developed a novel theoretical framework for this study. This framework integrates the overarching aspects that have been substantiated in the aforementioned studies, as seen in Fig. 1. The factors encompassed within this framework consist of external variables, perceived usefulness, perceived ease of use, attitude towards using, and consumer purchase behavior. The author articulated their viewpoint on this model in the following manner. In further elaboration, the three parts are segregated in order to exert an independent influence on customer buying behavior through the TAM, as depicted in Fig. 2.

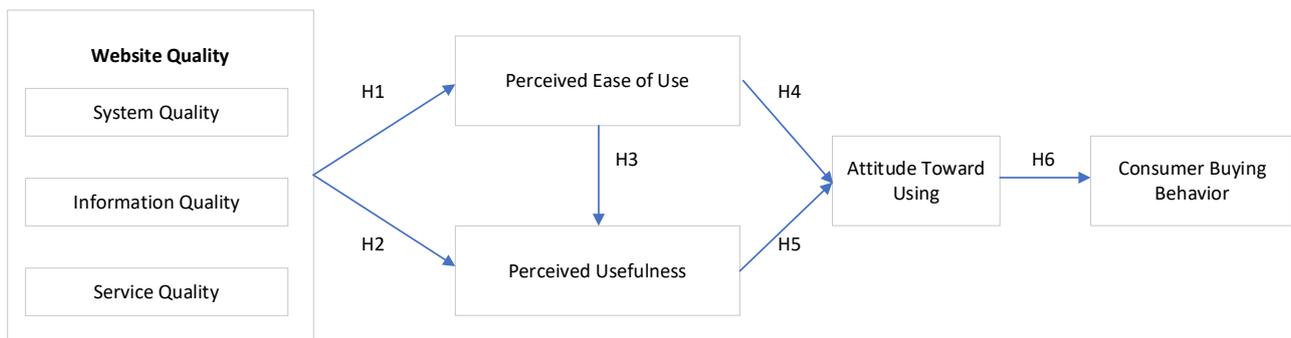


Fig. 1: Research model

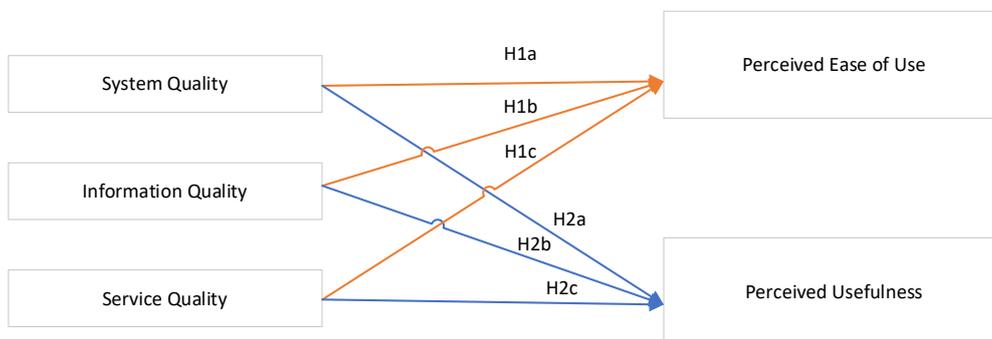


Fig. 2: The specific impact of 3 online factors

3. Methodology

According to Bell et al. (2022), when undertaking a research study, two often employed approaches are quantitative and qualitative methodologies. It has been announced that words are utilized to depict

qualitative data, while numbers are employed to display quantitative data. The primary objective of this study is to discover and comprehend the factors that exert an effect on customer behavior in the context of online purchasing. Consequently, the author made the decision to employ both qualitative

and quantitative methodologies in order to investigate this subject matter. Firstly, the qualitative technique is primarily employed to accurately identify and analyze components in the most suitable manner. Furthermore, this methodology is employed in the development of information proposals, the establishment of theoretical frameworks, and the formulation of questionnaires by means of assessing prior literature and conducting pilot surveys. Additionally, a quantitative methodology is employed to assess and verify the relationship between variables. Additionally, it is employed to extrapolate study findings by means of random allocation and representative sample. This approach is primarily employed after the completion of the survey.

Despite having undergone extensive formation and development over an extended period, these two methodologies continue to be widely employed in scholarly papers and studies across several countries globally in contemporary times. This demonstrates that scientific experts hold them in high regard. These two methods have demonstrated their applicability not only in the E-commerce sector but also in various other industries. For instance, [Ivanov and Dolgui \(2019\)](#) have highlighted their relevance in the supply chain industry, while [Chan et al. \(2020\)](#) have discussed their potential in the hotel services sector. Additionally, [Ofori et al. \(2018\)](#) have explored their application in the context of mobile data services, and [Koutoupis and Malisiovas \(2019\)](#) have examined their banking industry, hospital ([Ramirez-Baena et al., 2019](#)), tourism ([Wen et al., 2018](#)), smartphone field ([Mubassira and Das, 2019](#)), and etc. Numerous scientific researchers worldwide have been employing these two methodologies in their research, which are closely aligned with the issue under investigation by the author. Additionally, it is worth noting the notable research conducted by several writers, including ([Maria et al., 2016](#)); ([Amanah and Harahap, 2018](#); [Jauhari et al., 2019](#); [Khanh and Gim, 2014](#)), among others. Based on the empirical data shown above and the recurrent mention of these procedures in prior scholarly papers and research, the author posits that these two approaches possess the capacity to substantiate the offered assertions and are highly appropriate for implementation within the scope of this investigation.

3.1. Variable measurement

Prior scholarly investigations have informed the compilation and design of variable measurements in the e-commerce setting. The collection of primary data is facilitated by the administration of a questionnaire. The survey tools utilized in this study were derived from prior research conducted within the domain of electronic commerce. The following measurable questions for system quality, service quality, and information quality have been taken from the works of [Tam et al. \(2020\)](#) and [Ahn et al. \(2007\)](#). Next, the quantifiable inquiries on the

perceived ease of use and perceived usefulness have been derived from the research of [Caffaro et al. \(2020\)](#), [Ahn et al. \(2007\)](#), [Venkatesh and Bala \(2008\)](#), and [Davis et al. \(1989\)](#). Finally, this study used attitude measures toward the utilization and consumer purchasing behavior as proposed by [Ahn et al. \(2007\)](#), [Venkatesh and Bala \(2008\)](#), and [Kotler \(2017\)](#). The majority of the questions will be assessed using a five-point Likert scale ranging from 1 to 5, which signifies the degree of acknowledgment. According to [Cooper and Schindler \(2014\)](#), participants will be asked to respond to the measurement questions in the poll in order to assess their level of agreement. The response options range from 1 to 5, representing degrees of disagreement (ranging from strongly disagree to disagree), neutrality, agreement, and strong agreement, respectively.

3.2. Data collection and sample

This inquiry was conducted in two primary stages. The initial step involves conducting a pilot test to improve and enhance the measurement of factors that impact customer purchasing behavior in relation to the use of E-commerce platforms such as Shopee. Additionally, the primary research entailed the collection and analysis of questionnaire data, as well as the examination of research and theoretical models. The inclusion of a pretest serves the objective of minimizing ambiguity or potential different interpretations within the questionnaire. The pilot study was undertaken to examine, adapt, and enhance the questionnaires employed for assessing the conceptual framework. The initial iteration of the survey will be disseminated to supervisors and coworkers at Shopee Vietnam Company in order to get supplementary feedback regarding potential improvements. The computation of the sketch version will be modified and expanded in accordance with the observed results. This questionnaire is considered suitable for the purpose of data collection. Quantitative research approaches are predominantly employed. This strategy is implemented promptly following the modification of the poll based on the results obtained from the pilot test. The author transmitted the questionnaire directly to the recipient. The data was acquired during a span of around one month, specifically from June to July 2023, utilizing various social network channels such as Facebook, Google, Email, and other similar platforms. The author utilized Google Forms to create questionnaires, which were subsequently converted into hyperlinks. Subsequently, social network platforms will be employed to disseminate content across diverse social groups on Facebook since this particular online community harbors a substantial number of internet users who engage in purchasing goods and services on the e-commerce platform Shopee. All respondents of the questionnaire are obligated to willingly participate in a survey that is grounded in objectivity and practical expertise.

According to Tho (2014), it is recommended that the size of the research sample should be sufficiently large in order to obtain more precise and reliable findings. Numerous recent studies have indicated that it is recommended that the research sample size in exploratory factor analysis (EFA) be at least five times the number of variables. The ratio of observed to transformed variables in EFA is 5:1, indicating that each measurement variable necessitates a minimum of five observations. Hence, the author has determined, based on the observed factors in this study, that a minimum of 165 research samples is necessary to adequately investigate the items in question. In order to increase the sample size, this study employed the use of Google Forms to collect a sample size that was twice the required amount (about 330 samples). After eliminating erroneous and incomplete data, a total of 309 samples were subjected to quantitative analysis.

4. Data analysis and result

Structural equation modeling (SEM) was utilized to undertake data analysis. Given that the sample size of 437 respondents meets the minimum requirement for utilizing partial least squares (PLS), as stated by Hair et al. (2014), PLS is employed to analyze structural equation models. This approach integrates both measurement and structural models, allowing for the examination of measurement errors in observed variables as an essential component of the model. Additionally, it combines factor analysis with hypothesis testing, as highlighted by Gefen and Straub (2000). Given that the proposed model in this study has not been previously tested, the utilization of PLS-SEM may validate our findings. This choice is justified for several reasons. Firstly, PLS-SEM is widely recognized as a robust method for estimating structural models, as pointed out by Henseler et al. (2009) and Reinartz et al. (2009). Secondly, PLS-SEM has been shown to support theory development, particularly in the context of exploratory research, as emphasized by Hair et al. (2011). Lastly, PLS-SEM is well-suited for identifying key constructs within the realm of e-commerce, as indicated by Hair et al. (2014).

4.1. Measurement model analysis

The initial step in the data analysis process involves conducting a descriptive analysis. This stage is essential for elucidating the attributes of qualifying data using measures such as standard deviations and mean values. Table 1 presents the descriptive statistics for the variables included in the model. The data reveals that, based on a scale ranging from 1 to 5, the variable with the greatest mean value is "Consumer Buying Behavior" (mean=3.990). This finding also indicates that the participants express their intention to make purchases and maintain their patronage of products and services offered on the E-commerce platform Shopee Vietnam. Furthermore, the data reveals that

the mean value of 3.823 for the "Attitude towards using" construct suggests that a significant proportion of customers hold a favorable disposition towards utilizing the items and services offered by the Shopee Vietnam website. This phenomenon can be elucidated by considering the two variables, "perceived ease of use" and "perceived usefulness," which exhibit mean values of 3.498 and 3.976, respectively. This finding demonstrates that Shopee Vietnam has effectively developed its website, resulting in a high level of consumer satisfaction in terms of both ease of use and perceived utility. Nevertheless, it is worth noting that the variable "service quality" has the lowest mean value, specifically 2.283. This finding indicates that the level of consumer appreciation for the "service quality" provided on the Shopee.vn website is quite low. The mean values of these factors indicate that the respondents perceive these variables as negative aspects when utilizing the Shopee Vietnam website, as all values fall below 3.0. Based on the aforementioned statistical data, it can be seen that a significant proportion of participants have a rather neutral perspective towards the seven factors, with mean values ranging from 2.283 to 3.990. Nevertheless, several variables discussed before fail to meet the required standards. In order to enhance consumer happiness, it is imperative for Shopee to conduct a comprehensive examination and review of its operations.

Table 1: Variables descriptive statistics

Variables	Number of items	Mean	Std. deviation
System quality	5	2.904	1.033
Information quality	6	2.893	0.878
Service quality	5	2.283	0.906
Perceived usefulness	5	3.976	0.702
Perceived ease of use	4	3.498	0.919
Attitude toward using	5	3.823	0.737
Consumer buying behavior	3	3.990	0.658

To guarantee a suitable fit, the reliability and consistency of the research instrument were checked. Cronbach's alpha (CA), which offers an estimate of the reliability based on the intercorrelations of the observed indicator variables, is the conventional criterion for internal consistency. Owing to the population's limits with Cronbach alpha, it is more suited to use composite reliability (CR), an alternative internal consistency reliability metric (Hair et al., 2021). By confirming that the CR and CA of each construct are greater than 0.7, PLS internal consistency was assessed. The model has strong internal consistency since the CR scores are greater than 0.8, which is the upper bound of internal consistency reliability (Hair et al., 2021). We took into account the value of CA coefficients in order to determine the bottom bound of internal consistency reliability. As per the findings of Fornell and Larcker (1981) and Hair et al. (2010), alpha coefficients falling between 0.7 and 0.8 are deemed acceptable; those beyond 0.8 are deemed good, and those over 0.9 are deemed exceptional. Based on the results presented in Table 2, it can be observed that

all values of CA and CR exceed the threshold of 0.7, hence substantiating the verification of internal consistency for PLS. The assessment of convergent validity also involved estimating the Average Variance Extracted (AVE), which should have a value of at least 0.50 to show satisfactory convergent validity (Bagozzi and Yi, 1988). According to Table 2, all constructs have an AVE value of at least 0.50, which satisfies the requirement established by Fornell and Larcker (1981). This finding suggests a significant relationship between each construct and its corresponding indicators. Hence, the model demonstrates satisfactory convergent validity.

In accordance with Fornell and Larcker (1981), in order to establish discriminant validity, it is necessary for the maximum shared variance (MSV) to be lower than the AVE. Additionally, the Square Root of the AVE (SQRTAVE) value should exceed the Inter-Construct Correlations. The data pertaining to the diagonal location, namely the values highlighted in bold, represents the SQRTAVE value for each

research variable, denoted as SQRTAVE. The observation that the SQRTAVE of each measurement question exceeds the correlation coefficient between the variables indicates a significant differentiation coefficient between the variables. This implies that there is a significant distinction between each variable of measurement. Table 2 reveals that the values of MSV are consistently lower than the value of AVE. Simultaneously, it is observed that all the SQRTAVE values, ranging from 0.736 to 0.924, exhibit higher magnitudes compared to the inter-construct correlation values situated below the diagonal. Based on the aforementioned findings, it can be inferred that there is no significant correlation between the observed variables in relation to other factors, indicating that the scale exhibits discriminant validity. Consequently, the data exhibited a notable level of dependability and validity upon undergoing rigorous testing, thereby establishing its suitability for subsequent research.

Table 2: AVE, SQRTAVE, and correlations between constructs (CR, CA, and MSV)

Construct	ATT	SVQ	PUN	IMQ	STQ	PEU	CBB
ATT	0.794						
SVQ	0.206**	0.861					
PUN	0.454***	0.173**	0.839				
IMQ	0.285***	0.353***	0.550***	0.815			
STQ	0.178**	0.420***	0.314***	0.390***	0.736		
PEU	0.604***	0.193**	0.472***	0.360***	0.317***	0.924	
CBB	0.694***	0.180**	0.537***	0.372***	0.296***	0.570***	0.782
AVE	0.631	0.741	0.853	0.664	0.541	0.704	0.612
MSV	0.482	0.176	0.303	0.303	0.176	0.364	0.482
CR	0.895	0.934	0.946	0.908	0.825	0.922	0.825
CA	0.902	0.932	0.945	0.912	0.824	0.920	0.819

ATT: Attitude toward using; SVQ: Service quality; PUN: Perceived usefulness; IMQ: Information quality; STQ: System quality; PEU: Perceived ease of use; CBB: Consumer buying behavior; SD: Standard deviation; Values in diagonal (bold) are the AVE square root; **: P-value < .01 level; ***: P-value < .001 level

4.2. Structural model analysis

Following the resolution of previous measurement approaches, the SEM is employed as the ultimate way of measurement to examine the correlation between latent structures and structural regression models (Fig. 3). The present study used the SEM technique to assess the research model previously discussed. The fitness of the model was checked through the criteria proposed by Bagozzi and Yi (1988) and Hair et al. (2010). The results in Table 3 indicate that the research model is consistent with data in which Chi-square / df=1.448; CFI=0.974 (>0.95 great), TLI have values of 0.971 (≥0.9), GFI=0.891 (acceptable) and RMSEA=0.038 (acceptable).

In order to validate the proposed hypotheses, it is customary to examine the P value of the Regression weight. Typically, the criterion for adopting the hypothesis is that the P-value should be below 0.05. The findings presented in Table 3 indicate that the model encompasses two hypotheses with P-values over 0.05.

The findings presented in Table 3 indicate that the model encompasses three hypotheses with P-values exceeding 0.05. The present study examines the association between three component pairs: Service Quality (SVQ) and Perceived Ease of Use

(PEU) with a P-value of 0.838, System Quality (STQ) and Perceived Usefulness (PUN) with a P-value of 0.230, and Service Quality (SVQ) and Perceived Usefulness (PUN) with a P-value of 0.219. Consequently, the aforementioned three hypotheses were deemed invalid. To summarize, the findings of the study provide support for hypotheses 1a, 1b, 2b, 3, 4, 5, and 6. However, hypotheses 1c, 2a, and 2c did not receive support from the data. In summary, out of the 10 hypotheses examined, 7 hypotheses (70%) were found to be supported, whereas the remaining 3 hypotheses (30%) were not supported.

The revised version of the acceptable hypothesis model is modified in Fig. 4.

This study is one of the initial attempts to empirically investigate the impact of website quality on consumer buying behavior, specifically within the context of the Shopee.vn website. The research model, based on theoretical considerations, aims to identify the primary factors that influence customer purchasing behavior on the Shopee Vietnam website. In order to assess the cumulative impact of the independent factors on the dependent variable, (Bollen, 1986) suggests multiplying the coefficients along the pathway. In this study, the author has constructed a comprehensive ranking of elements that influence Consumer Buying Behavior on the Shopee website. The ranking is presented in Table 4.

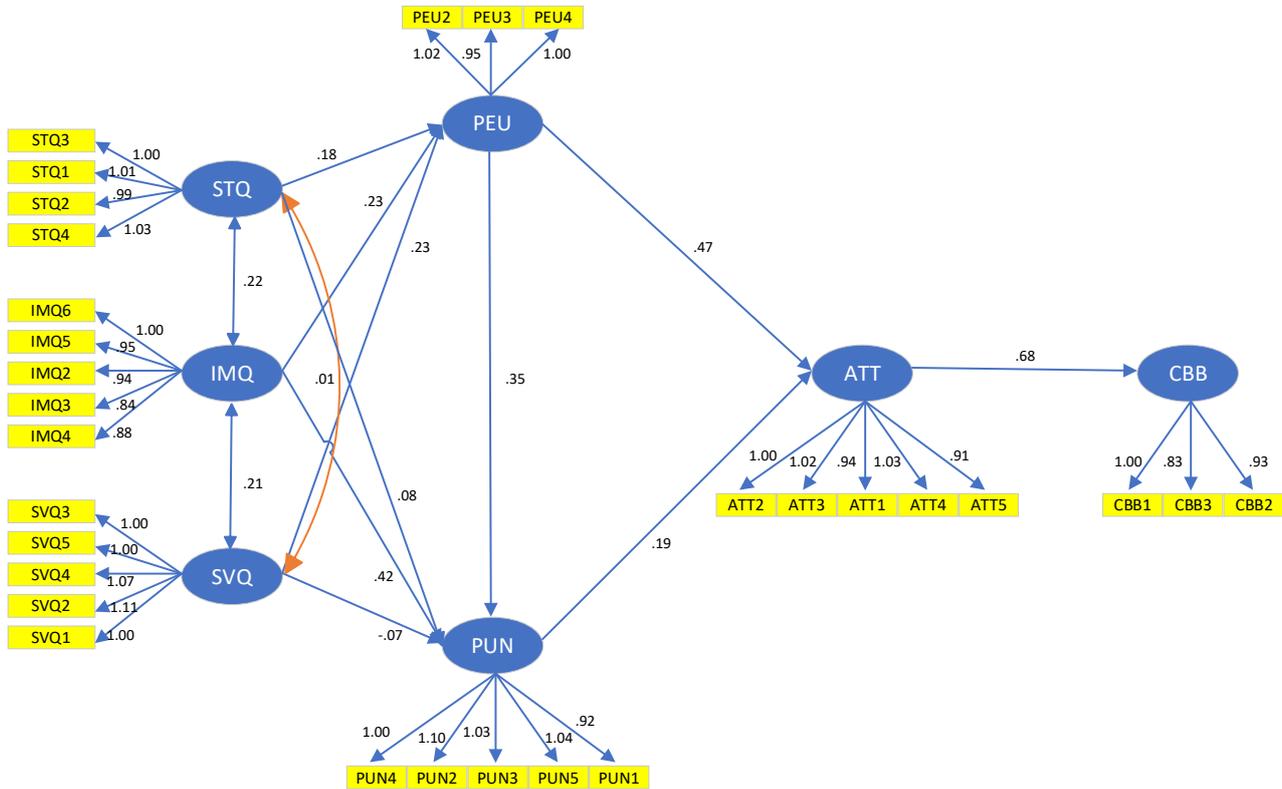


Fig. 3: SEM

Table 3: Summary of hypothesis analysis

Hypotheses	Dependent variable	Results	Standardized regression weight	P-value	Results
H1a	System quality (STQ)	PEU	0.202	***	Accepted
H1b	Information quality (IMQ)		0.276	***	Accepted
H1c	Service quality (SVQ)	$R^2 = 0.166$	0.013	0.838	Rejected
H2a	System quality (STQ)		0.077	0.230	Rejected
H2b	Information quality (IMQ)	PUN	0.435	***	Accepted
H2c	Service quality (SVQ)	$R^2 = 0.395$	-0.071	0.219	Rejected
H3	Perceived ease of use (PEU)		0.305	***	Accepted
H4	Perceived ease of use (PEU)	ATT	0.51	***	Accepted
H5	Perceived usefulness (PUN)		0.242	***	Accepted
H6	Attitude towards using (ATT)	CBB	0.721	***	Accepted

***: P-value < .001 level

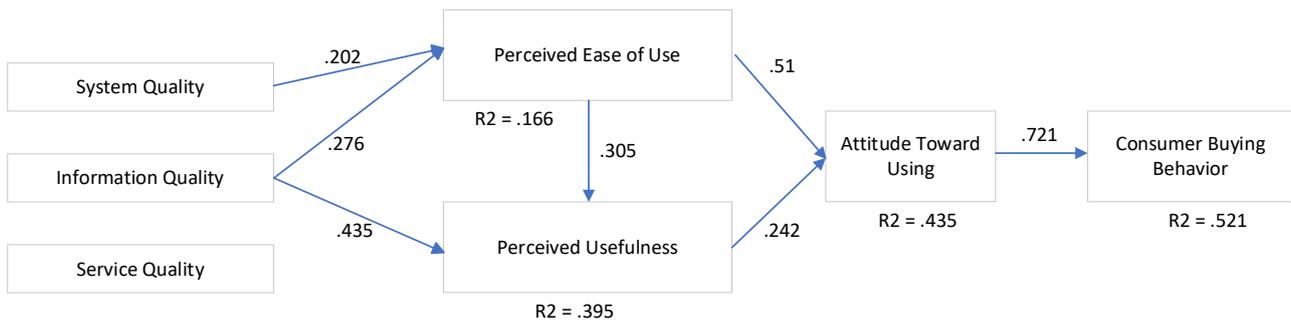


Fig. 4: R² and P-value in the hypothesis model

Table 4: Summary of the total effect of dependent variable

Factors	Total effect on customer buying behavior
System quality	0.085
Information quality	0.192

In order to determine the cumulative influence of the "system quality" factor on the "customer buying behavior" factor, it is necessary to aggregate the impact values associated with all potential pathways connecting the "system quality" factor to the variable representing the "buying behavior of customers" through intermediary variables. The calculation involves the summation of two path effects: The path

impact mediated by PEU and ATT, which is obtained by multiplying the values 0.202, 0.51, and 0.721, and the path effect mediated by PEU, PU, and ATT, which is obtained by multiplying the values 0.202, 0.305, 0.242, and 0.721. Table 4 displays the conclusive outcomes for each variable. The variable "service quality" does not have a significant impact on the intermediate variables "perceived ease of use" and "perceived usefulness." Therefore, the dependent variable of "customer buying behavior" does not have a clear pathway.

5. Conclusion and implications

The primary objective of this study is to assess the impact of website quality on consumers' purchase behavior on the Shopee website. This will be achieved by employing a hybrid model that integrates the TAM proposed by Davis et al. (1989) and the model of customer attitude and buying behavior developed by Vahdati et al. (2015). The results of the fit test indicated that the model exhibited a strong alignment with the collected data. The research conducted an examination of ten hypotheses in all, with three of them being found to be invalid. The results obtained from the SEM analysis provided confirmation for seven out of the 10 hypotheses that were first offered. The results indicate that only two of the three attributes in website quality significantly influence customers' purchasing behavior, including system quality and information quality. The findings unequivocally indicate that, among the five variables indicated, "multimedia" is perceived as the most influential factor for "system quality" by 117 out of 309 Shopee consumers. The minor discrepancy is in the aspect of "fast response," which garnered agreement from 91 Shopee users, accounting for 29.4% of the total respondents. Nevertheless, there are three factors that customers tend to undervalue, namely "design," "functionality," and "system security." In relation to the element of "information quality," it is noteworthy that 73 individuals out of the total sample size of 309 participants expressed agreement with the variable labeled "details" as the most influential aspect within this particular factor. The subsequent categories, namely "timeliness" and "relevance," account for 23.6% and 23% of the total, respectively. On the whole, Shopee consumers seem to regard these two factors as being of middling significance. However, despite the presence of other elements, these factors have not effectively garnered the approval of customers. The results of this study additionally indicate that Shopee customers perceive the platform not only as a conventional e-commerce website offering fundamental functionalities like purchasing, selling, and shipping but also as an information system enabling them to search, explore, and compare data and information.

The determination of the path coefficient is crucial in ascertaining the factors that exert the most influence on customers' purchasing behavior during their shopping experiences on the Shopee website. Based on the findings shown in Table 3, it is evident that the variable exerting the most significant influence on customer purchasing behavior during online shopping on Shopee Vietnam is "information quality," accounting for 19.2% of the total impact. Additionally, the path coefficient factor of the second most influential element, namely "system quality," is represented by the value of 8.5%. The variable "service quality" does not have a significant impact on the intermediate variables "perceived ease of use" and "perceived usefulness." Therefore, there is no direct relationship between the dependent variable

of "customer buying behavior" and any specific path. Furthermore, the findings of this study have reaffirmed the relationship between "perceived ease of use" and "perceived usefulness." This finding has been supported by prior research conducted by Machdar (2016), Legramante et al. (2023), and Chen et al. (2015). This demonstrates the significance of the factors known as "perceived ease of use" and "perceived usefulness" in exerting influence on customers' usage attitudes, hence enhancing their capacity to make informed purchasing decisions.

The COVID-19 epidemic has significantly altered global buying behaviors. With the advancement of science and technology, there has been a corresponding increase in diversity and elevated expectations of customer needs. Hence, in order to enhance customer acquisition and foster long-term loyalty among Shopee users, it is advisable for the company to allocate its resources towards the provision of "quality information." In this regard, Shopee Vietnam endeavors to enhance consumer happiness and enhance its competitive position compared to prominent market rivals, including Lazada, Tiki, Sendo, and Tiktok Shop. For users, the primary concern is related to the provision of comprehensive and punctual product or service information. Furthermore, the respondents expressed a strong appreciation for the attributes of "multimedia" and "quick response." Furthermore, Shopee Vietnam may consider targeting a certain demographic of customers, specifically those between the ages of 26 and 35 who are employed in office settings and have a monthly income ranging from US\$ 501 to US\$ 750.

Shopee Vietnam is currently encountering numerous significant obstacles in a highly competitive industry, compounded by a dearth of scholarly studies on the determinants influencing customer purchasing behavior. The findings of this study can serve as a valuable reference for both Shopee and other firms engaged in online purchasing operations in Vietnam as it pertains to customers on e-commerce platforms. Furthermore, the present study elucidates the association between the quality of websites and the purchasing behavior of customers. Consequently, this study might serve as a valuable point of reference for other researchers in their own investigations.

Furthermore, given the cultural and customary parallels between the investigated country and China, which boasts the highest volume of internet retail globally, the ensuing research endeavors can draw from prosperous frameworks and concepts. The acquisition of knowledge that has been successfully implemented in a particular country is essential for its application in conducting independent research. Subsequently, it can be integrated with the indigenous cultural context to construct a comprehensive framework that exhibits significant practical relevance.

This research holds significance in various academic and practical domains. The current research findings indicate the presence of certain

restrictions that warrant additional investigation in future studies. The model incorporates a limited set of three features pertaining to website quality, as well as three intermediary factors that exert an influence on customer purchasing behavior. Nevertheless, it is important to acknowledge that the research conducted fails to encompass certain influential aspects that can significantly affect customer purchasing behavior. These factors include and are not limited to promotional activities, advertising efforts, product quality, and the extent of brand recognition. Additionally, the limited time frame for data collection and the inadequate sample size pose challenges in accurately representing the entire population and conducting the study within a specific consumer group. Hence, the outcomes may not be perceived from a multidimensional perspective. This approach has the potential to facilitate an impartial evaluation of the demographic composition of the target sample for investigation. The focus of this survey pertains to a novel tendency that has emerged globally in recent years. Hence, it is inevitable to circumvent the occurrence of misunderstandings or misconceptions pertaining to the definitions and theories surrounding internet purchasing. The outcomes of this phenomenon lead to replies that are deemed unsuitable or demonstrate a lack of reliability in the measurement scale.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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