Sustainable E-commerce Logistics for Customer Satisfaction: Evidence from Vietnam

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Abstract

Recent technical development, globalization, and the COVID-19 pandemic have all contributed to an increase in the number of e-commerce logistics activities. However, there has been little investigation on the quality of e-commerce logistics services. This study fills this gap in the existing literature with the evidence from an emerging market like Vietnam, especially in Binh Duong province. It aims to identify the service quality factors of the e-commerce logistics that affect customer satisfaction, such as quality of information, quality of order, delivery quality, price of delivery, and customer service. Results find that: i) customer service has the greatest impact on customer satisfaction; ii) the quality of the order, the quality of the information, and the quality of the delivery come after, respectively; and iii) price of delivery is the final component that has the least impact. Our findings provide useful evidence for businesses in the e-commerce industry in satisfying their customer experiences.

1. Introduction

In recent years, some keywords that come to every person's mind when talking about social phenomena would be sustainability and online shopping. An obvious fact that we all have to accept is that sustainable development is indispensable in the human race. Global sustainability defines the conditions under which humans and nature, societies and the biosphere, the world and the Earth can co-exist in ways that enable productive harmony, stability and resilience to support present and future generations. In logistics, we consider the environmental and human impact of their products' journey through the supply chain by lowering the ecological footprint of their tasks, such as CO_2 emissions, noise pollution, and accidents (Luther, 2021).

Through nearly 2 years of COVID-19, online shopping is growing rapidly. Before COVID-19 happened, we could all see the potential of online shopping. However, thanks to the long time at home, people from all over the country, all ages, and all walks of life have had to get used to buying online. With about 49.3 million people participating in online shopping, Vietnam is the country with the highest percentage of people shopping for e-commerce in Southeast Asia. Besides that, according to the E-commerce Industry Overview report with the theme "E-commerce in 2021: Adapting and quickly overcoming obstacles from COVID-19" released by Lazada Vietnam in collaboration with experts, 58% of Vietnamese consumers said they would continue to shop for groceries on e-commerce platforms (Thien, 2021).

E-commerce and logistics are inseparable because online purchases must be delivered by road, rail, river, or air. Online retailers and home shopping channels, in addition to the logistics business, increase traffic and have an impact on customer convenience and reliability (and price). Shopping is already associated with logistical and storage issues. The importance of e-commerce, on the other hand, resides in stakeholders' awareness of duties that extend beyond the products and the business. For instance, CO_2 reduction is linked to sustainable logistics.

Following the research of Yang et al. (2017), they examined the main perspectives found in research on sustainable retailing in the fashion industry. They found that the most prominent topics in the field are: sustainable retailing in disposable fashion, fast fashion, slow fashion, green branding, and eco-labeling; retailing of secondhand fashion; reverse logistics in fashion retailing; and emerging retailing opportunities in e-commerce. This finding implies that research on sustainable retailing in the fashion industry in developing markets is lacking.

To sum up, the issues of sustainable development and online shopping have been and will be of interest to many people. Therefore, in the long term, the research for this phenomenon will help those who are investigating and working in the field of logistics to be able to predict and have a better understanding of its relationship. In other words, this study investigates the impact of logistic services from online malls in Binh Duong on customer's satisfaction levels.

2. Literature review and hypothesis

2.1 Review of the previous studies/ theories

2.1.1 Background theories

Based on the key paper of Choi et al. (2019), they define the level of customer satisfaction by the difference between a customer's actual post-purchase satisfaction and their expected satisfaction. In other words, this is a Contract theory of customer satisfaction. According to the theories, when a product's performance falls below of the consumer's expectations for it, the gap between expectation and reality will be exaggerated by the consumer (Parker & Mathews, 2001). As a result, this study also bases on the Contract theory of customer satisfaction to give further analyze.

2.1.2 Online Shopping

Online shopping malls differ from offline shopping malls in that they are electronic retail markets that provide e-commerce to individual customers and businesses. Online shopping malls are websites that provide a multi-vendor checkout system, allowing shops to sell in one portal while allowing customers to pay with one credit card transaction. Affiliate Links are used by several online malls to connect shoppers to different stores. These sites do not process payments themselves, but they do collect minor commissions for things sold through links from their online malls to participating stores. According to Hasa (2020), the fundamental difference between online and traditional shopping is that internet shopping is more convenient because you can shop whenever and wherever you want, but traditional shopping can be time-consuming but allows you to see and touch the things you're buying. Online shopping is also called electronic shopping, home shopping or virtual shopping. Therefore, this paper uses the term "online shopping malls" to define the e-commerce environment.

Online shopping malls can be classified according to their role, since they can serve as either comprehensive or specialized shopping malls, depending on the products and services they offer. Following Leanne et al, they categorized them further into comprehensive (multiple type)

and specialized shopping malls (single type), according to the range of product categories they represent.

In Vietnam, shopee.vn, lazada.vn, tiki.vn are examples of comprehensive online shopping malls; vinabook.com, thegioididong.com are some instances of specialized shopping malls.

The number of Internet users in Vietnam is growing, and most people are now familiar with the Internet. Each year, the advantages of the Internet are driving customers to consider online shopping. According to Anderson and Srinivasan, the early stages of the Internet revealed problems with the security of private information as well as general reservations about online shopping. These have since been resolved, and the upward trajectory of online shopping continues. In the first half of 2021, nearly 4.5 million new online consumers came from suburban areas, accounting for 55% of the country's total of 8 million new online consumers.

In addition, those five independent variable factors also indicate the sustainable by providing the improving in the e-commerce. To be more specific, Oláh et al (2019) stated that as businesses generate economic value and prevent labor unrest, a sustainable e-commerce environment has more advantages for online businesses as well as for policy-making and environmental protection.

To sum up, there is a strong relationship between the rapid growth of online shopping and the number of customers using the internet for shopping.

2.1.3 Quality of Logistic Service

About the relationship between the quality of logistics service and online shopping, John T. Mentzer and his colleagues have provided four main factors: quality of the order, quality of delivery, customer service, and the delivery price. Furthermore, according to McDougall and Levesque, they provide the elements in logistics service: quality of employees, the accuracy of the delivery service, the punctuality of delivery, customer service, and the condition of the delivered product have a significant impact on the customer satisfaction.

