Eduvest – Journal of Universal Studies
Volume 5 Number 02, February, 2025
p- ISSN 2775-3735- e-ISSN 2775-3727

MEDIATING EFFECT OF ONLINE SHOPPING SATISFACTION BETWEEN ONLINE SHOPPING EXPERIENCE AND CUSTOMER LOYALTY

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ABSTRACT

This study wants to know what factors influence customer satisfaction which can lead to loyalty in the online shopping context by looking at the phenomena and problems faced by customers. The previous research was used as literature for this study with a quantitative method to see the impact of independent variables on the dependent variable and descriptive analysis for regression results. The authors pointed out factors of e-fulfillment: condition, timeliness, availability, ease of return, e-business quality, and product quality have effects on the satisfaction and loyalty of customers in online shopping. The sample for this study still does not adequately describe the population because it only uses snowball sampling. This study can help online shop owners, entrepreneurs, researchers, and students to get literature on e-fulfillment factors that can affect customer satisfaction and make repeat transactions. This study modifies the e-fulfillment factors that influence customer satisfaction and loyalty in the context of online shopping in Indonesia.

KEYWORDS *e-business quality, product quality, availability, timeliness, condition, ease of return, delivery, e-fulfilment, product quality, customer satisfaction, customer loyalty*

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INTRODUCTION

Digital commerce has revolutionized purchasing behaviors, prompting an exhaustive review of how consumers engage with online retailers (Sur, 2018). A pivotal area of investigation is the relationship between a customer's online shopping experience and their loyalty to a specific e-commerce platform (Gallino & Moreno, 2018). Customer loyalty is multi-faceted, encompassing repeat purchasing behavior, resistance to competitors, and likely advocacy in the form of positive referrals (Al-Haraizah & Al-Nady, 2015). The consumer's experience,

How to cite: Bagus Rizaldi Ravsyanjani, et al. (2025). Mediating Effect of Online Shopping Satisfaction Between Online Shopping Experience and Customer Loyalty. *Journal Eduvest. 5*(2), 1467-1486
E-ISSN: 2775-3727

from website navigation to the fulfillment of orders, inherently shapes their perception of the brand and ultimately, their loyalty (Al-Adwan et al., 2020).

RESEARCH METHOD

A descriptive analysis of variables in this research was carried out to determine the minimum, maximum, median, standard deviation, and average (mean) values of each variable studied based on the results of the statements of 161 research respondents. To categorize the results of the average value of each variable, some criteria can be used to determine the class interval value.

Class Interval $= \frac{higest\ value - lowest\ value}{number\ of\ classes}$

In this research, the lowest assessment score was 1 and the highest assessment was 7. So, the assessment limits for each variable were obtained as follows:

Table 1. Classification Category Evaluation

Mark Mean Calculate	Category
1.00 – 1.86	Strongly Disagree
1.87 – 2.72	Disagree
2.73 – 3.57	Somewhat Disagree
3.56 – 4.41	Neutral
4.42 – 5.27	Somewhat Agree
5.28 – 6.13	Agree
6.14 – 7.00	Strongly Agree

Descriptive Analysis

The following are the results of the descriptive analysis in this research:

Table 2. Results of Descriptive Analysis of Research Variables

Variable Indicator	Min	Max	Median	Standard Deviation	Mean	Information
E-Business Quality					**6.09**	**Agree**
EBQ1	1	7	7	1.40	6.11	Agree
EBQ2	1	7	6	1.25	6.05	Agree
EBQ3	1	7	6	1.21	6.12	Agree
EBQ4	1	7	7	1.37	6.05	Agree
EBQ5	1	7	6	1.31	6.02	Agree
EBQ6	1	7	7	1.23	6.19	Strongly agree
Product Quality					**5.74**	**Agree**
PQ1	1	7	6	1.34	5.55	Agree
PQ2	1	7	6	1.26	5.90	Agree
PQ3	1	7	6	1.28	5.98	Agree
PQ4	1	7	6	1.26	5.72	Agree

PQ5	1	7	6	1.39	5.56	Agree
Availability					**5.83**	**Agree**
AV1	1	7	6	1.37	5.83	Agree
AV2	1	7	6	1.35	5.78	Agree
AV3	1	7	6	1.37	5.78	Agree
AV4	1	7	6	1.38	5.80	Agree
AV5	1	7	6	1.36	5.80	Agree
AV6	1	7	6	1.28	5.98	Agree
Timeliness					**5.62**	**Agree**
TL1	1	7	6	1.41	5.55	Agree
TL2	1	7	6	1.40	5.56	Agree
TL3	1	7	6	1.36	5.56	Agree
TL4	1	7	6	1.30	5.62	Agree
TL5	1	7	6	1.29	5.80	Agree
Condition					**5.13**	**Somewhat Agree**
CN1	1	7	6	1.25	5.75	Agree
CN2	1	7	6	1.27	5.67	Agree
CN3	1	7	4	2.04	3.99	Neutral
Ease of Return					**5.62**	**Agree**
EOR1	1	7	6	1.30	5.65	Agree
EOR2	1	7	6	1.27	5.67	Agree
EOR3	1	7	6	1.31	5.51	Agree
EOR4	1	7	6	1.25	5.56	Agree
EOR5	1	7	6	1.22	5.62	Agree
EOR6	1	7	6	1.32	5.63	Agree
EOR7	1	7	6	1.23	5.70	Agree
Customer Satisfaction					**5.87**	**Agree**
CS1	1	7	6	1.32	5.91	Agree
CS2	1	7	6	1.26	5.92	Agree
CS3	1	7	6	1.23	5.83	Agree
CS4	1	7	6	1.19	5.82	Agree
Customer Loyalty					**6.14**	**Strongly agree**
CL1	1	7	6	1.22	6.12	Agree
CL2	1	7	6	1.06	6.13	Agree
CL3	1	7	6	1.10	6.16	Strongly agree

Source: SmartPLS.4.0 Data Processing Results

Based on Table 2 above, the distribution of respondents' answers or responses to the E-Business Quality variable shows an average index value of 6.09 with the

highest E-Business Quality variable is EBQ6 which has an average value of 6.19. The Product Quality variable shows an average index value of 5.74 with the highest is the Product Quality variable PQ3 which has an average value of 5.98. The Availability variable shows an average index value of 5.83, with the highest in the Availability variable being AV6 which has an average value of 5.98. The Timeliness variable shows an average index value of 5.62, which has an average value of 5.80. The Condition variable shows an average index value of 5.13 with the highest in the Condition variable being CN2 with the statement which has an average value of 5.67. The Ease of Return variable shows an average index value of 5.62 with the highest Ease of Return variable being EOR7 which has an average value of 5.70. The Customer Satisfaction variable shows an average index value of 5.87 with the highest Customer Satisfaction variable being CS2. The Customer Loyalty variable shows an average index value of 6.14 with the highest Customer Loyalty variable being CL3 which has an average value of 6.16.

RESULT AND DISCUSSION

Results of Partial Least Square Data Analysis - Structural Equation Modelling (PLS-SEM)

In this research, the data analysis method used is Partial Least Square Structural Equation Modelling (PLS-SEM) analysis using SmartPLS Version 4 software. The series of data management processes includes testing measurement models and testing structural models.

Evaluation of the Measurement Model

The first stage of analysis uses PLS-SEM is test the measurement model. Evaluation of the measurement model aims to see the validity of the indicators (convergent validity and discriminant validity) and the reliability of the construct.

Convergent Validity Testing

Convergent validity testing aims to test whether the indicator variable used is truly significant in reflecting the construct or latent variable. A reflective indicator is said to be valid if the outer loading/factor loading value is greater than 0.7 (J. Hair & Alamer, 2022). This means that if the reflective indicator has an outer loading value of less than 0.7, it will be removed and retested. The statistical results of the measurement model validity test can be seen in the following table:

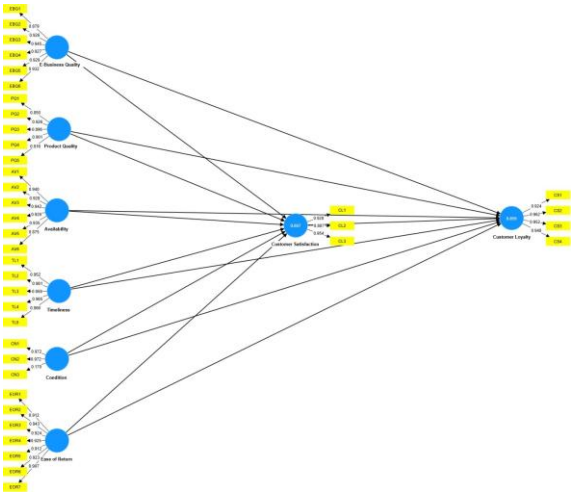

Figure 1. Path Diagram Measurement (Outer Loading) Model for All Indicators

Source: SmartPLS.4.0 Data Processing Results

Table 3. Validity Test Results for All Indicators Based on Outer Loading

Variable	Indicator	Outer Loading	Information
Availability	AV1	0.94	Valid
	AV2	0.928	Valid
	AV3	0.942	Valid
	AV4	0.926	Valid
	AV5	0.935	Valid
	AV6	0.875	Valid
Customer Satisfaction	CL1	0.928	Valid
	CL2	0.887	Valid
	CL3	0.954	Valid
Condition	CN1	0.972	Valid
	CN2	0.972	Valid
	CN3	0.17	Invalid
Customer Loyalty	CS1	0.924	Valid
	CS2	0.962	Valid
	CS3	0.952	Valid
	CS4	0.948	Valid
E-Business Quality	EBQ1	0.879	Valid
	EBQ2	0.926	Valid
	EBQ3	0.945	Valid
	EBQ4	0.927	Valid
	EBQ5	0.929	Valid
	EBQ6	0.932	Valid
Ease of Return	EOR1	0.912	Valid
	EOR2	0.943	Valid

	EOR3	0.924	Valid
	EOR4	0.925	Valid
	EOR5	0.912	Valid
	EOR6	0.923	Valid
	EOR7	0.907	Valid
Product Quality	PQ1	0.85	Valid
	PQ2	0.926	Valid
	PQ3	0.896	Valid
	PQ4	0.901	Valid
	PQ5	0.816	Valid
Timeliness	TL1	0.952	Valid
	TL2	0.961	Valid
	TL3	0.959	Valid
	TL4	0.965	Valid
	TL5	0.866	Valid

Source: SmartPLS.4.0 Data Processing Results

Based on the results of the measurement model in Table XXX, it states that there is one indicator that has an outer loading/factor loading value of less than 0.7, namely CN3 of 0.17 in the latent variable Condition. Thus, this indicator was deleted or removed from the research model, and the test was carried out again, with the following results:

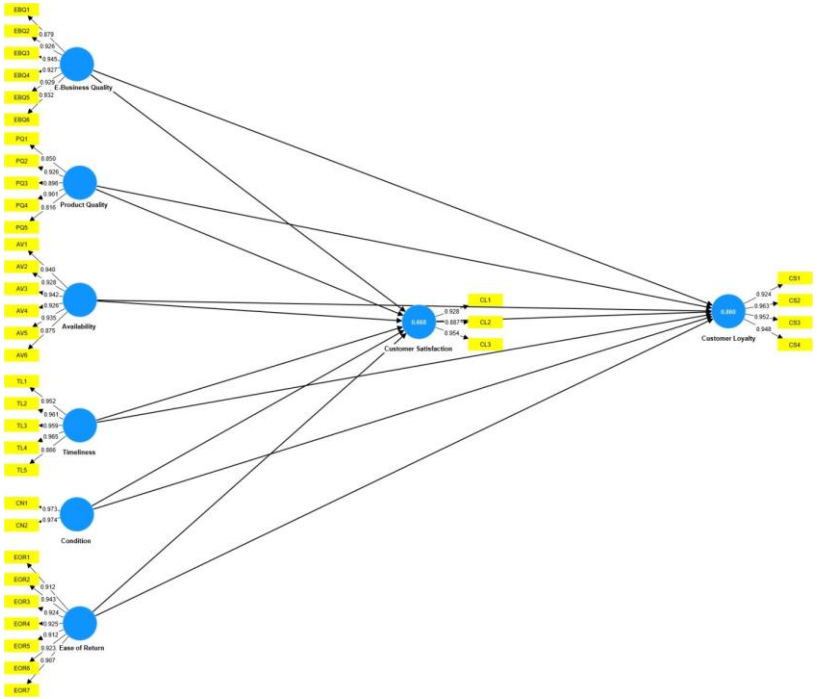

Figure 3. Path Diagram Measurement Model Valid Indicator
Source: SmartPLS.4.0 Data Processing Results

Table 4. Convergent Validity Test Results Valid Indicators Based on Outer Loading

Variable	Indicator	Outer loadings	Information
Availability	AV1	0.940	Valid
	AV2	0.928	Valid
	AV3	0.942	Valid
	AV4	0.926	Valid
	AV5	0.935	Valid
	AV6	0.875	Valid
Customer Satisfaction	CL1	0.928	Valid
	CL2	0.887	Valid
	CL3	0.954	Valid
Condition	CN1	0.973	Valid
	CN2	0.974	Valid
Customer Loyalty	CS1	0.924	Valid
	CS2	0.963	Valid
	CS3	0.952	Valid
	CS4	0.948	Valid
E-Business Quality	EBQ1	0.879	Valid
	EBQ2	0.926	Valid
	EBQ3	0.945	Valid
	EBQ4	0.927	Valid
	EBQ5	0.929	Valid
	EBQ6	0.932	Valid
Ease of Return	EOR1	0.912	Valid
	EOR2	0.943	Valid
	EOR3	0.924	Valid
	EOR4	0.925	Valid
	EOR5	0.912	Valid
	EOR6	0.923	Valid
	EOR7	0.907	Valid
Product Quality	PQ1	0.850	Valid
	PQ2	0.926	Valid
	PQ3	0.896	Valid
	PQ4	0.901	Valid
	PQ5	0.816	Valid
Timeliness	TL1	0.952	Valid
	TL2	0.961	Valid
	TL3	0.959	Valid
	TL4	0.965	Valid
	TL5	0.866	Valid

Source: SmartPLS.4.0 Data Processing Results

Based on the results of the measurement model in Table XXX, states that all indicators have an outer loading/factor loading value of more than 0.7. Thus, it can be stated that the model has met convergent validity.

Apart from that, convergent validity tests are carried out by looking at the AVE (Average Variance Extracted) value. It is declared that the construct meets convergent validity if the construct's AVE value is more than 0.5 (J. F. Hair et al., 2019). The following are the results of the convergent validity analysis in this research:

Table 5. Results of Convergent Validity Testing of Models Based on AVE

Variable	The average variance extracted (AVE)	Information
Availability	0.855	Valid
Condition	0.948	Valid
Customer Loyalty	0.896	Valid
Customer Satisfaction	0.852	Valid
E-Business Quality	0.852	Valid
Ease of Return	0.848	Valid
Product Quality	0.772	Valid
Timeliness	0.887	Valid

Source: SmartPLS.4.0 Data Processing Results

Based on the results of the convergent validity test produced in Table XXX, shows that the behavioral and perception variables have an AVE value greater than 0 . 5. Thus all variables have met convergent validity.

Discriminant Validity Testing

Discriminant validity is carried out to ensure that each concept of each latent variable is different from other variables. Discriminant validity can be seen through the Fornell-Lacker Criterion test, believe that the model has good discriminant validity if the squared AVE value of each exogenous construct (value on the diagonal) exceeds the correlation between that construct and other constructs (values below the diagonal) (Garson, 2016). The results of the Fornell Larcker criterion test are obtained as follows:

Table 6. Results of Discriminant Validity Testing Based on the Fornell-Lacker Criterian

	Availability	Condition	Customer Loyalty	Customer Satisfaction	E-Business Quality	Ease of Return	Product Quality	Timeliness
Availability	**0.925**							
Condition	0.803	**0.973**						

Customer Loyalty	0.840	0.858	**0.947**					
Customer Satisfaction	0.746	0.744	0.814	**0.923**				
E-Business Quality	0.847	0.729	0.786	0.768	**0.923**			
Ease of Return	0.757	0.778	0.790	0.657	0.664	**0.921**		
Product Quality	0.858	0.773	0.846	0.735	0.841	0.765	**0.879**	
Timeliness	0.879	0.860	0.842	0.723	0.762	0.742	0.787	**0.942**

Source: SmartPLS.4.0 Data Processing Results

Based on the results of the Fornell Larcker criterion test in Table XXX, it can be seen that the square root value of AVE for each construct is greater than the correlation value between the construct and other constructs in the model. So the discriminant validity requirements have been met.

Reliability Testing

Reliability tests are carried out to determine the level of internal consistency of indicators in measuring certain latent constructs or variables. Good reliability the questionnaire is used as a reliable and consistent research tool if Cronbach's Alpha value and Composite Reliability are more than 0.70. The statistical results of the reliability test can be seen in the following table:

Table 7. Reliability Testing Results

Variable	Cronbach's Alpha	Composite Reliability	Information
Availability	0.966	0.972	Reliable
Condition	0.945	0.973	Reliable
Customer Loyalty	0.961	0.972	Reliable
Customer Satisfaction	0.913	0.945	Reliable
E-Business Quality	0.965	0.972	Reliable
Ease of Return	0.97 0	0.975	Reliable
Product Quality	0.926	0.944	Reliable
Timeliness	0.968	0.975	Reliable

Source: SmartPLS.4.0 Data Processing Results

Table 7 shows that all research variables have Cronbach's Alpha values and Composite Reliability is more than 0.7. Thus, it can be concluded that all constructs or variables in this research have met the required reliability so that the analysis can be carried out to the next stage, namely the structural model.

Evaluation of the Structural Model

The second part of the PLS-SEM analysis, namely the structural model, consists of evaluating the structural model and the level of significance of the path coefficient. Structural model evaluation is carried out to ensure that the structural model built is robust and accurate by looking at several indicators including the model suitability test (Goodness of Fit) through the value Standardized Root Mean Square Residuals (SRMR), Q-Square predictive relevance (Q^2), and R-Square coefficient of determination (R^2). Furthermore, the evaluation of the structural model also looks at the level of significance of the path coefficients used for hypothesis testing, namely predicting the relationship between latent variables.

Testing the Standardized Root Mean Square Residual (SRMR) Value

After fulfilling the requirements in the measurement model, the goodness of fit model is then carried out. The suitability of the PLS model can be seen from the Standardized Root Mean Square Residual (SMRM) value of the model. The PLS model is declared to have met the Goodness of fit criteria or the model is declared fit if the SRMR value is <0.1 (Schermelleh-Engel et al., 2003). The following are the results of the SRMR values in the PLS model of this research:

Table 8. Standardized Root Mean Square Residual (SMRM) Values

	Saturated Model	Estimated Model
SRMR	0.0 51	0.0 51

Source: PLS.3.0 Processing Results

The Goodness of fit model test results in Table 8 show that the SRMR value in the saturated model and estimated model is 0.051 (<0.1) . Both values are less than 0.1. Thus, it can be concluded that the model is declared fit and suitable for use to test the research hypothesis.

Testing the Predictive Relevance Value (Q^2)

Q-Square Predictive Relevance (Q^2) in PLS (Partial Least Square) analysis shows the predictive power of the model. A Q^2 model value of more than 0 indicates the model has good predictive relevance, while a Q^2 value of less than 0 indicates the model lacks predictive relevance (Sarstedt et al., 2021). According to Garson (2016), if n the predictive relevance value is Q^2 more than 0.02 to 0.15 indicates the predictive relevance of the model is weak; between 0.15 to 0.35 indicates the model's predictive relevance is moderate; above 0.35 indicates that the predictive relevance validity of the model is strong.

Table 9. Q Square Predictive Relevance Value ($Q^{2)}$

Endogenous Variables	Q^2	Information
Customer Satisfaction	0.552	*the good and high predictive relevance* value
Customer Loyalty	0.754	*the good and high predictive relevance* value

Source: SmartPLS.4.0 Data Processing Results

Based on Table 9, it is obtained that the endogenous variable Customer Satisfaction has a Q^2 value of 0.552, and the endogenous variable Customer Loyalty has a Q^2 value of 0.754. The calculation results show that the predicted relevance value (Q^2) for both endogenous variables is more than 0. Thus, it can be said that the model has relevant predictive value or model fit and is worthy of hypothesis testing.

Coefficient of determination R Square (R^2)

The coefficient of determination R Square (R^2) shows how much the exogenous variable explains the endogenous variable. The R^2 value is zero to one. If the R^2 value is closer to one, then the independent variables provide all the information needed to predict variations in the endogenous variables. On the other hand, the smaller the R^2 value approaches 0, the more limited the ability of the independent variables to explain variations in endogenous variables. According to Sarstedt et al., (2020), the R^2 value is categorized as strong if it is more than 0.67, moderate or moderate if it more than 0.33 but lower than 0.67, and weak if more than 0.19 but lower than 0.33. The results of the coefficient of determination R^2 for this study are in Table 10 below.

Table 10. R Square Value (R^2)

Endogenous Variables	R Square (R^2)	Criteria
Customer Satisfaction	0.668	Currently
Customer Loyalty	0.860	Tall

Source: SmartPLS Data Processing Results.4

Based on Table 10, it can be stated that E-Business Quality, Product Quality, Availability, Timeliness, Condition, and Ease of Return simultaneously moderately influence the Customer Satisfaction variable, namely 0.668 or 66.8%, while the remaining 33.2% is influenced by other factors outside model. Furthermore, E-Business Quality, Product Quality, Availability, Timeliness, Condition, Ease of Return, and Customer Satisfaction simultaneously highly influence the Customer Loyalty variable, namely 0.860 or 86%, while the remaining 14% is influenced by other factors outside the model.

Path Coefficient Significance Level (Hypothesis Testing)

Analysis of the significance level of path coefficients in PLS-SEM was carried out using the bootstrapping technique which aims to determine the direction of the relationship and the significance of the relationship between exogenous latent variables and endogenous latent variables. Assessment of the relationship between exogenous latent variables and endogenous latent variables is carried out by looking at the t-statistic value or p-value. The decision-making in PLS-SEM analysis for the two-way hypothesis with a 5% significance test is if the value $|\text{t-statistic}| \geq 1.96$ or significance value (p-value) ≤ 0.05, then reject H0 or accept H1, which means that there is an exogenous variable that has a significant effect on the endogenous

variable. Conversely, if the value |t-statistic| < 1.96 or significance value (p-value) > 0.05 then accept H0 or accept H1, which means the influence of exogenous variables has no significant effect on endogenous variables. The complete structural or inner model test results are explained in Figure XXX and Table XXX:

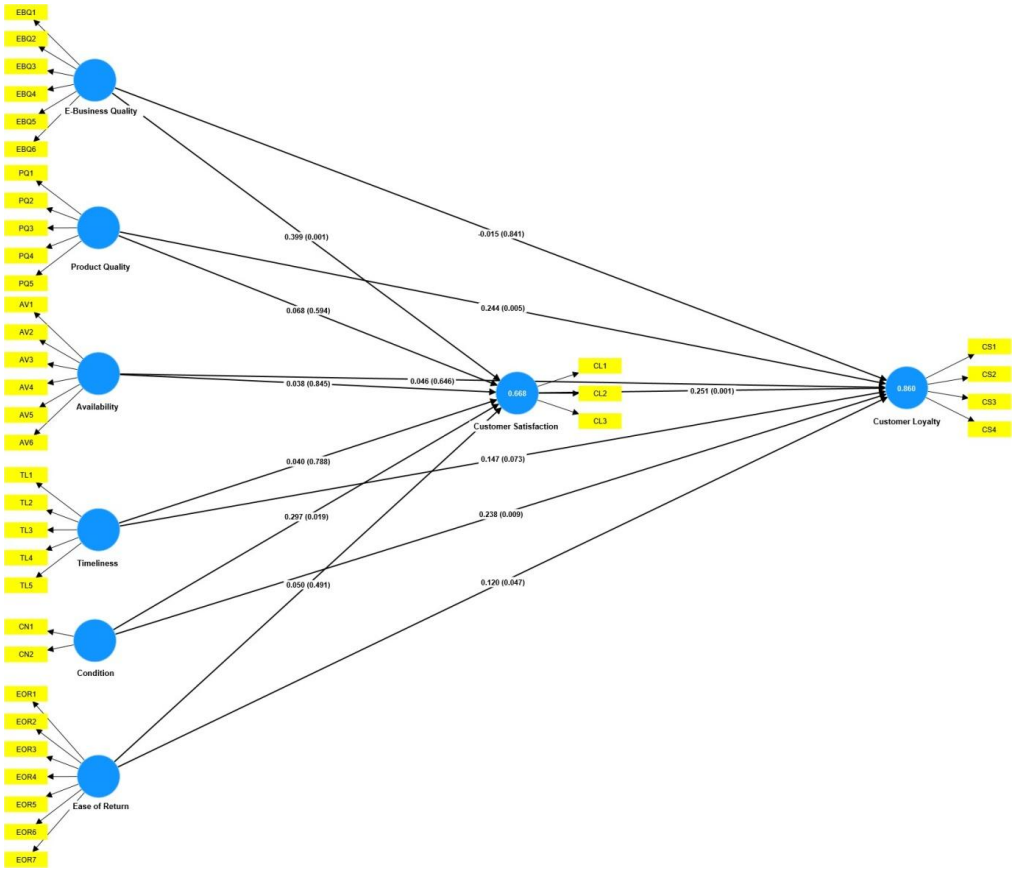

Figure 4. Path Diagram Path Coefficient & P-Value Structural Model
Source: SmartPLS.4.0 Data Processing Results

Table 11. Results of Direct Influence Hypothesis Testing

	Path	Path Coefficient (Original Sample)	T statistics	P values
H1	E-Business Quality -> Customer Satisfaction	0.399	3,533	0.001 *
H2	Product Quality -> Customer Satisfaction	0.068	0.534	0.594
H3	Availability -> Customer Satisfaction	0.038	0.196	0.845
H4	Timeliness -> Customer Satisfaction	0.040	0.269	0.788
H5	Condition -> Customer Satisfaction	0.297	2,373	0.019 *

H6	Ease of Return -> Customer Satisfaction	0.050	0.691	0.491
H7	Customer Satisfaction -> Customer Loyalty	0.251	3,475	0.001 *
H8	E-Business Quality -> Customer Loyalty	-0.015	0.201	0.841
H9	Product Quality -> Customer Loyalty	0.244	2,839	0.005 *
H 10	Availability -> Customer Loyalty	0.046	0.460	0.646
H11	Timeliness -> Customer Loyalty	0.147	1,803	0.073
H12	Condition -> Customer Loyalty	0.238	2,662	0.009 *
H13	Ease of Return -> Customer Loyalty	0.120	1,998	0.047 *

***: Significant at α=5% (p-value ≤ 0.05)**

Source: SmartPLS.4.0 Data Processing Results

Based on the hypothesis test table, the direct influence can be seen:

H1: E-business quality has a significant influence on customer satisfaction

Based on Table XXX in E-Business Quality -> Customer Satisfaction, the N value is obtained t statistics of 3.533 (≥1.96) with a p-value of 0.001 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that E-Business Quality has a significant influence on Customer Satisfaction. Thus, the first research hypothesis (H1) which suspects that "E-Business Quality has a Significant Influence on Customer Satisfaction " is accepted or the data supports the hypothesis. Furthermore, the positive path coefficient value is 0.399, which means that E-Business Quality has a positive effect on Customer Satisfaction.

H 2: Product Quality Has a Significant Influence on Customer Satisfaction

Based on Table in Product Quality -> Customer Satisfaction, the N value is obtained t statistics of 0.534 (< 1.96) with a p-value of 0.594 (>0.05). So, according to decision-making using the 5% significance test, it can be concluded that Product Quality does not have a significant influence on Customer Satisfaction. Thus, the second research hypothesis (H 2) which suspects that "Product Quality has a Significant Influence on Customer Satisfaction " is rejected or the data does not support the hypothesis

H 3: Availability has a significant influence on customer satisfaction

Based on Table in Availability -> Customer Satisfaction, the N value is obtained t statistics of 0.196 (<1.96) with a p-value of 0.845 (>0.05). So, according to decision-making using the 5% significance test, it can be concluded that Availability does not have a significant influence on Customer Satisfaction. Thus, the third research hypothesis (H 3) which suspects that "Availability has a significant influence on customer satisfaction " is rejected or the data does not support the hypothesis.

H 4: Timeliness has a significant influence on customer satisfaction

Based on Table in Timeliness -> Customer Satisfaction, the N value is obtained t statistics of 0.269 (<1.96) with a p-value of 0.788 (>0.05). So, according

to decision-making using the 5% significance test, it can be concluded that Timeliness does not have a significant influence on Customer Satisfaction. Thus, the fourth research hypothesis (H 4) which suspects that "Timeliness Has a Significant Influence on Customer Satisfaction " is rejected or the data does not support the hypothesis.

H 5: Conditions have a significant influence on customer satisfaction

Based on Table in Condition -> Customer Satisfaction, the N value is obtained t statistics of 2.373 (≥1.96) with a p-value of 0.019 (≤0.05). So, according to decision-making using the 5% significance test, it can be concluded that Condition has a significant influence on Customer Satisfaction. Thus, the fifth research hypothesis (H 5) which suspects that "Conditions Have a Significant Influence on Customer Satisfaction " is accepted or the data supports the hypothesis. Furthermore, the positive path coefficient value is 0.297, which means that the Condition has a positive effect on Customer Satisfaction.

H 6: Ease of Return Has a Significant Influence on Customer Satisfaction

Based on Table in Ease of Return -> Customer Satisfaction, the N value is obtained t statistics of 0.691 (<1.96) with a p-value of 0.491 (>0.05). So, according to decision-making using the 5% significance test, it can be concluded that Ease of Return does not have a significant influence on Customer Satisfaction. Thus, the sixth research hypothesis (H 6) which suspects that "Ease of Return has a Significant Influence on Customer Satisfaction" is rejected or the data does not support the hypothesis.

H 7: Customer Satisfaction Has a Significant Influence on Customer Loyalty

Based on Table in Customer Satisfaction -> Customer Loyalty, the N value is obtained t statistics of 3.475 (≥1.96) with a p-value of 0.001 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Customer Satisfaction has a significant influence on Customer Loyalty. Thus, the seventh research hypothesis (H 7) which suspects that "Customer Satisfaction has a Significant Influence on Customer Loyalty " is accepted or the data supports the hypothesis. Furthermore, the positive path coefficient value is 0.251, which means that Customer Satisfaction has a positive effect on Customer Loyalty.

H 8: E-Business Quality Has a Significant Influence on Customer Loyalty

Based on Table in E-Business Quality -> Customer Loyalty, the N value is obtained t statistics of 0.201 (< 1.96) with a p-value of 0.841 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that E-Business Quality does not have a significant influence on Customer Loyalty. Thus, the eighth research hypothesis (H8) which suspects "E-Business Quality has a Significant Influence on Customer Loyalty" is rejected or the data does not support the hypothesis.

H 9: Product Quality Has a Significant Influence on Customer Loyalty

Based on Table in Product Quality -> Customer Loyalty, the N value is obtained t statistics of 2.839 (≥ 1.96) with a p-value of 0.005 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Product Quality has a significant influence on Customer Loyalty. Thus, the ninth research hypothesis (H 9) which suspects that " Product Quality has a Significant Influence on Customer Loyalty" is accepted or the data supports the

hypothesis. Furthermore, the positive path coefficient value is 0.244, which means that Product Quality has a positive effect on Customer Loyalty.

H 10: Availability has a significant influence on customer loyalty

Based on table in Availability -> Customer Loyalty, the N value is obtained t statistics of 0.460 (< 1.96) with a p-value of 0.646 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Availability does not have a significant influence on Customer Loyalty. Thus, the tenth research hypothesis (H 10) which suspects "Availability has a significant influence on customer loyalty" is rejected or the data does not support the hypothesis

H 11: Timeliness has a significant influence on customer loyalty

Based on table in Timeliness -> Customer Loyalty, the N value is obtained t statistics of 1.803 (< 1.96) with a p-value of 0.073 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Timeliness does not have a significant influence on Customer Loyalty. Thus, the eleventh research hypothesis (H 11) which suspects that "Timeliness has a Significant Influence on Customer Loyalty" is rejected or the data does not support the hypothesis.

H 12: Conditions Have a Significant Influence on Customer Loyalty

Based on table in Condition -> Customer Loyalty, the N value is obtained t statistics of 2.662 (≥ 1.96) with a p-value of 0.009 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Condition has a significant influence on Customer Loyalty. Thus, the twelfth research hypothesis (H 12) which suspects "Conditions Have a Significant Influence on Customer Loyalty" is accepted or the data supports the hypothesis. Furthermore, the positive path coefficient value is 0.238, which means that the Condition has a positive effect on Customer Loyalty.

H 13: Ease of Return Has a Significant Influence on Customer Loyalty

Based on Table in Ease of Return -> Customer Loyalty, the N value obtained t statistics is 1.998 (≥ 1.96) with a p-value of 0.047 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Ease of Return does not have a significant influence on Customer Loyalty. Thus, the thirteenth research hypothesis (H 13) which suspects that "Ease of Return has a Significant Influence on Customer Loyalty" is accepted or the data supports the hypothesis. Furthermore, the positive path coefficient value is 0.120, which means that Ease of Return has a positive effect on Customer Loyalty.

Table 12. Mediation Hypothesis Testing Results

	Path	Path Coefficient (Original Sample)	T statistics	P values
H 14	E-Business Quality -> Customer Satisfaction -> Customer Loyalty	0.100	2,425	0.016 *

H 15	Product Quality -> