

## THE INFLUENCE OF E-SERVICE QUALITY ON FOOD ONLINE PURCHASE INTENTION IN VIETNAM \*

THI-MINH-NGOC LUU <sup>a</sup>, DAM-LUONG-THUY HOANG <sup>b</sup> AND PHUONG MAI NGUYEN <sup>a</sup>

<sup>a</sup> *International School, Vietnam National University Hanoi, Vietnam*

<sup>b</sup> *University of Economics and Business, Vietnam National University Hanoi, Vietnam*

This paper aims to examine how the e-service quality and demographic factors influence food online purchase intention of Vietnamese consumers. We developed a research framework by adopting the E-S-QUAL model proposed by Parasuraman et al. (2005) and some other existing studies. Measurements with 19 items of e-service quality dimensions (i.e. website design, reliable service, trust and personalisation) and three items of online purchase intention were adopted and adapted. Data were collected from 179 customers in a self-administered online survey. Regression analysis in SPSS was run to test the research hypotheses. Results showed that personalisation factor has the most significant effect on food online purchase intention of Vietnamese consumers, followed by website design and then reliable service. Furthermore, trust has a minor effect on customers' food online purchase intention. Regarding the influence of demographic factors, age and occupation were confirmed to relate to the food online purchase intention. Our findings suggest that online merchants and food producers innovate their marketing tactics to target more audience and boost sales. Our study also implies that the policymakers should amend the regulations in e-commerce to promote collaboration among food online sellers and third-party payment platform providers.

*Keywords:* E-commerce, E-service Quality, Food Online Purchase Intention, Vietnam  
*JEL Classification:* D90, E21, M30, N35

### 1. INTRODUCTION

In the twenty-first century, due to the impact of science technology and the rapid global development of the Internet, electronic commerce (e-commerce) is becoming

\* Corresponding author: Phuong Mai Nguyen and Dam-Luong-Thuy Hoang.

more popular and gaining tremendous profit for businesses. As a result, e-commerce is anticipated to be the largest retail channel in the world by 2021 and will account for 14% of the total retail sales (Forbes, 2018). While the use of e-commerce is beneficial and has been utilised by millions of companies all over the world, it has just emerged in some Asia countries, which are potential for e-commerce to be flourish due to stable economic growth, large population, and the fastest pace of online retailing adoption (Boston Consulting Group, 2018). In 2017, e-commerce became the leading retail channel in the Asia-Pacific region, driven by growth in two countries: South Korea and China, with many successful online platforms such as Tmall, JD, Lazada, and Amazon (Statista, 2018).

In recent years, Vietnam is also witnessing the prosperous progress of e-commerce, leading to a change in shopping style and gradually developing in line with the general trend of the Southeast Asia region and the world (Pham et al., 2018). In 2018, the Vietnamese e-commerce industry was developing in leaps and bounds. Specifically, the internet economy in 2015 accounted for only 1.7% of GDP, which is triple after three years, with 3.8% of GDP in 2018 (Cimigo, 2019). In 2018, fashion and food and beverage accounted for most items traded online (Cimigo, 2019). The viewpoint of Vietnamese consumers on online purchasing has significantly changed. Around four years ago, Vietnamese customers considered an Internet store just to look for information before they went shopping at physical stores. Now they tend to make online orders from home or office and quickly deliver (Pham et al., 2018). The number of online users increases by up to 1.4 million people (nearly double compared to the data of 2018) (Statista, 2018). This upward trend has been stimulated by the rapid expansion of Facebook and other social media channels in Vietnam (Statista, 2017), in which the most popular tool is the interaction between customers and online retailers' websites, through which customers can search, retrieve necessary information and place their orders (Cai and Jun, 2003). In current COVID-19 context of 2020 and 2021, more Vietnamese consumers have been switching to online shopping leading to the proliferation of e-commerce in the coming time. According to The Vietnam Consumer Survey by Deloitte, the number of people using online shopping channels increased by 25%. The big names in the e-commerce sector, such as Tiki, SpeedL, and Saigon Co.op, all had positive growth during the COVID-19 pandemic (Deloitte, 2021). A typical example is Tiki, with 4,000 orders/minute. SpeedL also saw an increase of 100 to 200% in orders. Online retail alone in 2020 has reached a total revenue of nearly 12 billion USD, recording an increase of 18%, accounting for 5.5% of national total retail sales of consumer goods and services (Statista, 2020). While remaining lower compared to the 12.7% recorded the previous year, the growth rate was an encouraging sign for the business community amid the global retail market suffering a plunge in revenue during the pandemic.

Online purchase is becoming popular in the Vietnamese food market as it is modern and convenient for consumers. Nowadays, Vietnamese customers can make an online purchase of fresh or processed food in any store with a delivery service (Vietnam News, 2019). As a result, the total revenue of e-commerce in the food industry reached \$51.2

million in 2019. It is also notable that the Vietnamese food market is fragmented, with numerous sellers. Therefore, the competition is fierce. In addition, customers are rarely loyal to a brand as they have too many choices. In such a highly competitive environment mediated by the Internet, food producers and merchants need to unlock the factors that drive the customers' online purchase intention to figure out how to promote the sale in this market.

In the boom of e-commerce, electronic retailers (e-retailers) with long experience are beginning to realise that the critical points of success are not merely product quality and low price but also electronic service quality (Yang and Jun, 2008). In other words, service quality has become even more crucial with the cost-free comparison and other technical features of many websites (Dhingra et al., 2020). However, it is noted that service quality between electronic and traditional commerce is very different. Online sales are more challenging than conventional sales because customers and merchants cannot meet face to face during the transaction (Hernando and Gunawan, 2021), which looms the fraud for both the customers and the sellers. This potential risk is attributed to the underdeveloped online shopping infrastructure and the customers' lack of skills to make an online purchase (Pham et al., 2018). It is also recognised that maintaining customer engagement and purchase habits in the age of e-commerce is not an easy task because it involves too many socio-technological factors (Hernando and Gunawan, 2021).

Previous studies on online purchase intention and actual buy of consumers in other countries have confirmed that e-service quality is an essential factor influencing consumers' behaviours (Zeithaml et al., 2002; Kaur et al., 2020; Cai and Jun, 2003; Dkudiene, 2015). Although many studies on e-service quality and purchase intention have been conducted in other countries, the focus was put on several contexts such as banking, tourism, or shopping sites in general. Several recent studies have addressed the food market (Ali, 2019; Dhingra et al., 2020; Candra et al., 2021; Hernando and Gunawan, 2021). Remarkably, the research on online food purchase intention in a fast-growing market like Vietnam is still rare. There is not much information on how Vietnamese consumers behave when they change to online shopping for food as the offline retail channels, including traditional markets, convenience stores, or supermarkets, are still more popular in Vietnam.

In this regard, this present study examines the impact of e-service quality and demographic factors on customers' food online purchase intention in Vietnam. Our study aims to clarify what Vietnamese customers focus on when ordering food online. We also aim to test if demographic factors affect consumers' purchase intention. Thus, we expect that our findings will bring helpful information to the food producers and merchants to innovate their marketing tactics to attract and gain customers. Furthermore, our study intends to suggest that policymakers reconsider the regulations in e-commerce to ensure the effectiveness and enforcement for a better and transparent business environment with benefits for both producers, merchants and consumers.

The rest of this paper is organised as follows. Section 2 presents the literature review and research hypotheses. Section 3 explains the research model and the sampling

method. Section 4 follows with findings and discussions. The last section concludes the paper with the implications and limitations of the study.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1. Online Purchase Intention

According to Ajzen (1991), intentions arrest the motivational factors that impact the behaviour and indicate an effort that people plan to exert and then perform the behaviour. Purchase intention reflects consumers' willingness or possibility to buy a product (Sharma and Kumar, 2019; Irawan et al., 2020). In addition, purchase intention is also described as how consumers engage with a specific brand after evaluating it, which depends on customer demand, financial status, and brand awareness (Madahi and Sukati, 2012).

Online purchase is regarded as one type of e-commerce that allows customers to buy goods or services over the Internet directly without intermediary service (Cai and Leung, 2020). This form of purchasing had proliferated sharply since the middle of 1990s when web technologies played a significant role (Gim, 2014) and will continue to accelerate thanks to its advantages such as easy to access, broader selections, competitive price of products or services (Cai and Leung, 2020). Online purchase is a complex process divided into various steps, including information search, online transactions, or customer interactions (Rita et al., 2019). Customers are often unlikely to evaluate each step during a single visit to an online store but perceive the service as an overall process and outcome. Thus, online purchase intentions are conditions where customers are willing and intend to engage in online purchase transactions. Online transactions can be valued as activities where the process of obtaining information, transferring information, and purchasing products are carried out (Pavlou, 2003).

### 2.2. E-service Quality

E-service quality is defined as the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products and services (Zeithaml et al., 2002). E-service quality is the customers' inclusive assessment of electronic service offerings.

Numerous researches have pointed out that service quality in the online environment, also called e-service quality, plays a significant role in e-commerce (Dhingra et al., 2020; Hernando and Gunawan, 2021). As a result, e-service quality has been treated as a helpful way for companies to gain sustainable competitive advantages (Dhingra et al., 2020).

When measuring service quality in an online shopping context, Parasuraman et al. (2005) developed the E-S-QUAL, the most widely used. The E-S-QUAL has four main dimensions: *efficiency*, *fulfilment*, *system availability*, and *privacy*. Later studies have extended E-S-QUAL with some more factors related to the specific features of the

online transaction. For example, Yang et al. (2004) added responsiveness and product portfolio in a research framework based on E-S-QUAL. Moreover, Kassim and Abdullah (2010) considered other five dimensions, including ease of use, website design, customisation, responsiveness, and assurance) in overall customer perception of e-service quality. Meanwhile, Candra and Juliani (2018) proposed five elements (website design, reliability, ease of use, privacy, and personalisation). Similarly, Ali (2019) added one more factor, which is called “Content,” to the framework proposed by Candra and Juliani (2018). Recently, Dhingra et al. (2020) focused on website design, reliability, responsiveness, trust, and personalisation to measure the e-service quality of e-commerce websites in India.

### **2.3. Relationship between E-service Quality and Online Purchase Intention**

Numerous researches have investigated the relationship between e-service quality and online purchase intention and revealed that the attributes of e-service quality significantly impact purchase intention (Dhingra et al., 2020; Irawan et al., 2020). Notably, this viewpoint is explored in several industries, including the online food business (Hernando and Gunawan, 2021).

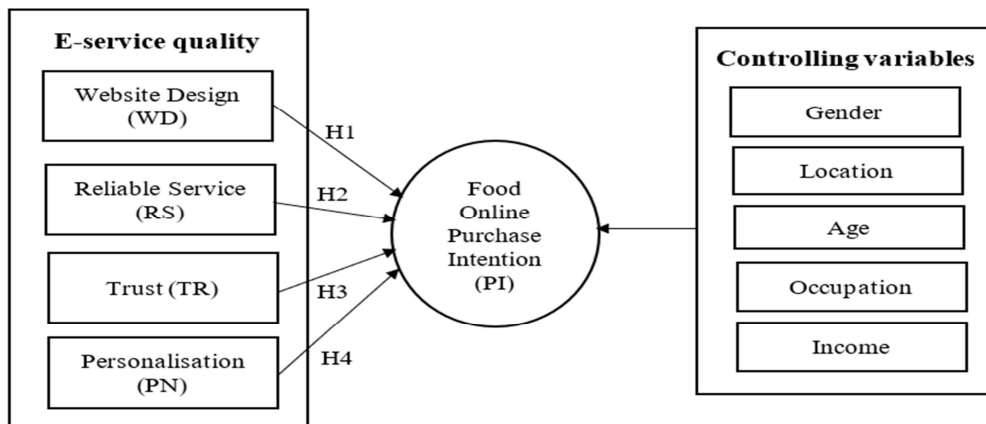
According to Dhingra et al. (2020), e-service quality dimensions significantly influence customer satisfaction and purchase intention in e-commerce platforms. Moreover, Rita et al. (2019) also stated that overall e-service quality positively affects customer behaviour in online shopping. Moreover, Irawan et al. (2020) pointed out that e-service quality plays a critical role in business and directly impacts online purchase intention during the COVID-19 pandemic.

Several studies show that e-service quality is significantly correlated to customer behaviour in the online food sector, such as purchase intention, loyalty, word of mouth, and recommendation, especially during the COVID-19 pandemic’s social distancing (Cai and Leung, 2020; Hernando and Gunawan, 2021). In addition, after examining the case study of GoFood delivery service, Chandra and Wirapraja (2020) state that consumers’ purchase intentions are influenced by e-service quality, application usability, and e-satisfaction. Similarly, Sharma and Kumar (2019) found that the perceived e-service quality construct has a critical effect on customer satisfaction and behavioural intention in electronic food ordering services.

### **2.4. Research Framework and Hypotheses**

In the present study, an adapted research model is developed to test the impact of factors on food online purchase intention in Vietnam. The dependent variable is online purchase intention. The dimensions of e-service quality and five demographic factors are independent variables. Based on the revised E-S-QUAL scale items and the existing literature, this study adopted four dimensions of e-service quality, including (i) website design, (ii) reliable service, (iii) trust, and (iv) personalisation. Therefore, the proposed research model is presented in Figure 1.

From the research model in Figure 1, hypotheses in this study were formulated as follow.



**Figure 1.** Proposed Research Model

#### 2.4.1. Website Design

Website design describes the appeal that user interface design presents to customers, essential for any online store (Rita et al., 2019). Therefore, the influence of website design on e-service performance has been studied extensively. Traditionally, when examining what makes users revisit a website, the most critical variables are design features: content, layout, ease of finding information, navigability, and emotional experience (Rice, 1997; Ganguly et al., 2009). In addition, Sharma and Kumar (2019) found that customer satisfaction is determined by the quality and design of the online interface. Besides, another study also indicates that website aesthetics are strong predictors of customer purchase intention like attention, interest, desire, or action for internet retailers (Chandra and Wirapraja, 2020).

From the above arguments, we developed the following hypothesis:

*H1: Website design of an online store has a positive influence on food online purchase intention.*

#### 2.4.2. Reliable Service

Reliable service is the ability of the website to fulfil orders correctly, deliver promptly, and keep personal information secure (Parasuraman et al., 1988; Ali, 2019).

The importance of reliable service has been emphasised by general trustworthiness towards the technology service of this e-store. It is also considered one of the most significant elements of e-service satisfaction (Rita et al., 2019). Consumers frequently do not want to receive quick but unreliable services and products or vice versa (Ali, 2019). Therefore, to make customers happy, not only do online stores need to respond to customers' inquiries rightly and promptly, but they also have to provide mistake-free services during the online shopping journey.

This study assumed that reliable service would play an essential role in promoting purchase intention. Therefore, we formulated the following hypothesis:

*H2: Reliable service of an online store has a positive influence on food online purchase intention.*

#### 2.4.3. Trust

Risks for online purchasers may include damaged products, bad seller reputation, financial loss in transaction systems, or even personal information leaks (McKnight and Chervany, 2002; Sharma and Kumar, 2019). These potential risks prevent consumers from making purchase decisions. Instead, they tend to make an online purchase only with trusted online sellers. In other words, trust influences consumers' attitudes and encourages them to do more online transactions with specific online stores (Chandra and Wirapraja, 2020). Numerous studies have emphasised the importance of online trust in the interactions between buyers and sellers in an online environment (Sharma and Kumar, 2019; Chandra and Wirapraja, 2020). Trust is defined as customer willingness to accept risks in an online transaction based on their positive expectations regarding future online store behaviours (Kimery and McCord, 2003). Moreover, trust is a significant premise of business transactions in general and especially in the era of online business due to fierce market competition (Irawan et al., 2020). For example, Becerra and Korgaonkar (2009) insisted that vendor trust beliefs and brand trust beliefs positively affect online intentions that include intention to purchase and intention to provide personal information. Thus, trust beliefs may be needed to increase online sales. In addition, Mansour et al. (2014) integrated some models of online trust and tested its relationship with online purchase intention with a sample of 401 online consumers in Indonesia. The study of Mansour et al. (2014) confirmed that online trust significantly influences online purchase intention. Similar research results about trust and online purchase intention were also discovered in many studies in both Western and Eastern countries (Chiu et al., 2012; Meskaran et al., 2013; Van der Heijden et al., 2003, Kooli et al., 2014).

In our study, we also assume that trust positively influence the online purchase intention of Vietnamese consumers. Thus, we raised the following hypothesis:

*H3: Trust of an online store has a positive influence on food online purchase intention.*

#### 2.4.4. *Personalisation*

The lack of real-time interaction might prevent potential customers from purchasing online (Yang and Jun, 2008). Personalisation involves individualised attention, personal notes from online stores, and the availability of a message area for customer questions or comments (Candra and Juliani, 2018). Traditionally, Parasuraman et al. (1988) mentioned personalisation as empathy, which can be interpreted as the degree of customisation of communications and awareness of customers' personal needs. Unlike music, film, travel, fashion, and book purchases, online food offers are challenging to personalise (MacKenzie, 2018). However, many food retailers are trying to use big data to identify relevant items for specific individuals as a suggested list when they do online grocery shopping (Parise, 2016).

We also believe that in the food online shopping context, personalisation would also influence purchase intention. Thus, the following hypothesis was initiated.

*H4: Personalisation of an online store has a positive influence on food online purchase intention.*

#### 2.4.5. *Demographics Factors and Online Purchase Intention*

In addition to e-service quality, several studies have linked customers' online purchase intention with demographic factors like age, gender, and personal information (income, location, or occupation) (Nair, 2018; Chiu et al., 2005). For example, Mehta et al. (2014) indicated that customers' age, gender, income, marital status, and education affect their online shopping motivation. In particular, people over 50 years old and do low-income jobs are less likely to consider using online services than those from 18 to 29 years old and have good jobs (Morganosky and Cude, 2000). In the context of the Internet boom, gender is believed to influence individuals' participation in web activities (Mann and Thompkins, 2019). Although researchers have portrayed women as the principal online shoppers, it is suggested that males are dominant online shoppers in technology-mediated channels (Davis et al., 2014). Male users are more familiar with the transaction on the website and spend two hours or more per week going online than women do (Rodgers and Harris, 2003). They also are more likely to use online services like reading news or articles in groups, while these activities arguably precede an online purchase (Rodgers and Harris, 2003). Consequently, gender and age are considered the critical factors to explain online shopping behaviours.

In the food market, recent studies report demographic variables as a tool to understand consumer behaviour in online grocery shopping (Nair, 2018; Hwang et al., 2019). For example, Prasad et al. (2019) pointed out that age, income, family size, gender, education, and occupation are significant predictors of customer behaviour. In addition, Nair (2018) proved the role of age, gender, education, family size, occupation, income, and monthly spending by households associated with customer intention and behaviour. More importantly, annual household income strongly impacts customers'



purchase intention of fresh fruits and vegetables (Mukherjee et al., 2014). Similarly, Kapoor and Kumar (2015) revealed that age and income influence the purchase of vegetarian food products. Hwang et al. (2019) also validated the moderating role of gender and age in shaping customers' attitudes and intentions. This study also assumed that demographic factors influence Vietnamese consumers' food online purchase intention. Thus, we add some demographic factors as controlling variables in our proposed research model, including gender, location, age, occupation, income.

### 3. METHODOLOGY

#### 3.1. Measurements and Data Collection

In this study, the e-service quality includes four dimensions that were (i) Website Design (4 items), (ii) Reliable Service (6 items), (iii) Personalisation (4 items), and (iv) Trust (4 items), adopted from the research of Rita et al. (2019) and Dhingra et al. (2020). Besides, the purchase intention scale (3 items) was based on the research of Dkudiene et al. (2015). Therefore, a questionnaire was developed to gather data, including 18 items in e-service quality dimensions and 3 items in purchase intention. The survey questionnaire used the 5-level Likert scale ranges from 1- Strongly Disagree to 5 – Strongly Agree.

Our study focuses on consumers who had ever heard about online food delivery or have ordered food online as the sample. We used snowball and convenient sampling methods to collect data. The survey questionnaire was designed on Google Form and sent to participants in the authors' circle of friends. The link to the online questionnaire was sent through Email, Facebook, Zalo, and Viber. At first, we targeted 60 persons on our friend list. Then, these early advocates of our study were encouraged to transfer our online questionnaire to others. Finally, after nearly two months, we received the participation of 242 people, and 179 among the responses were valid and accepted.

#### 3.2. Sample Demographics

This research received the participation of 242 people. Then we screened and cleaned the data, removing incomplete responses. Finally, 179 valid responses were analysed with SPSS software. Table 1 below shows the sample demographics in detail.

Almost of respondents are female (72.6%) and young who belong to the age groups of 18 – 25 (53.1%) and 26 – 35 (34.6%). Besides, employed staff with good financial status and frequent Internet use are the most purchasing power, accounting for 54.7% of the total response rate, followed by the students with 34.1%, who are all young and willing to update new trends in e-commerce business.

Furthermore, 57.5% of respondents shop for food through the website once or twice a month. Only 1.7% of them do online food shopping every day, while 7.3% rarely use online shopping. The relatively few times in online food frequency, but consumers'

budget is also limited. Most of the participants were likely to spend around five to twenty-five USD for each order (59.2%). Some of the respondents only pay under 5 USD.

**Table 1.** Sample Demographics (N = 179)

Variable	Category	Frequency	Percentage
Gender	Female	130	72.6%
	Male	49	27.4%
Age	18-25	95	53.1%
	26-35	62	34.6%
	36-45	18	10.1%
	46-55	4	2.2%
	Over 55	0	0%
Occupation	Student	61	34.1%
	Employed	98	54.7%
	Self-employed	17	9.5%
	Retired	3	1.7%
Monthly income	Below 5 million VND (225 USD)	56	31.3%
	From 5 million VND to 10 million VND (225 USD to 450 USD)	64	35.8%
	From 10 million VND – 15 million VND (450 USD to 475 USD)	31	17.3%
	Over 15,000,000 VND (over 475 USD)	28	15.6%
Frequency of online food shopping	Everyday	3	1.7%
	About 3-5 times/week	14	7.8%
	About 1-2 times/week	46	25.7%
	About 1-2 times/month	103	57.5%
	Rarely (3-4 times/ year)	13	7.3%
Average spending per shopping order	Below 100,000 VND (5 USD)	58	32.4%
	From 100,000 VND to 500,000 VND (5 USD - 25 USD)	106	59.2%
	From 500,000 VND – 1,000,000 VND (25 USD - 50 USD)	11	6.1%
	More than 1,000,000 VND (50 USD)	4	2.2%

## 4. RESULTS AND DISCUSSIONS

### 4.1. Preliminary Analysis

Preliminary analysis including the reliability and validity tests. To check the

reliability of measurement scales, Cronbach's alpha test was employed. In addition, to check the validity of measurement scale, we ran exploratory factor analysis (EFA). The results of these tests are provided in Table 2 below.

**Table 2.** Descriptive, Reliability and Validity Test Results of Measurements

Construct	Cronbach's Alpha	Item	Mean	Corrected item-total correlation	Factor loading
Web Design (WD)	0.905	WD1	3.70	0.834	0.868
		WD2	3.51	0.783	0.804
		WD3	3.54	0.745	0.772
		WD4	3.76	0.788	0.729
Reliable Service (RS)	0.874	RS1	3.66	0.643	0.812
		RS2	3.55	0.677	0.804
		RS3	3.34	0.546	0.782
		RS4	2.93	0.722	0.622
		RS5	3.40	0.760	0.597
		RS6	3.37	0.723	0.538
Trust (TR)	0.813	TR1	2.74	0.669	0.849
		TR2	2.98	0.660	0.735
		TR3	3.08	0.673	0.721
Personalisation (PN)	0.806	PN1	3.49	0.603	0.710
		PN2	3.32	0.573	0.657
		PN3	3.44	0.714	0.623
		PN4	3.69	0.598	0.578
Online purchase intention (PI)	0.873	PI1	3.59	0.762	0.897
		PI2	3.55	0.785	0.910
		PI3	3.55	0.726	0.875
KMO Value					
KMO value of independent factor			0.901		
KMO value of dependent factor			0.735		
Recommended value:					
Cronbach's alpha $\geq 0.7$ , Factor loading $\geq 0.6$ , VIF $< 5$ ; Corrected item-total correlation $> 0.3$					

In four dimensions of e-service, the mean of most items was lower than 4.00, which indicated that customers are not satisfied with e-service quality, especially in the trust dimension of online shopping activities. For more details, item WD4 and WD1 in Website design have the highest meaning (3.70/5.00), showing a positive correlation between website design and purchase intention. On the contrary, items Trust 1 ( $\mu = 2.7$ ) and Trust 2 ( $\mu = 2.9$ ) in the measurement of trust have the lowest mean value. This result

signals that customers are losing trust in e-commerce services and their information security commitment.

The reliability test was carried out on these items of four independent factors to ensure that all items were measured in the proper construct. Overall, all five Cronbach's alpha values were above 0.7, and the coefficient of item-to-total correlation was above 0.3, which was acceptable and can demonstrate a positive relationship with the dependent factor (Hinton et al., 2014, Pallant, 2020). Therefore, these factors were suitable and accepted for further analysis.

In addition, the exploratory factor analysis (EFA) was run to check the validity of the measurement scales. We ran the EFA in SPSS software and achieved satisfactory results. The KMO values of e-service quality and purchase intention were 0.901 and 0.735, respectively, higher than the minimum level of 0.5. Besides, the Sig. value of Bartlett's test of Sphericity is 0.000. This result indicated that the dataset is appropriate for factor analysis. After running two steps of factor analysis using varimax rotation in the rotated solution, 21 items were loaded on certain factors, meeting the requirements of convergent and discriminant validity (Cohen et al., 1996).

## 4.2. Multiple Regression Analysis

### 4.2.1. Pearson Correlation Analysis

The Pearson correlation coefficient refers to the levels of significance of the correlation between two variables. The bigger the absolute value of the Pearson coefficient is, the stronger the correlation between variables is (Hair et al., 2013). As shown in Table 3, all customer-perceived e-service quality variables positively correlate to customer purchase intention. Thus, it is concluded that the data meet the requirements for regression analysis.

**Table 3.** Pearson Correlation Analysis Results

	PI	WD	RS	TR	PN
PI	<b>1.000</b>				
WD	0.628	<b>1.000</b>			
RS	0.617	0.637	<b>1.000</b>		
TR	0.519	0.376	0.507	<b>1.000</b>	
PN	0.661	0.575	0.553	0.518	<b>1.000</b>

### 4.2.2. Regression Analysis

Regression analysis was run to examine how the e-quality service dimensions and demographic factors affect the food online purchase intention of Vietnamese consumers. Table 4 shows the results.

As shown in Table 4, the value of adjusted  $R^2$  in this model was 0.577. Therefore, it can be concluded that 57.7% of the food online purchase intention of Vietnamese consumers can be explained by reliable service, personalization, website design, trust, and demographic factors (gender, location, age, occupation and income).

Regarding e-service quality, the findings showed that the coefficient of all dimensions is significant at p-values lower than 0.05, suggesting a significant relationship between e-service quality and customer purchase intention. The findings supported the argument that improvements in e-service quality may be beneficial to an e-retailer to promote customer purchase intention. Additionally, the values of the standardized coefficient ( $\beta$ ) of all four factors were 0.186, 0.265, 0.315, and 0.149, respectively. Hence, these factors positively affected food online purchase intention.

**Table 4.** Regression Analysis Results

Hypothesis	Variable	Standardised Coefficients Beta	Sig.	VIF	Hypothesis supported
H1	Reliable service (RS)	0.186	0.009	2.096	Yes
H2	Website Design (WD)	0.265	0.000	1.934	Yes
H3	Trust (TR)	0.149	0.015	1.548	Yes
H4	Personalization (PN)	0.315	0.000	1.855	Yes
Controlling variables	Gender	0.030	0.566	1.181	
	Location	0.005	0.914	1.070	
	Age	0.150	0.013	1.517	
	Occupation	-0.124	0.043	1.566	
	Income	-0.061	0.274	1.311	
R Square			0.598		
Adjusted R Square			0.577		
F			27.966		

Particularly, the p-value of gender, location, and income is higher than 0.05, meaning that these factors did not impact the intention to buy food online. However, age and occupation had p-values lower than 0.05, at 0.013 and 0.043, respectively. This result suggested that age and occupation might be good predictors of consumer purchase intention in this study. It is observed in this study that age ( $\beta_8 = 0.150$ ) had a positive impact, while occupation ( $\beta_8 = -0.124$ ) had an inverse effect on food online purchase intention.

#### 4.2.3. Robustness Test

Homoskedasticity is an essential assumption in ordinary least squares (OLS) regression. The validity of the hypothesis tests and confidence intervals as implemented

in most statistical computing packages depends on the extent to which the model's assumptions are met. Table 5 and Table 6 show the results of multiple regression with robust standard errors being analysed by SPSS, which employs a heteroskedasticity-consistent estimator of the regression coefficient standard errors in their regression analyses.

**Table 5.** Tests of Between-Subjects Effects (Dependent Variable: PI)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	83.219 <sup>a</sup>	9	9.247	27.966	0.000
Intercept	0.374	1	0.374	1.123	0.291
WD	4.523	1	4.523	13.565	0.000
RS	2.697	1	2.697	8.088	0.005
TR	2.371	1	2.371	7.110	0.008
PN	7.064	1	7.064	21.185	0.000
Gender	1.361	1	1.361	4.082	0.045
Age	0.083	1	0.083	0.249	0.619
Occupation	0.067	1	0.067	0.202	0.654
Income	0.129	1	0.129	0.388	0.534
Location	0.004	1	0.004	0.011	0.917
Error	56.348	169	0.333		
Total	2413.556	179			
Corrected Total	139.567	178			

Note: <sup>a</sup> R Squared = 0.598 (Adjusted R Squared = 0.577)

**Table 6.** Parameter Estimates with Robust Standard Errors (Dependent Variable: PI)

Parameter	$\beta$	Robust Std. Error <sup>a</sup>	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	0.341	0.389	0.878	0.381	-0.426	1.109
WD	0.265	0.083	2.896	0.000	0.076	0.403
RS	0.186	0.090	2.545	0.009	0.051	0.407
TR	0.149	0.074	2.423	0.015	0.033	0.325
PN	0.315	0.087	3.809	0.000	0.160	0.504
Gender	0.030	0.084	-1.783	0.566	-0.314	0.016
Age	0.015	0.095	-0.401	0.013	-0.225	0.149
Occupation	0.040	0.098	0.409	0.043	-0.154	0.235
Income	-0.061	0.062	0.586	0.274	-0.086	0.158
Location	0.005	0.100	-0.100	0.914	-0.207	0.187

Note: <sup>a</sup> HC3 method

According to Table 5, the R Squared is 0.598, and the adjusted R squared is 0.577, which is in line with the result of the multinational Regression analysis (Table 4). In addition, the p-value of these factors are also similar. Table 6 shows the results using the HC3 estimators. It is noted in this table that the standard errors are similar for some predictors but noticeably different for others. It can be concluded that there is a relationship between independent factors and online purchase intention because the regression estimate is statistically different from zero. Therefore, this dataset is valid and reliable within the research context.

### 4.3. Discussions

This study confirmed the positive impact of e-service quality dimensions and some critical demographic factors on food online purchase intention in Vietnam. Table 7 shows the order of these factors.

**Table 7.** The Order of the Influence Among Independent Variables

Factor	Standardised Coefficients Beta	% of influence level	The order of the influence
Personalisation	0.315	26.58%	1
Website Design	0.265	22.25%	2
Reliable Service	0.186	15.63%	3
Age	0.150	12.60%	4
Trust	0.149	12.52%	5
Occupation	-0.124	10.42%	6

First, the most surprising result in this study is that personalisation ( $\beta_4 = 0.315$ ) had the most significant effect on purchase intention. This finding is opposed to other studies when customers do not prefer personalisation because they are afraid that the online stores will leak their personal information to others without their permission (Dhingra et al., 2020). Due to the lack of real-time interaction, online stores realise that they need to engage customers in personalised dialogue, and vice versa, customers have more demands for individual caring from stores (Smart Insight, 2018). Most Vietnamese people agreed to revisit the online store if they got more individualised attention (Pham et al., 2018). In modern e-commerce, the number of useful AI tools to promote personalisation based on customer's database and to satisfy individual customers is increasing rapidly, such as shopping list orderings, rule engines, pull and push personalisation skills (Yang and Jun, 2008) or customer relationship management system (CRM) (Kim and Lee, 2009). Regarding the highly competitive market like Vietnam, personalised experience is becoming a core component of the most engaging user experiences (Vietnam News, 2019).

Second, website design ( $\beta_1 = 0.265$ ) is the second factor that influenced food online purchase intention. Website design has the highest mean value among the four dimensions of e-service quality, with 68% of the respondents agreed with item WD4 “It is easy for me to navigate the website”. This finding indicates that Vietnamese online shoppers are quite satisfied with the design of online shopping websites. This finding is supported by existing literature, which concludes that for Internet-based shopping to achieve market penetration, it must be made substantially easier for consumers to navigate and locate information or content (Rita et al., 2019; Dhingra et al., 2020). This finding also accords with the work of Sharma and Kumar (2019), who pointed out that web-interface has a positive influence on consumer attitudes and purchase intentions towards online shopping. Besides, Sun (2001) found empirical evidence that visual design resulted in significant attention from users from collectivist cultures such as China, Vietnam, but not for users from Germany or Canada who are high on individualism. In reality, the e-commerce food market in Vietnam is proliferating with the penetration of a tremendous number of competitors due to the accelerated development of the Internet and many food sellers from street to luxury cuisine in an online channel (Vietnam News, 2018). Therefore, an easy-to-follow and navigate online catalogue is essential for consumers to revisit and purchase on a website.

Third, with 15.63% of contribution to purchase intention, reliable service ( $\beta_2 = 0.186$ ) is a significant predictor of Vietnamese customers’ online food purchase intentions. This finding aligns with Chandra and Wirapraja (2020) study that confirmed customers always expect prompt responsiveness from the exemplary service. Besides, similar findings were also found in studies of Verhagen and Dolen (2009) or Naeem (2019). Especially in the food industry, food acceptability is varied and affected by factors related to the individual. Hence, the right products play a crucial role in this industry (Chandra and Wirapraja, 2020). The explanation for failures in delivering accurate food often results from the lack of synchronising online (e.g., marketing and sales functions, customer service operations, and communications) with offline business processes. Regarding the importance of service quality, several online food players in Vietnam are paying special attention on service quality improvement by operational effectiveness such as GoFood (Gojek), ShopeeFood (Shopee), GrabFood (Grab). Although food quality is still customers’ primary concern, the delivery process will directly affect the food quality resulting in a high or low evaluation of this e-retailer (Suhartanto et al., 2019). If customers receive the right and good food as they ordered, they will repurchase and recommend the store to others.

On the contrary, e-retailers find it very difficult to reply to all customer requests due to increased online users. In contrast, customers will generally refuse to engage with an e-store if they have to wait a long time for a response. Hence, with an increasing perception of digital tools such as AR and VR applications, Vietnamese sellers should provide specific and prompt service to promote customer purchase intention in the enormous online market.

Fourth, trust ( $\beta_3 = 0.149$ ) has a minor effect on food online purchase intention with 12.52% of contribution in a regression model. Despite this result, its importance should



not be underestimated. Our finding is supported by previous studies of Chiu et al. (2012), Kooli et al. (2014), Meskaran et al. (2013), Yang and Jun (2008). For example, Yang and Jun (2008) found that trust is an essential determinant of e-service performance, leading to purchase intention. In past studies, purchasers felt more trust in buying from a salesperson than on a website because they are always sensitive about food quality and privacy information (Yoon, 2002; Kooli, 2014; Poon and Albaum, 2019). In terms of product quality, food is personalised products, so that almost all consumers do not believe that online retailers will select excellent food for them (Morganosky and Cude, 2000).

Regarding online transaction and privacy concerns, despite the growing e-commerce market, the current e-payment ecosystem in Vietnam is inadequate because Vietnamese consumers generally distrust to secure, save and transfer their money through online banking (EVBN, 2018). Hence, e-retailers should provide clear and prominent statements about privacy and security policies; otherwise, customers will not trust them. Overall, trust is most likely a critical factor in any company's reputation, whether e-commerce or not. Therefore, the lack of e-trust will deter any purchase over the Internet and ruin a positive brand attitude and repeat purchases due to no interactivity from online consumers.

Fifth, in terms of demographic factors, age contributes 12.60% of the influence on customer food online purchase intention while occupation only accounts for 10.42%. Generally, this is simply because young consumers may have a more positive perception of online service quality, better skills, and richer online experiences than older consumers do. This finding is supported by previous studies such as Yoon and Occena (2015) and Fang et al. (2016), Nguyen (2013). Besides, the impact of occupation on online purchase intentions is also insisted in the study of Venkatesh et al. (2012) when pointing out that occupation can be considered one of the critical demographic characteristics to define individuals' online perceptions and behaviours (Venkatesh et al., 2012). It is argued that consumers who use computers and the Internet frequently in their job tend to highly appreciate the presence of trusted online services (Alexander and Kent, 2020). Notably, in the Vietnamese context, people often lack trust in the services of online retail stores. As a result, they are reluctant to purchase food and other products online. Specifically, people at a high social position and education level are unwilling to buy food online due to their lack of trust in food hygiene or safety certification (Kim Dang et al., 2018). They also prefer to be served in well-known restaurants or directly buy food in prestigious stores (Kim Dang et al., 2018). These arguments might explain the adverse effect of occupation on food online purchase intention.

## 5. CONCLUDING REMARKS

This research was conducted within the Vietnamese context, with the attendance of customers in the food business. Thus, the main findings of this research are to give

recommendations and contribute to online store managers in Vietnam. Our study confirmed that online food sellers should effectively improve the online service quality and innovate their marketing strategies to meet customers' demands.

In the first step to engage customers, online retailers in Vietnam should utilise personalisation and website design as a central factor to compete with rivals in a vibrant market. E-retailers should customise their interfaces using AI tools in the responsiveness and personalisation stage. An AI software will help evaluate visitors' behaviours, give relevant recommendations to infrequent visitors or better tailor-made offers to loyal customers, and provide immediate and helpful service in the shortest time (Pandolph, 2017). Additionally, a website is essential in transferring the seller's conception to online buyers. Especially in the COVID-19 pandemic, consumers no longer have physical interaction but shift to online trading transactions due to regulations of social distancing. Hence, it is well-advised that the aesthetic features of websites should be improved to draw attention from potential customers at first sight in the current competitive market. An online store interface is fundamental so that all preliminary information should be the priority, such as company and product information, security risks, delivery or return policies.

Regarding service performance that contributes to 15.63% of the online purchase intention, e-retailers should improve service performance by integrating all online and offline operations. In addition, online sellers must set up a smooth physical distribution channel to deliver products as promised. If an online retailer lacks sufficient distribution, they may outsource to a third party who has specialisation in the food delivery platform so that timely and accurate service can be ensured. Vietnam has many food delivery service providers such as Go-Viet, Grab Food, Delivery Now, Lixi, and Loship. They are expected to proliferate and attract usage and investment from many Vietnamese people (Vietnam News, 2019). The reliable delivery service, thus, poses significant importance in the service market.

Last but not least, it is implied from our study that trust plays a critical role in promoting online purchase. Meanwhile, Vietnam is a country that intensely lacks safety in online transactions. Therefore, online merchants must establish strict security policies and use advanced security technologies in their website design. In addition, to prevent credit card fraud, they should try to verify the identities of online buyers by cooperating with trusted banks. As a result, the regulations of e-commerce transactions should be amended to foster the collaboration between online sellers and third party payment platform providers. The electronic payment issue is receiving more concern when it is encouraged by the World Health Organisation and Vietnamese Ministry of Health that people should avoid exchanging money notes in transactions when COVID-19 pandemic is becoming more rampant.

This research has several limitations. Firstly, research on e-commerce needs long-time observation. Therefore, it will be more helpful if further investigations can be surveyed on a longitudinal horizon. Secondly, this study employs the perceived e-service quality construct derived from previous studies of Parasuraman et al. (2005); Yang et al. (2004); Dhingra et al. (2020). Thus, the adopted measurement might lack other probable

factors due to the differences in cultural contexts. As such, several factors from other works can be further explored in future research, for instance, competence, product portfolio, perceived ease of use. Thirdly, the sample size is small, so that the research results might not be generalised to the whole population. Further studies should be conducted with a more significant number of participants in the survey.

## APPENDIX

	Item	Description
Web Design	WD1	The website content is easy to understand
	WD2	The organization of online catalogues look attractive
	WD3	I can easily find details about all the terms and conditions (e.g. payment, warranty, return policies)
	WD4	It is easy for me to navigate the website
Reliable Service	RS1	I always receive the right food that I ordered
	RS2	Food is delivered by the time promised by the seller
	RS3	This website has adequate security features
	RS4	Little information about the payment intermediary in online transaction
	RS5	The e-retailer is willing to respond to any customer inquiries
	RS6	Employees have the knowledge to answer my questions online
Trust	TR1	I believe that quality of food in online shopping is good
	TR2	I feel totally safe to provide sensitive information about myself through website
	TR3	I believe right service in online food shopping
	TR4	I am concerned about security when making purchase over Internet
Personalisation	PN1	I feel happy when I get personalized answers to my questions
	PN2	I received a personal "thank you" note after I placed an order
	PN3	The personalized recommending lists help me shop food online more adequately
	PN4	I will revisit the online store if I get more individualized attention
Purchase Intention	PI1	I intend to continue purchasing food with this e-retailer in the future
	PI2	I will recommend my friends to shop food with this e-retailer
	PI3	I will do more online orders with this food e-retailer in the future

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*Mailing Address: Phuong Mai Nguyen, International School, Vietnam National University Hanoi, 144 Xuan Thuy Street, Cau Giay District, Hanoi, Vietnam, Email: mainp@vnu.edu.vn.*

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