Hafez et al. (2021), after conducting a study for E-shoppers in Egypt, have concluded that information quality, product quality, delivery service, product condition, customer service and reverse logistics are factors that affect the customer satisfaction. They found that information

quality, product quality, product condition and reverse logistics are the most significant variables related to customer satisfaction.

Andrejić (2012) concluded that the reliability, responsiveness, competence, empathy, and tangibility has an impact on not only logistic quality but also the customer satisfaction and loyalty. Furthermore, it is necessary to simultaneously observe the impact of other variables, such as: prices, competition, relations toward customers, changing provider costs and others.

Based on this theoretical background, scientists in this field commonly propose that the main aspects influence logistics service quality: order cycle, product availability, order size constraints, ordering process convenience, order detail, delivered product condition, and return policy. As a result, by adding information quality and delivery price to the criteria previously discovered by academic research, this study establishes the determinants of logistics service quality.

2.1.4 Customer satisfaction

In the subject of consumer behavior, customer satisfaction is one of the most studied concepts. Consumer satisfaction is a parameter and a result variable in several research.

Customer satisfaction is a term used in marketing. For brevity, customer satisfaction is defined as a measurement that determines how happy customers are with a company's products, services, and capabilities. It is a condition governing customer loyalty and repeat purchasing. The definition of customer satisfaction can vary according to different perspectives on the topic

Following Lin (2003) Customer satisfaction as in the work by Lin is defined as the positive (pleasure) or negative (disappointment) feelings of an individual as the result of comparing perceived performance and expectations of a product or services. When a comparison is based on real perceived performance of a product, she also pointed out that customer pleasure is the result of cognitive and effective evaluation. Customers will not be satisfied if the perceived performance of a product or service fails to fulfill, but they will be pleased and satisfied if the perceived performance of a product or service exceeds expectations.

Hernon et al. (1998) defined that customer satisfaction is transaction specific, is a more short-term measure, and focuses on personal, emotional reaction to service. Satisfaction, as Mary

Jo Bitner and Amy R. Hubbert proposes, consists of service encounter satisfaction, "the consumer's dis/satisfaction with a discrete service encounter," and overall service satisfaction, "the consumer's overall disl satisfaction with the organization based on all encounters and experiences with that particular organization."

Liu et al. (2008), empirically demonstrated that elements in logistics service quality have a statistically significant impact on repeat purchasing behavior and customer referrals, and that they have a significant impact on customer satisfaction.

To sum up, this paper defines customer satisfaction as a customer's judgment of their online shopping experience for a product or service.

2.2 Empirical study

Customer satisfaction can be influenced by many factors including information quality, delivery quality, order quality, customer service and delivery price. Some previous research and empirical studies also demonstrate that quality of information, quality of delivery and quality of order are the main factors analyzed and have a strong influence on customer satisfaction (Harrison, 2016; Rahayo & Patma.,2021; Astuti & Dalam, 2019; Yusra & Agus, 2019; Rao & Sahu, 2013; Karlat. & Johnson , 2018; Cao & Gruca, 2003). Furthermore, the price of delivery and customer service are also important factors to study in customer satisfaction (Prasetyo et al, 2021; Lin et al. ,2011; Albari, 2020; John & Karlay, 2018). As a result, this study would utilize those factors to hypothesize.

2.2.1 Quality of Information

According to Delon & Maclean (1992), information quality is a product of information systems and is defined as "data that are fit for use by data consumers (Wang & Strong, 1996)". Furthermore, the quality of information "captures the degree to which a firm has broad and up-to-date information about (Homburg et al., 2008)" its industry and stakeholders. In addition, Al-Dweeri (2017) claims that information quality in the electronics' field is a factor that has a strong engagement with customer satisfaction. The information generated by an information system resulted in more accurate, timely, and reliable information (Rai et.al, 2002). In order word, the better quality of information, the more customer satisfaction. As a result of this, this research will formulate the first hypothesis as below:

H1: *The quality of information has a positive influence on customer satisfaction.*

2.2.2 Delivery Quality

"Delivery Quality" is a term used to describe the extent to which services meet the customer's needs. Customers often define quality by the level of service they receive, the cost, and their overall satisfaction (Russel, 2021). Following Kempny (2001), it is an ability or capacity to satisfy the requirements and expectations of customers, mainly as to the time and place of the ordered supplies, using all available forms of logistics activity, including transportation, warehousing, inventory management, information, and packaging. Ficón (2001) also mentions that it is a collection of all activity on the level of management and executive level, related to the preparation for the adoption and implementation of the customer's order, contacting the customer and information service, or delivery of the product to the customer. To sum up, all of these factors are intended to be perceived by customers as creating value for them and affecting their satisfaction (Kułyk et al, 2017). Consequently, the second hypothesis will be stated in this research as below:

H2: *The quality of delivery has a positive effect on customer satisfaction.*

2.2.3 Quality of Order

Order quality is the extent to which the customer has ordered products that match the machine or purchase order details. To do this, we need to ensure a high level of order accuracy. Callarman (2020) defined order accuracy as the percentage of all ecommerce orders that are fulfilled and shipped to their final destination without error, such as a mis-pick of an item or an incorrect unit quantity. A high order accuracy means that your customers almost always receive the exact items they ordered in the proper condition. Besides that, the quality of order can increase or decrease customer satisfaction depending on the fulfillment of certain demands and expectations, such as the operation of a purchased product, whether it matches the intended use, or if the customer's expectations are met. Therefore, this paper will formulate the third hypothesis that supposes a direct relationship between quality of order and customer satisfaction:

H3: *The quality of orders has a positive effect on customer satisfaction.*

2.2.4 Price of Delivery

Price of Delivery can also be called as shipping fee or delivery fee, is important in online retail for consumers and sellers (Qiang, 2019). Following Hernandez et al, they claimed with various incentives such as free shipping, buying three products and receiving shipping discounts, vouchers, and so on, shipping fees have been the trigger for customers to double their purchase volumes or the immediate fact that they are purchasing any item at all. In addition, Chen & Ngwe (2018) stated that e-commerce nowadays has offered the customers lots of free delivery cost with minimal purchase, thus the system has increased the customer expenditure basket size. Customers usually check the cost of shipping and the shipping service provider before they placed the order on e-commerce (DHL,2016). Free shipping is usually used as an alternative to cover the lengthy delivery to maintain customer satisfaction. For some customers, the shipping fee is not important as long as the price total is the same (Panko, 2019). Additionally, the price of delivery can vary between locations and conditions. Consequently, the fourth hypothesis will be stated in this research below:

H4: *The price of Delivery has a negative influence on customer satisfaction.*

2.2.5 Customer Service

There are a number of definitions for customer service. Following Calif (1987), customer service is one of the organizational processes which companies perform considering the growing competition and for attracting entrepreneurial opportunities for increasing profitability and better access to the market and increasing the customer satisfaction and loyalty level. According to Goofin and Price (1996) customer service has importance because it ends in increasing product quality, gaining competitive advantage, gaining profitable opportunities, and as a result increasing sales and income. In addition, Daeheon et al. (2019) defined that customer service includes the after-sales support or other logistics services performed on behalf of the customer upon completion of a transaction such as: incorrect product specifications, customers may request a refund or to return goods. However, most online shopping malls do not provide an after-sales service. In fact, many ecommerce stores provide an incredible online shopping experience, with simple navigation and payment processes, a lot of useful product content, a well-executed SEO strategy to position their store first in search results, and a great marketing strategy to promote products through social media, influencers, and the appropriate channels. However, once a customer purchases a product,

the service may rapidly deteriorate (or doesn't exist at all) (Giner, 2021). Accordingly, this study posits customer service as an important factor influencing customer satisfaction.

H5: The customer service quality has a positive effect on customer satisfaction.

2.3 Research model

Base on Choi et al. (2019) and previous studies discussed in the literature review above, a conceptual framework in this study is proposed to demonstrate the effect of sustainable online shopping logistic to customer satisfaction in as follows:
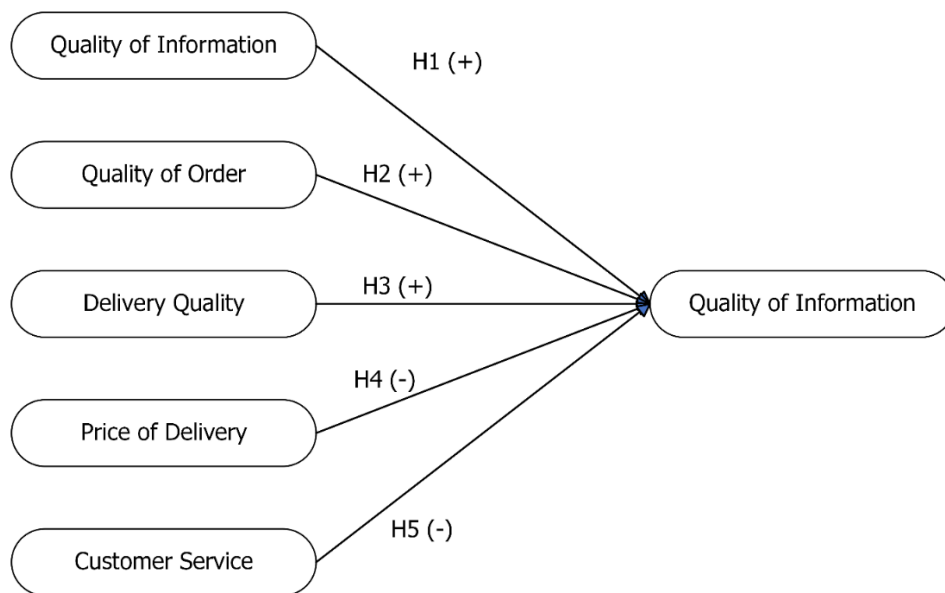
Figure 1. Research Framework

3. Data and research methodology

In this study, quantitative research method can be utilized to test the research hypotheses and evaluate the influence of the independent variables on the dependent variables. Therefore, this paper will apply quantitative research to find out the impacts of 5 independent variables, which are quality of information, quality of delivery, quality of order, price of delivery, and customer service on the dependent variable – customer satisfaction.

This study will use convenience sampling which is a non-probability sampling technique. Convenience sampling can be used to collect relevant data from a sample or unit of study (Zikmund, 1997). According to Lym et al (2020). In most cases, convenience sampling is used to collect quickly and cheaply a large number of completed surveys.

The subjects in this paper are those who are working in e-commerce and logistic industry in all positions, and they have been or are a customer using the online shopping service in Binh Duong by the online and offline survey.

First, this paper will use some demographic questions to select the target respondents. This study will apply the 5 points Likert scale to measure 5 independent variables, including quality of information, quality of delivery, quality of order, price of delivery, and customer service, and one dependent variable which is customer satisfaction. Likert scale is a five-point scale to allow the individual to express how much they agree or disagree with a particular statement including 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree (Saul, 2019).

Table 1. List of question

Variables	Code	Items
Quality of Information	QI1	Products you want to purchase from online shopping malls can be searched for easily
	QI2	All information concerning products is accurately provided.
	QI3	There is no excessive advertising in the product information provided.
	QI4	Various details are provided on the products you want to purchase
	QI5	Product information provided by online shopping malls is easy to understand
Quality of Order	QO1	Orders are processed accurately and quickly when using online shopping malls

	QO2	Products ordered and delivered are identical
	QO3	There aren't many cases of product substitutions due to products being out of stock
	QO4	If the product has been substituted, the substituted product is almost the same as the ordered product
	QO5	Guaranteed refund/return processes
Delivery Quality	DQ1	Delivery is fast and safe
	DQ2	The means of delivery are diverse and can be freely selected
	DQ3	The current location of products can be easily identified during delivery
	DQ4	The delivery is done on time
	DQ5	The product is not damaged during delivery
Price of Delivery	PD1	Price of delivery is specified before the purchase
	PD2	Price of delivery is easily identifiable before the purchase
	PD3	Delivery is cheaper than from an offline store
	PD4	Price of delivery is the same regardless of the quantity purchased/total expenditure on products
	PD5	You do not have to pay additional delivery charges for refunds
Customer Service	CS1	Online shopping malls provide information on delivery processes after purchasing products
	CS2	When asked about product delivery, the response from the shopping mall is compassionate

	CS3	Reception/service by the delivery person is friendly
	CS4	The malls provide swift answers to customers' questions
	CS5	Refund/return service is swiftly provided
Customer Satisfaction	SAT1	Use of online shopping malls saves time compared with using conventional malls
	SAT2	Online shopping malls you use most frequently offer certain items cheaper than those offered in offline stores
	SAT3	Are you satisfied with purchases from the shopping mall you use?
	SAT4	Are you satisfied with the logistics service?
	SAT5	Are you satisfied with the logistics service of online shopping malls in general?

Source: Choi et al. (2019)

4. Result and discussion

After 3 weeks of collecting survey, I received 204 responds but there are only 183 responds that qualified for the study. Other responds, due to incomplete information or missing portions, were eliminated and not being used for further analysis. We used Statistical Package for the Social Science (SPSS) software version 20.0 for data analysis with procedure including descriptive statistics, reliability test, exploratory factor analysis (EFA), correlation test, and multiple linear regression.

4.1 Descriptive Statistic

The percentage of male among the 183 responds is 41 percent, lower than that of female. To be more specific, the proportion of female is 59 percent, which is accounted for 108 responds out of 183. Whereas the proportion of males was 41 percent, which corresponds to 75 people. In term of age, the number of people under 19 years old and above 40 years old are the two lowest responds, accounting for 9.8 and 10.4 percent respectively. On the other hand, 46.4 percent – the highest proportion come from people who from 20 – 29 years old. In addition, there are 33.3 percent of people between 30 and 39 years old. About the occupation, most of the responds are student and staff/employees, which account for 29.5 and 31.7 percent. By contrast, there are only 5.5 percent of responds received by housewife. Besides, the proportion of respond from self-employed and others jobs are 14.2 and 19.1 percent respectively. Because most of the responds of this survey are

student and staff/employee (base on table 5, it is also show that the two highest proportion of average monthly income come from under 7,000,000 VND and 7,000,000 – under 13,000,000 VND (31.7 and 39.3 percent, respectively). Additionally, there are 33 persons who earn between 13 and 20 million VND, account for 18 percent of total. The percentages of respondents earning between 20 and 27 million VND and above 27 million VND are barely at 8.2 and 2.7 percent, respectively.

Table 2 Average monthly income

Average monthly income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 7,000,000 VND	58	31.7	31.7	31.7
	7,000,000 - under 13,000,000 VND	72	39.3	39.3	71.0
	13,000,000 - under 20,000,000 VND	33	18.0	18.0	89.1
	20,000,000 - under 27,000,000 VND	15	8.2	8.2	97.3
	Above 27,000,000 VND	5	2.7	2.7	100.0
	Total	183	100.0	100.0	

Table 3 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
QI1	183	1	5	3.88	.837
QI2	183	1	5	3.79	.828
QI3	183	1	5	3.70	.840
QI4	183	1	5	3.73	.845
QO1	183	1	5	3.84	.846
QO3	183	1	5	3.80	.848
QO4	183	1	5	3.74	.829
QO5	183	1	5	3.67	.853
DQ1	183	1	5	3.75	.825
DQ3	183	1	5	3.68	.837
DQ4	183	1	5	3.77	.846
DQ5	183	1	5	3.60	.819
PD1	183	1	5	3.99	.858
PD2	183	1	5	3.85	.861

	N	Minimum	Maximum	Mean	Std. Deviation
PD3	183	1	5	3.65	.811
PD4	183	1	5	3.69	.816
PD5	183	1	5	3.60	.832
CS1	183	1	5	3.89	.851
CS2	183	1	5	3.81	.851
CS3	183	1	5	3.85	.851
CS4	183	1	5	3.76	.843
SAT1	183	1	5	3.72	.816
SAT2	183	1	5	3.74	.815
SAT3	183	1	5	3.80	.822
SAT4	183	1	5	3.78	.831
SAT5	183	1	5	3.79	.826
Valid N (listwise)	183				

The summary of descriptive statistics for all variables, including their minimum, maximum, mean, and standard deviation, is shown in Table 5. Generally, almost all value of the items is from the minimum at 1 to the maximum at 5. As a result, it can be claimed that each survey, the question's level of agreement and disagreement may be seen clearly.

	N	Minimum	Maximum	Mean	Std. Deviation
QI1	183	1	5	3.88	.837
QI2	183	1	5	3.79	.828
QI3	183	1	5	3.70	.840
QI4	183	1	5	3.73	.845

For the QI variable, most of the items in this variable have a high degree of agreement with the mean value from 3.70 to 3.88. The highest value is 3.88 which comes from the item QI1 (Products you want to purchase from online shopping malls can be searched for easily) indicate that responders prefer to receive the clarity when surfing. In addition, QI4 has the highest standard deviation, indicate that it has the most different.

	N	Minimum	Maximum	Mean	Std. Deviation
QO1	183	1	5	3.84	.846
QO3	183	1	5	3.80	.848
QO4	183	1	5	3.74	.829
QO5	183	1	5	3.67	.853

With the QO variable, with the mean value is 3.67, QO5 (Guaranteed refund/return processes) remain the lowest value compare to others which show that the experience of refund or

return is not so frequent. By contrast, the mean value of QI1 (Orders are processed accurately and quickly when using online shopping malls), QO3 (There aren't many cases of product substitutions due to products being out of stock) and QO4 (If the product has been substituted, the substituted product is almost the same as the ordered product) are quite similar at 3.84, 3.80 and 3.74 respectively. Furthermore, QO5 has the highest standard deviation, with a value of 0.853, indicating the greatest difference compared to the other QO.

DQ1	183	1	5	3.75	.825
DQ3	183	1	5	3.68	.837
DQ4	183	1	5	3.77	.846
DQ5	183	1	5	3.60	.819

At the DQ variable, DQ1 (Delivery is fast and safe) and DQ4 (The delivery is done on time) are the two highest mean value (3.75 and 3.77, respectively). This value show that the quality of online shopping logistics has increased in order to receive agreement from responders. On the other hand, the mean value of DQ3 (The current location of products can be easily identified during delivery) and DQ5 (The product is not damaged during delivery) are lower, at 3.68 and 3.60 for each. Furthermore, DQ4 has the highest standard deviation, at 0.846.

PD1	183	1	5	3.99	.858
PD2	183	1	5	3.85	.861
PD3	183	1	5	3.65	.811
PD4	183	1	5	3.69	.816
PD5	183	1	5	3.60	.832

For the PD variable, PD1 (Price of delivery is specified before the purchase) and PD2 (Price of delivery is easily identifiable before the purchase) receives the highest mean value at 3.99 and 3.85 respectively. However, the others three, PD3 (Delivery is cheaper than from an offline store), PD4 (Price of delivery is the same regardless of the quantity purchased/total expenditure on products) and PD5 (You do not have to pay additional delivery charges for refunds) are quite low, just 3.65, 3.69 and 3.60 for each. In addition, PD2 has the highest standard deviation, 0.861, making it the most difference to the others.

CS1	183	1	5	3.89	.851
CS2	183	1	5	3.81	.851
CS3	183	1	5	3.85	.851
CS4	183	1	5	3.76	.843

The mean value of CS is quite similar and high with the three first items, CS1 (Online shopping malls provide information on delivery processes after purchasing products), CS2 (When asked about product delivery, the response from the shopping mall is compassionate) and CS3

(Reception/service by the delivery person is friendly) at 3.89, 3.81 and 3.85 respectively. However, the mean value of CS 4 (The malls provide swift answers to customers' questions) is lower, at 3.76 compared to the other CS.

SAT1	183	1	5	3.72	.816
SAT2	183	1	5	3.74	.815
SAT3	183	1	5	3.80	.822
SAT4	183	1	5	3.78	.831
SAT5	183	1	5	3.79	.826

Lastly, it is clear that the all of mean value for Customer Satisfaction (SAT) variable are approximately to 4, indicate that responders feel pleased with the experiences they receive. To be more specific, the mean value of SAT is from 3.72 to 3.80, with SAT3 (Are you satisfied with purchases from the shopping mall you use?) remain the highest position. Regarding standard deviation, SAT4 (Are you satisfied with the logistics service?) have the highest standard deviation 0.831, indicating that it had the most difference.

4.2 Reliability test

Cronbach's alpha is a reliability test that demonstrates how the scale's observed variables are related to the scale's reliability. Cronbach's Alpha should be greater than 0.6 for each variable, and the Corrected item - Total Correlation value cannot be lower than 0.3. Remove the variable from the scale if it does not meet these two conditions (Bonett & Wright, 2014).

4.2.1 Quality of Information (QI)

Table 3a Reliability statistic - Quality of Information

Reliability Statistics

Cronbach's Alpha	N of Items
.826	5

Table 4b. Total statistics - Quality of Information

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QI1	15.04	6.982	.596	.798
QI2	15.13	7.049	.588	.800

QI3	15.22	6.710	.667	.778
QI4	15.19	6.987	.586	.801
QI5	15.10	6.727	.667	.777

Following the above two tables, the Cronbach's Alpha of Quality of Information (QI) is 0.826 which higher than 0.6. Besides that, the corrected item-total correlation is higher than 0.3. As a result of this, the variable achieves the requirement.

4.2.2 Delivery Quality (DQ)

Table 5a. Reliability Statistics - Quality of Delivery

Reliability Statistics

Cronbach's Alpha	N of Items
.822	5

Table 5b. Total Statistics – Delivery Quality

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DQ1	14.67	6.960	.550	.806
DQ2	14.80	6.489	.693	.764
DQ3	14.74	6.612	.632	.782
DQ4	14.65	6.514	.649	.777
DQ5	14.83	6.969	.554	.804

In tables 5a and 5b, the Cronbach's alpha and item-total statistics for Delivery Quality are displayed. Cronbach's alpha (0.822) is greater than 0.6, and the corrected item-total correlation between the two items is greater than 0.3. As a result, this variable (DQ) meets the requirement to use in EFA

4.2.3 Quality of Order (QO)

Table 6a. Reliability statistics - Quality of Order

Reliability Statistics

Cronbach's Alpha	N of Items
.839	5

Table 6b. Total Statistics - Quality of Order

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QO1	14.98	7.340	.621	.813
QO2	15.06	6.914	.724	.784
QO3	15.02	7.302	.630	.811
QO4	15.08	7.280	.658	.803
QO5	15.15	7.467	.582	.823

Looking at the table 11, the Cronbach Alpha's of Quality of Order (QO) is 0.839 which is lower than 0.6. According to the table 6b, the Corrected Item- Total Correlation among five items is greater than 0.3. In order words, Quality of Order meets the evaluation criteria for usability, and all items are approved.

4.2.4 Price of Delivery (PD)

Table 7a. Reliability Statistics - Price of Delivery

Reliability Statistics

Cronbach's Alpha	N of Items
.817	5

Table 7b. Total Statistics - Price of Delivery

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PD1	14.79	6.781	.572	.791
PD2	14.93	6.616	.613	.779
PD3	15.13	6.774	.626	.775
PD4	15.09	6.865	.594	.784
PD5	15.18	6.676	.629	.774

The table 13 and 14 contain information regarding the Price of Delivery to reliability test. Cronbach's alpha is higher than 0.6 (0.817 > 0.6), and the corrected item-total correlation is greater than 0.3. Therefore, Price of Delivery meets all criteria for reliability, and no items are excluded

4.2.5 Customer Service

Table 8a. Reliability Statistic - Customer Service

Reliability Statistics

Cronbach's Alpha	N of Items
.832	5

Table 8b. Total Statistics - Customer Service

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CS1	15.07	7.435	.543	.822
CS2	15.14	7.353	.564	.816
CS3	15.11	6.955	.669	.787
CS4	15.20	6.939	.682	.783
CS5	15.31	6.930	.698	.779

The table 8a and 8b show that the Cronbach's Alpha of Customer Service (CS) is 0.832 and Corrected Items- Total Correlation of all items of this variable are higher than 0.3. Therefore, the Customer Service satisfies all criteria of reliability test and can be used for using Exploratory Factor Analysis (EFA).

4.2.6 Customer Satisfaction

Table 9a. Reliability Statistics - Customer Satisfaction

Reliability Statistics

Cronbach's Alpha	N of Items
.818	5

Table 9b. Total Statistics - Customer Satisfaction

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SAT1	15.11	6.520	.622	.778
SAT2	15.09	6.619	.595	.786
SAT3	15.03	6.477	.628	.777

SAT4	15.05	6.612	.579	.791
SAT5	15.04	6.488	.620	.779

The Cronbach' Alpha of Customer Satisfaction (SAT) is 0.818 (higher than 0.6) and all followed items have the Corrected Item- Total Correlation greater than 0.3. In short, the Customer satisfaction is a reliable variable to be analyzed in Exploratory Factor Analysis (EFA).

4.3 Exploratory Factor Analysis (EFA)

KMO coefficient (Kaiser-Meyer-Olkin) is an index used to consider the suitability of factor analysis. The value of KMO must reach the value 0.5 or higher ($0.5 \leq KMO \leq 1$) is a sufficient condition to factor analysis is appropriate. Besides KMO, it is also important to consider Bartlettt's Test of Sphericity. It is used to examine the relationship between the observed variables in the factor. For Bartlett's test to be significant, the sig Bartlett's Test < 0.05, shows that there is a correlation between the observed variables (George & Mallery, 2020).

4.3.1 EFA for Independent variables

Table 10a. KMO and Bartlett's Test of Independent variable 1st

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.777
Bartlett's Test of Sphericity	Approx. Chi-Square	2756.612
	df	300
	Sig.	.000

According to the table, the KMO value of independent variables is 0.777 which is higher than 0.5. Besides that, the Sig value of Bartlett's Test of Sphericity is 0.000, which is less than 0.05. In order words, this result of the independent variables is qualified for exploratory factor analysis (EFA).

Table 10b. Total Variance Explained of Independent variables 1st

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.058	32.234	32.234	8.058	32.234	32.234	3.338	13.352	13.352
2	2.181	8.725	40.959	2.181	8.725	40.959	3.325	13.300	26.652

3	2.114	8.456	49.414	2.114	8.456	49.414	3.224	12.896	39.548
4	1.817	7.269	56.683	1.817	7.269	56.683	3.215	12.861	52.409
5	1.702	6.809	63.492	1.702	6.809	63.492	2.771	11.083	63.492
6	.970	3.878	67.370						
7	.761	3.044	70.414						
8	.731	2.923	73.336						
9	.729	2.916	76.252						
10	.686	2.742	78.994						
11	.637	2.547	81.541						
12	.571	2.286	83.827						
13	.546	2.184	86.010						
14	.502	2.007	88.017						
15	.491	1.965	89.982						
16	.443	1.771	91.753						
17	.420	1.681	93.434						
18	.388	1.554	94.988						
19	.356	1.423	96.411						
20	.298	1.192	97.604						
21	.281	1.123	98.727						
22	.104	.415	99.142						
23	.088	.351	99.493						
24	.069	.276	99.769						
25	.058	.231	100.000						

Extraction Method: Principal Component Analysis.

Following the table 10b, the Initial Eigenvalues of the first five components are 8.058, 2.181, 2.114, 1.817 and 1.702 respectively, which are all higher than 1 as determined by the EFA analysis. As a result of this, all of those five factors can be kept in the exploratory factor analysis model. Moreover, the cumulative percent variance for extracted factors of independent variables is 63.492 % which is higher 50% indicates 63.492% of the variation of the data is explained by 5 factors measured through 25 observed variables and are completely consistent.

Table 10c. Rotated component matrix of independent variables 1st

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
CS3	.812				
CS4	.768				
CS2	.708				
CS1	.665				
QI5	.663				.575
CS5	.658			.601	
PD3		.788			
PD4		.761			
PD5		.720			
PD2		.685			
PD1		.661			
DQ4			.762		
DQ3			.754		
DQ5			.711		
QO2			.658	.640	
DQ2		.620	.653		
DQ1			.633		
QO4				.796	
QO3				.725	
QO1				.704	
QO5				.693	
QI3					.763
QI4					.732
QI1					.716
QI2					.709

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The outcome of rotated component matrix for independent variables is showed in the table 10c, it is clear that the factor loading values of independent variables are all higher than 0.5. However, the case of cross-loading happens in 4 "items": QI5, CS5, QO2 and DQ2.

- QI5: $0.663 - 0.575 = 0.088$ (<0.3)
- CS5: $0.658 - 0.601 = 0.057$ (<0.3)
- QO2: $0.658 - 0.640 = 0.018$ (<0.3)

- DQ2: $0.653 - 0.620 = 0.033$ (<0.3)

As the result of calculation, all of the outcome are smaller than 0.3 which does not meet the discriminant validity. In order word, those four variable will be eliminated and the exploratory factor analysis for the independent variables will be conducted again.

Table 11a. KMO and Bartlett's Test for Independent variable 2nd

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.836
Bartlett's Test of Sphericity	Approx. Chi-Square	1289.987
	df	210
	Sig.	.000

In the second time, all unqualified variables were eliminated and the outcome are showed in table 11a. According to the table, the KMO value of independent variables is 0.836 which is higher than 0.5. Besides that, the Sig value of Bartlett's Test of Sphericity is 0.000, which is less than 0.05. In order words, this result of the independent variables is qualified for exploratory factor analysis (EFA).

Table 11b. Total Variance Explained of Independent variables 2nd

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.874	27.973	27.973	5.874	27.973	27.973	2.925	13.927	13.927
2	1.912	9.104	37.077	1.912	9.104	37.077	2.463	11.727	25.654
3	1.900	9.047	46.124	1.900	9.047	46.124	2.455	11.692	37.346
4	1.477	7.032	53.156	1.477	7.032	53.156	2.421	11.529	48.875
5	1.444	6.876	60.031	1.444	6.876	60.031	2.343	11.157	60.031
6	.877	4.177	64.209						
7	.735	3.502	67.711						
8	.726	3.458	71.169						
9	.725	3.450	74.619						
10	.643	3.061	77.680						
11	.623	2.967	80.648						

12	.532	2.533	83.181							
13	.509	2.422	85.603							
14	.471	2.241	87.844							
15	.444	2.115	89.959							
16	.417	1.987	91.946							
17	.413	1.966	93.912							
18	.375	1.788	95.700							
19	.344	1.637	97.336							
20	.292	1.389	98.726							
21	.268	1.274	100.000							

Extraction Method: Principal Component Analysis.

Following the table 11b, the Initial Eigenvalues of the first five components are 5.874, 1.912, 1.900, 1.477 and 1.444 respectively, which are all higher than 1 as determined by the EFA analysis. As a result of this, all of those five factors can be kept in the exploratory factor analysis model. Moreover, the cumulative percent variance for extracted factors of independent variables is 60.031 % which is higher 50% indicates 60.031% of the variation of the data is explained by 5 factors measured through 21 observed variables and are completely consistent.

Table 11c. Rotated Component Matrix of Independent variable 2nd

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
PD3	.776				
PD4	.747				
PD5	.737				
PD2	.698				
PD1	.682				
QO1		.764			
QO4		.761			
QO5		.734			
QO3		.696			
CS3			.788		
CS4			.760		
CS2			.718		

			.715	
CS1			.715	
QI3				.756
QI4				.753
QI1				.744
QI2				.687
DQ5				.753
DQ4				.744
DQ3				.726
DQ1				.686

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

In the second time, the case of cross-loading variable is not happened and all the factor loading are greater than 0.5. To be more detailed, value of the first item PD3 is the highest (0.776), means that it contributes the most to determining the Price of Delivery variable. Besides that, the value of QO1 is also the highest (0.764), indicates that QO1 contribute more to the Quality of Information variable. Similarity, the value of item CS3 (0.788) is higher than the other three which show the greater contribution to the Customer Service variable. The fourth item QI3's value of 0.756 is the highest, suggest that QI3 has the most supports for the Quality of Information variable. Lastly, DQ5 has the higher value than the other three (0.753), also indicates that DQ5 contribute the most to the Delivery Quality variable.

4.3.2 EFA for Dependent variable

Table 12a. KMO and Bartlett's Test for Dependent variable

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	276.724
	df	10
	Sig.	.000

According to the table 12a, the KMO value of dependent variable is 0.841, and the Sig value of Bertlett's Test of Spherricity is 0.000, which is less than 0.05. Consequently, this result is suitable for exploratory factor analysis (EFA).

Table 12b. Total Variance Explained for Dependent variable

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.895	57.907	57.907	2.895	57.907	57.907
2	.645	12.897	70.804			
3	.527	10.541	81.344			
4	.469	9.379	90.724			
5	.464	9.276	100.000			

Extraction Method: Principal Component Analysis.

Follow the table 12b, only 1 item is extracted, with Eigenvalue = 2.895 (higher than 1) and the cumulative percent variance is 57.907 % which is higher 50%. As a result, it can be also reliable and comparable for further analysis.

Table 12c. Component Matrix of Dependent variable

Component Matrix[a]

	Component
	1
SAT3	.776
SAT1	.772
SAT5	.771
SAT2	.750
SAT4	.735

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Looking at the table 12c, it is clear that five items of Customer satisfaction variable are in one component and the value of all factor loading are higher than 0.5. To sum up, all five items will be kept for the later step of analysis.

4.4 Correlation

Pearson Correlation coefficient (r) is to measure the degree of linear correlation between two variables (Lind, et al., 2018). This study will use Pearson correlation coefficient to analyze the

relationship between five independent variables (Quality of Information - QI, Quality of Order – QO, Delivery Quality – DQ, Price of Delivery – PD, Customer Service) and one dependent variable which is Customer Satisfaction. According to Field, (2018), the significance values must be lower than 0.05 in order for a correlation to be considered meaningful. Besides, Pearson correlation analysis aims to test the close linear correlation between the dependent variable and the independent variables and early identify the problem of multi-collinearity when the independent variables are also strongly correlated with each other. Additionally, the Pearson correlation coefficient will range from -1 to +1 and will represent many perspectives:

- $r < 0$ indicates a negative correlation between the two variables.
- $r=0$ shows no correlation.
- $r > 0$ indicates a positive correlation between the two variables.

Table 13. Correlations

Correlations

		SAT	QI	QO	DQ	PD	CS
SAT	Pearson Correlation	1	.528**	.561**	.535**	.486**	.561**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	183	183	183	183	183	183
QI	Pearson Correlation	.528**	1	.401**	.353**	.357**	.269**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	183	183	183	183	183	183
QO	Pearson Correlation	.561**	.401**	1	.360**	.362**	.269**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	183	183	183	183	183	183
DQ	Pearson Correlation	.535**	.353**	.360**	1	.303**	.355**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	183	183	183	183	183	183
PD	Pearson Correlation	.486**	.357**	.362**	.303**	1	.334**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	183	183	183	183	183	183
CS	Pearson Correlation	.561**	.269**	.269**	.355**	.334**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	183	183	183	183	183	183

The table 13 describes the Pearson correlation coefficient of six variables as above. Overall, all of significant values of five dependent variables meet the requirement (lower than 0.05).

- To be more detail, the two variable – Quality of Order (QO) and Customer Service (CS) have the highest level of correlation with the dependent variable (0.561).

- Delivery Quality (QD) variable have the third position with a Pearson Correlation value at 0.535

- The fourth is Quality of Information (QI) with Pearson Correlation value at 0.528.

- Finally, with the value of Pearson Correlation at 0.486, Price of Delivery (PD) indicate the lowest positive correlation.

4.5 Multiple linear regression

We use the Multiple linear regression to estimate the impact of five independent variables (Quality of information, Quality of Order, Delivery Quality, Price of Delivery and Customer Service) on dependent variable (Customer Satisfaction). Results are reported in Tables 14, 15, and 16.

Table 14. Model Summary[b]

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.786[a]	.618	.607	.39217	1.839

a. Predictors: (Constant), CS, QO, QI, PD, DQ

b. Dependent Variable: SAT

The Model summary displays the R Square and the Adjusted R Square to evaluate the relevance's degree of the model.

The result of Adjusted R Square is 0.607 (60.7%) means that all independent variables (Quality of Information, Delivery Quality, Quality of Order, Price of Delivery and Customer Service) can explain 60.7% of Dependent variable (Customer Satisfaction). Consequently, the rest of 39.3% of Customer Satisfaction is describe other variables which are not included in this study. Additionally, the Durbin-Watson is 1.839 which is still in the acceptable range (1.5 to 2.5), indicating that there is no autocorrelation in this statistical model.

Table 15. ANOVA

ANOVAª

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.968	5	8.794	57.177	.000ᵇ
	Residual	27.222	177	.154		
	Total	71.190	182			

a. Dependent Variable: SAT

b. Predictors: (Constant), CS, QO, QI, PD, DQ

In the ANOVA table, the result of F test is 57.177 and the value of Sig is 0.000, which is smaller than 0.05. As a result, there is linear regression model between Customer Satisfaction and five influencing factors.

Table 16. Coefficientsª

Coefficientsª

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.387	.249		-1.554	.122		
	QI	.205	.052	.213	3.961	.000	.750	1.334
	QO	.250	.051	.263	4.876	.000	.744	1.344
	DQ	.206	.052	.210	3.938	.000	.759	1.318
	PD	.146	.052	.148	2.796	.006	.766	1.305
	CS	.294	.049	.309	5.967	.000	.805	1.242

a. Dependent Variable: SAT

The collinearity statistic is used to test if the multi collinearity happens in the linear regression model. The multi-collinearity happens when tolerance values are low and variance inflation factor (VIF) are high. If the VIF values are higher than two, the multi collinearity is high (Hair, 2009).

The VIF is then used to test the linear relationship between one predictor and another. According to Field (2010), the VIF value should be less than 2, and the tolerance should be at least 0.2, because anything less than 0.2 is considered excessive multi-collinearity. According to the table 16, all of the VIF value are lower than two. To be more detailed, the VIF value of QI, QO, DQ, PD and CS are 1.334, 1.344, 1.318, 1.305, 1.242 respectively which show that there is no multi-collinearity. As a result, there is sufficient evidence to conclude findings as follows:

Customer Satisfaction is always a top concern of businesses especially when Covid-19 has made an enormous change in their shopping behavior – switching from offline to online store. Consequently, the attention to the online shopping logistics is inevitable because it is an indispensable part that helps business connect and serve their customer. Business owners need to identify the factors that affect their customer's satisfaction level in order to improve their operation.

Firstly, Customer Service was proved to have a positive impact with Customer Satisfaction and considered as the most influence variable (β = 0.309, t = 5.967, Sig = 0.000). This statement also being confirmed by other studies. Kitapci et al (2014) supports the idea that there is a significant relationship between e-service quality and customer satisfaction. In other words, providing good service quality enhances customer satisfaction. This result is aligned with previous studies conducted by Wu et al. (2010) and Wu et al. (2018). This statement is similarly proven in others industry. Following Cao et al (2018), Customer service plays the most important role in determining customer satisfaction in China. Janahi et al (2017) conducted a study about Customer Service in banking confirms the significant and positive relationship between service quality and customer satisfaction.

Secondly, Quality of Order also have a positive influence with customer satisfaction and remained the second position ((β = 0.263, t = 4.876, Sig = 0.000). Following Kumar et al (2006), they found that e-commerce has dramatically improved order entry accuracy; concluding that the ability to order directly and not through a series of channels, reduces the potential for human error or misinterpretation. Besides, customers are less likely to make future orders from the same company when an order is delivered incorrectly due to their negative memories of the previous order (Chen et al, 2019). As a result, the owner of online stores need to pay attention to the order throughout the logistic chain.

Thirdly, Quality of Information is the third influencing factor ((β = 0.213, t = 3.961, Sig = 0.000) and was found to have a positive impact with customer satisfaction. Following research by Patma et al (2021), good quality of information which is provided follows the perception of customer perceived value can create the customer satisfaction. Furthermore, other research also supports for this finding such as useful and complete information can create a memorable experience (An et al, 2021) and useful, high-quality information would influence consumer

perceptions and create customer satisfaction (Hossain et al, 2020). In order words, when customers experience online shopping, the more well-organize and accurate information, the more satisfaction level businesses can create for their customers.

Fourthly, Delivery Quality variable also has a positive influence on Customer Satisfaction and kept the fourth position ($\beta = 0.210$, t = 3.938, Sig = 0.000). Follow a study of Zlatkovic (2013), the ordered item must be delivered to the client in perfect condition. In other word, it is crucial for online store to secure the products in a way that prevents damage during processing and shipping. Moreover, delivery quality is also considered as the most important factors in customer satisfaction (Lin et al, 2011). Therefore, e-commerce proprietors have to select carefully and cooperate with high quality delivery suppliers in order to offer a higher standard of delivery, such as right order, speediness, and safety packaging.

Lastly, the last influencing factor was Price of Delivery ($\beta = 0.148$, t = 2.796, Sig = 0.000). There was a positive influence found between Price of Delivery and Customer Satisfaction. To be more specific, because the measurement items asked about the accuracy and gap between online and offline stores, the outcome often have a high mark. Customers tend to analyze the cost they incur and the benefits they receive when making orders have showed in the research of Rita et al. (2019), Hirata (2019), and Chicu et al. (2019). They would expect that additional fee for home delivery service is reasonable, competitive compared to those offered by other service providers and feel safe with the delivery personnel service. Consequently, the ability to provide superior service will assure customers that they are getting value and quality service for the price of the delivery charge (Uzir et al, 2021). Price of Delivery, therefore, should be adjusted to be competitive and reasonable so that customers will not think they are paying more than they have to.

5. Conclusion and policy implication

The purpose of this study is to analyze the effects of five independent elements in sustainable online shopping logistics on Customer Satisfaction in Binh Duong. Our result illustrates that Customer Satisfaction in Binh Duong is positively affected by Quality of Information, Delivery Quality, Quality of Order, Price of Delivery and Customer Service. Especially, Customer Service has the strongest impact on the level of satisfaction of customer.

The finding of this study provides literature and guidance to other authors who investigate the subject of Customer Satisfaction in Logistic industry. This study will act as a resource for additional research on Satisfaction level of Customer for not only Online shopping logistics but also serve as a reference for further research on this topic in another industries or places. Additionally, this research offers a number of legitimate and useful managerial implications to owners of online stores. The variables influencing Customer Satisfaction using logistics service have been investigated and confirmed in this study. It also demonstrates the element that has the highest influence on the level of satisfaction. By this, owners of business will be able to review and adjust those variables in order to allocate their resources more effectively. Besides, they will know which aspects of their logistics service require greater focus in order to increase customer satisfaction, pleased more customers and increase their sales or profit. Lastly, according to VTV (2022), more than 50% of users in Southeast Asia search for products directly on e-commerce platforms without intermediaries and the scale of Vietnam's e-commerce can reach nearly 40 billion USD by 2025. Furthermore, revenue from business-to-consumer (B2C) e-commerce in Vietnam is expected will increase over 20% per year. In other words, those statistical show that the e-commerce market in general, and Vietnam in particular, is expected to have a very positive development in the near future. Consequently, this is a golden time for e-commerce owners to have a deeper understand about their business, especially the logistic system to provide a better experiences and services for their customers.

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