The Influence of Logistics Service Quality on Customer Satisfaction with Perceived Value as a Mediating Variable (Study of E-commerce Users in Purwokerto, Indonesia).

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ABSTRACT

The growth of online purchases has now grown very widely, especially in Indonesia, which is a country with users that have entered the 10 largest countries in the world. Playing an important role, especially in the logistics sector, to send goods to the customer's home. With on-time delivery, better service, results in positive customer perception value which is an influential factor in customer satisfaction. The aim of this research is to determine the effect of logistics service quality on customer satisfaction which is mediated by the value perceived by customers. Data was collected from 120 respondents from adults, using a structured questionnaire

Keywords: Service Quality Logistic, Perceived Value, and Customer Satisfaction.

1. Introduction

The emergence internet sophistication nowadays has facilitated great progress in trade; especially, in electronic commerce (e-commerce). It is estimated that e-commerce continues to increase in every country one of which is Indonesia. Indonesia has been ranked as the 10 largest countries with the largest e-commerce growth rate in the world. Furthermore, based on data from Central Bureau of Statistics (BPS), approximately 34.10% of businesses have conducted e-commerce activities in 2022, it has increased compared to 2021 that is 32.23%. The e-commerce facilitates consumers by providing information which contains price comparisons between sellers with the same product. Meanwhile, consumers will be given the convenience to observe and compare good alternatives between sellers transparently. In addition, this phenomenon increases the number of deliveries to customers' residences or workplaces; besides, increases the transportation of goods in urban areas (Allen et al., 2019).

The door-to-door delivery system is a facility by providing goods and/or services which are received directly by consumers using delivery. This system provides great comfort and convenience for customers to pick up goods individually. According to Qin et al. (2020), some e-commerce platforms have self-service delivery while sellers obtain logistics services from third-party logistics service providers. It makes companies; especially, in delivering goods, provide satisfaction that meets customer expectations. Furthermore, according to Mongay (2014), measuring customer satisfaction provides companies with the ability to identify problem areas and develop strategic schemes which can improve service quality. Companies which meet these

expectations with direct information support to customers where customers can track, edit and cancel their package orders.

In logistics management, customer satisfaction is one of the appropriate methods for assessing how a company provides appropriate services to customers. In this study, we note that the service quality of each environment experiences differences and it is handled differently. It is supported by research which had been conducted by Cardenas et. al. (2017) which stated that logistics costs in rural areas has increased quite significantly. It should be highlighted by logistics infrastructure in cross-border e-commerce. In addition, according to Li et al (2017), the development of cross-border e-commerce is not in line with the expansion of logistics infrastructure so that it needs improvements in logistics modes and the establishment of specialized logistics service systems.

All these challenges should be carefully considered, as some previous research suggests allowing strong development with customers. Moreover, according to Lee et al (2010), it is important for the logistics sector to improve their services by optimizing their outlets, improving information systems and strengthening regulations. This optimization can enable an increase in the strong and fast growth of the e-commerce industry. Since economic expansion will increase demand for logistics services, it gives impact on logistics development and new impetus for economic growth. In line with the problems described, therefore this study will be one of the evaluations which companies need to pay attention to in order to improve logistics service capabilities. Refers to the extent to which a company develops long-term relationships with customers that enable high-quality services in order to achieve superior performance.

Therefore, this study investigates areas which are prone to long-distance urban deliveries and considers fast and flexible delivery over distance. Social sustainability is also affected by long-distance delivery, the differences in operations between logistics companies in cities and rural areas overlap so that creates other difficulties in terms of limited delivery times. In addition to location issues, there are various considerations. According to Beckers et al. (2022) the most common variables to predict e-commerce goods delivery are age, gender, income, product type, and accessibility. Since in current conditions many adolescent prefer to use social media; such as, Instagram, Facebook and Twitter, adults most likely to buy products. It is also supported by the opinion which had been stated by Hajli et al (2020) where the effectiveness of e-commerce is in fact based on people trusting social media friends or even someone they like. Therefore, the aim of this research is that to examine the quality of logistics services by considering the use of e-commerce (namely the age of e-commerce users) on customer satisfaction in Purwokerto, Indonesia.

In relation to the problems above, this paper examines combining five indicators in logistics service quality. Although there are many previous research about the indicators in logistics service quality, there is still little study which conducted in Indonesia; specifically, related to rural logistics and focusing on productive age. According to (Kante., 2022) good research methods will make it possible to give meaning to the data collected, facilitating the correctness of research results to provide the expected impact. This study used a quantitative model for making significant decisions.

2. Literature Review

2.1 Service Quality Logistic

All activities related to the supply of goods; such as, storage, transportation and distribution requirements are very important to pay attention to in logistics. According to (Ballou, 1985),

logistics is a comprehensive series of processes for the final consumer in order to obtain goods/services, including raw goods or spare parts inventory, factory production, and product flow through intermediaries. Moreover, logistics includes several series of activities; such as, planning, implementing and monitoring every process of moving goods and services, resources and energy from the starting point to the final point of delivery. This scale will be the measurement to be developed and validated by logistics provider companies in order to provide logistics services to customers.

2.2 Perceived Value

Perceived value is the customer's overall assessment of the quality of the service which creates perceived value for the customer. If customers can spend less money, time and effort compared to the quality of service they receive, customers will experience a high perception of service value. Perceived value has value for consumers to determine the overall superiority of the product by showing that the product can be said to have good quality with a higher priority for purchase. According to (Ashton et al. 2010) perceived value has a set of attributes which drive consumers as criteria for determining preferences and evaluations in relation to the goals that they achieve. With perceived value, consumers can get service quality in line with expectations for satisfaction and they will not move to other service.

2.3 Customer Satisfaction

Satisfaction is closely related to customer attitudes and intentions that are customer behavior and directly positively influences customer behavioral intentions. According to (Buttle, 2006), satisfaction is a pleasant fulfillment response while dissatisfaction is an unpleasant fulfillment response. Repurchase intention is a person's willingness to make another purchase based on previous experience. When customers are satisfied with the products or services they purchased they tend to repurchase from the same supplier. In addition, customers who have previous experience will find it very valuable in terms of efficient and economical aspects and they will be more likely to have the intention to revisit.

2.4 Conceptualization and Hyphotheses

Logistic Service Quality and Perceived Value

LSQ is defined as a set of performance factors which are measured by the ability to distribute products based on customer needs. Various studies show that there is a relationship between service quality and the positive value felt by customers. As research which had been conducted by Rehman (2012) explained that the influence of service quality has a strong positive relationship with the value perceived by customers since banks need to consider service quality to influence customer perceived value. In addition, it is in line with the results research which had been conducted by Yousef et al. (2018) where the need to provide quality services to international tourists increases tourist satisfaction through perceived value.

A number of studies have identified that service quality and customer perceived value can influence customer satisfaction. However, several studies have identified that service quality has an influence on perceived value. Therefore, we have the following hypothesis;

H1 There is a positive influence between Logistic Service Quality and Perceived Value.

Perceived Value and Customer

Margee and Gillian (2010) explained that peripheral services influence perceived value where these results explain that organizations can develop audiences by spending funds efficiently and maximizing by providing good product, program and program delivery designs in order to provide services which help maximize sales. Moreover, research which had been conducted by Hapsari et al (2017) and Suhartanto et al (2013) explained that customers will get satisfaction after

getting what they obtain based their hopes and desires. It means that empirically validates the positive influence of perceived value on customer satisfaction. Therefore, based on this discussion, this study proposes the following hypothesis;

H2 There is a positive influence between Perceived Value and Customer Satisfaction

Logistic Service Quality dan Customer Satisfaction

In the research which had been conducted by Rizwan Ali et al (2015) explained that the company's main focus is on perceived value since it is important for the company to set benchmarks and monitor performance among customers for the different segments that are the company's targets; especially, in industrial companies which directly focus on appropriate products and prices in the purchasing decision process. In addition, products and services that become a unity create value for customers in order to determine in service.

Good logistics service quality is the basis for customer satisfaction. There are some studies which explain several relationships as what had been explained by Daniel et al (2018) that Customer satisfaction provides a big tendency in the business of customer satisfaction since it will become a recommendation from the manufacturer to other companies. This study is also supported by research which had been conducted by Monique et al (2017) which builded interactions between service quality logistics, finding a strong positive relationship with customer satisfaction and consumer loyalty so that the positive relationship between service quality logistics and customer satisfaction is an influencing factor. Therefore, based on this discussion, this study proposes the following hypothesis;

H3 There is a positive influence between Service Quality Logistics and Customer Satisfaction

3. Research Methodology

The approach used in this study was a quantitative approach that is assessing the relationship between the variables studied. This study was based on primary data that was collecting data through a structured online questionnaire by using the basis of previous research. The questionnaire was designed with several sections. The first part was questions related to information about each respondent. Meanwhile, in the second part, respondents would be asked several questions consisting of five Likert scales, 1 = strongly disagree and 5 = strongly agree. This scale would be used as a basis for assessing the respondent's level of agreement with questions representing each research variable.

Questionnaires would be distributed to respondents who used and understood e-commerce. Respondent which were fit were age groups (18-30) since they were entering the adult phase and had well understanding about existing service system in e-commerce. The application users should have used it for 3 (three) months and have made transactions more than 3 (three) times.

4. Results

The research model used in this research was a regression analysis model in order to test the proposed hypothesis by using path analysis techniques with SPSS 25.0. This research used 120 respondents that most of who were e-commerce users. In addition, most respondents had used ≥ 4 months and made more than 5 purchases in e-commerce.

Based on the respondent data above, it can be concluded that the majority of users who frequently use e-commerce are women at 81.67% compared to men at 18.33%. Thus, it means that women are the largest users of e-commerce compared to men with the majority of users aged 19-35 years.

4.1 Validity Test

Variabel	Indikator	r_{hitung}	r_{tabel}	Keterangan
Service Quality Logistic	X_1	0.836	0.178	Valid
	X_2	0.770	0.178	Valid
	X_3	0.836	0.178	Valid
	X_5	0.881	0.178	Valid
	X_6	0.829	0.178	Valid
	X_7	0.845	0.178	Valid
	X_8	0.863	0.178	Valid
	X_9	0.871	0.178	Valid
	X_{10}	0.852	0.178	Valid
	X_{11}	0.861	0.178	Valid
	X_{12}	0.880	0.178	Valid
Perceived Value	Z_1	0.886	0.178	Valid
	Z_2	0.918	0.178	Valid
	Z_3	0.927	0.178	Valid
Customer Satisfaction	Y_1	0.881	0.178	Valid
	Y_2	0.934	0.178	Valid
	Y_3	0.939	0.178	Valid

Based on the table, it shows that the calculated r value of each indicator is greater than the r table. It can be concluded that every questionnaire distributed to respondents can be declared valid and reliable as a variable measuring tool.

4.2 Reliability Test

Reliability test aims to measure whether respondents' answers can be trusted and relied upon with answers which are consistent or stable over time.

Variabel	*Aplha Cronbach*	Nilai (α)	Keterangan
Service Quality Logistic	0,964	0,60	Reliabel
Perceived Value	0,896	0,60	Reliabel
Customer Satisfaction	0,906	0,60	Reliabel

Based on the test above, it can be concluded that the Cronbach's alpha value is greater than α value (0.60) which means that this test has perfect reliability. Therefore, the conclusion is that this data is reliable or all tests consistently have strong reliability.

4.2 Hypothesis Test

4.2.1 Hypothesis Test of the Relationship between Service Quality Logistics (X) and Perceived Value (Z)

This test is the first stage of testing in order to know whether the independent variable has an effect on the intervening variable. It is conducted by testing logistics service quality and perceived value in order to determine the level of each independent variable in the equation or model which is used to predict the dependent variable.

	Unstandardized Coefficients		Standardized	t	Sig.
Model	**B**	**Std Error**	**Beta**		**Sig.**
(Constant)	-0.088	0.647		-0.136	0.892
Service Quality Logistic	0.251	0.015	0.839	16.772	0.000

Based on the test above, the partial regression test obtained a t-count value of (16,772), regression coefficient (b) (0.015) with probability (p) = 0.000. Furthermore, based on data processing, it shows that the probability value (p) (0.000) ≤ 0.05. Therefore, it can be concluded that logistics service quality has a positive and significant influence on perceived value.

4.2.2 Hypothesis Test of the Relationship between Perceived Value (Z) and Customer Satisfaction (Y)

This test is the second stage of testing in order to know whether the intervening variable has an effect on the dependent variable. It is conducted by testing perceived value and customer satisfaction in order to determine the level of each intervening variable in the equation or model used to predict the dependent variable.

	Unstandardized Coefficients		Standardized	t	Sig.
Model	**B**	**Std Error**	**Beta**		**Sig.**
(Constant)	-0.121	0.403		-0.301	0.762
Service Quality Logistic	0.619	0.057	0.619	10.805	0.000

Based on the picture above, it shows that the partial regression test obtained a calculated t value of (10.805), regression coefficient (b) (0.619) and probability of (p) (0.000). Moreover, based on data processing, it shows that the probability value (p) (0.000) ≤ 0.05. It can be concluded that perceived value has a positive and significant influence on customer satisfaction.

4.2.3 Hypothesis Test of the Relationship Between Service Quality Logistics (X) and Customer Satisfaction (Y)

The test between service quality logistics and customer satisfaction is used to determine the level of each independent variable in the equation or model used in order to predict the dependent variable.

	Unstandardized Coefficients		Standardized	t	Sig.
Model	**B**	**Std Error**	**Beta**		**Sig.**
(Constant)	-0.121	0.403		-0.301	0.764
Service Quality Logistic	0.108	0.017	0.360	6.293	0.000

Based on partial regression testing, the t count is (6.293) with a regression coefficient of (b) (0.108) and a probability of (0.000). Therefore, based on these results, it can be said that the probability (0.000) ≤ 0.05 which means that logistics service quality has a positive and significant influence on customer satisfaction.

4.3 Coefficient of Determination Equation 2

The coefficient of determination (R2) aims to measure the ability of the results of this study to explain that the R Square value of 0.887 or (88.7%) can be interpreted as that service quality logistics and perceived value can explain customer satisfaction that is 88.7% and the remaining 11.3% is influenced by other factors which are not included in the research model.

4.4 Coefficient of Determination Equation 1

The coefficient of determination (R2) is a measurement of the ability of the model in order to explain variations in the dependent variable. The value of R2 is between 0 and 1 which means that if the value is close to one independent variable, it provides an explanation that the information needed to predict the dependent variable. From the results of this research, it is clear that the R Square value is 0.704 or (70.4%) which can be interpreted as Service Quality Logistics can explain Customer Satisfaction which is 70.2% and the remaining 29.6% is influenced by other factors which are not included in the research model

4.5 Simultaneous Test (F Test)

This test aims to know the relationship between the independent variables and the dependent variable simultaneously. In this first equation, Service Quality Logistics is simultaneously related to Customer Satisfaction. Based on the results of this study it shows that:

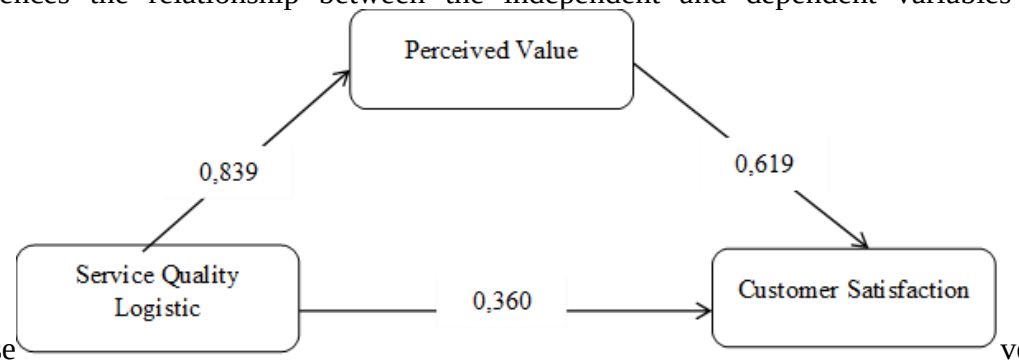
Model	Sum of Square	Df	Mean Square	F	Sig.
Regression	557.638	2	278.819	457.612	0.000

Residual	71.287	117	0.609		
Total	628.925	119			

From the results of the F test in the table above, it is obtained that F count is 457,612 > F table that is 3.07, or a probability of 0.000. Since sig F count < 0.05 (5%) is (0.000 < 0.05), it can be concluded that Service Quality Logistics and Perceived Value both influence Customer Satisfaction

4.3 Path Analysis

The function of this test is that to know how the mediator variable, whether or not this variable influences the relationship between the independent and dependent variables by conducting several causal steps as follows:



Testing the mediating role of the intervening variable from the dependent variable on the independent variable was conducted by using Path test analysis.

- Direct Influence
  The regression coefficient for logistics service quality on customer satisfaction is 0.360.
- Indirect Influence
  The Regression Coefficient of Logistics Service Quality on Perceived Value is 0.839. Meanwhile, the Regression Coefficient of Perceived Value on Customer Satisfaction is 0.619.
- Multiplication of Indirect Influence: 0.839 x 0.619 = 0.519.

From the multiplication results above, it can be explained that the regression coefficient value of service quality logistics on customer satisfaction is 0.306 while the coefficient value of service quality logistics on customer satisfaction through perceived value as an intervening is 0.519. It can be concluded that perceived value is able to mediate or intervene between logistics service quality and customer satisfaction since the coefficient value is greater than the direct influence (0.519 > 0.306).

4.4 Sobel Test

The function of this test is that to determine the strength of the indirect influence of the independent variable (X) on the dependent variable (Y) through the intervening variable (Z). This test can be calculated by using the Sobel formula as follows:

$$S_{ab} = \sqrt{b^2Sa^2 + a^2Sb^2 + Sa^2Sb}^2$$

Based on the Beta and Standard Error values in the results above that is service quality logistics (X) to perceived value (Z) with data results above that is perceived value (Z) to customer satisfaction (Y), the following are obtained:

a = 0.619 is the direct effect coefficient of the independent variable service quality logistics on the intervening variable perceived value (Z).

b = 0.251 is the direct effect coefficient of the intervening variable perceived value (Z) on the dependent variable customer satisfaction (Y).

Sa = 0.015 is the Standard Error of a

Sb = 0.057 is the Standard Error of b

The following is the calculation of the standard error of the direct effect coefficient as follows:

$$S_{ab} = \sqrt{(0.251)^2(0.057)^2 + (0.619)^2(0.015)^2 + (0.015)^2(0.057)^2}$$
$$S_{ab} = \sqrt{0.0002047 + 0.0000862 + 0.0000007}$$
$$S_{ab} = \sqrt{0.0000292}$$
$$S_{ab} = 0.017077$$

In order to test the significance of the indirect effect, it needs to be calculated by using the t value of the ab coefficient with the formula:

$$t = \frac{ab}{Sab}$$

If the t count value compared to the t table is greater, it can be concluded that there is a mediation effect. The following is a test by using the formula:

$$t = \frac{0{,}1554}{0{,}017077}$$
$$t = 9{,}09801$$

From the calculation above, it can be seen that the resulting tcount is 9.09801 which is greater than ttable with a significance level of 0.05 that is 1.97993. These results explain that the intervening parameters are said to be significant. With these results, it can be concluded that logistics service quality can have an indirect influence on customer satisfaction through perceived value.

5. Discussion

5.1 Influence of Service Quality Logistics (X) on Perceived Value (Z)

Based on the test results above, it shows that the tcount value is 16,772 which are greater than the value of ttable (1.66). Moreover, the significance value shows 0.000 which means that it is smaller than the probability of 0.05 so that it can be said that logistics service quality has a direct and significant influence on perceived value (Z). With perceived value, it will be an evaluation matter for customers to enjoy whether a service provided is appropriate for a certain cost. In order to obtain this assessment, sacrifices are also required which will later become a measure of the services provided. The results of this study support the opinion of Rehman (2012) and Yousef et al. (2018) which supports his explanation that quality logistics service is provided in which it is expected to be accepted by customers as an evaluation in order to increase perceived value to customers.

5.2 Influence of Perceived Value (Z) on Customer Satisfaction (Y)

Based on the research results above, it shows that the tcount value of 10,805 is greater than the ttable value of (1.66). Furthermore, the significance value shows 0.000 which means that the value is greater than the probability value of 0.05 so that it can be said that perceived value has a direct and significant influence on customer satisfaction. These results indicate that assessing the extent to which perceived value influences the level of customer satisfaction. The better the perceived value provided, the greater the possibility that customers will feel high satisfaction. It supports the

explanation given by Hapsari et al (2017) and Suhartanto et al (2013) which explain customer benchmarks to compare the sacrifices or costs given in order to get benefits when using delivery services.

5.3 The influence of Logistics Service Quality (X) on Customer Satisfaction (Y).

Based on the research results above, it shows that the tcount of 6,293 is greater than the ttable value of (1.66). Moreover, the significance value shows 0.000 which means that it is greater than the probability value of 0.05 so that it can be said that logistics service quality has a direct and significant influence on customer satisfaction. These results support the opinion which had been stated by Daniel et al (2018) and Monique et al (2017) that customer satisfaction depends on the company's confidence in providing preferred services/products consistently in the future. In addition, customers can assess whether customer expectations can be met and in accordance with the services/products provided.

6. Conclusion

From the results of this study, overall the logistics service quality provided by e-commerce providers can be said to be relatively good since even though the delivery distance is quite long, it can still meet customer expectations. With differences in terms of gender and age aspects for sending products to customers, the quality aspect of focusing on customers is still fulfilled with timeliness and accurate quality information. If the customer dissatisfy with the service provided, the customer still will continue to use the delivery service.

However, the company continues to improve its service by providing guarantees for compensation or several things which are caused by the company's losses in the hope of reducing problems that are still lacking for customers; besides, the company continues to improve employees service by conducting regular training and development in order to improve quality and improve the service provided directly to customers.

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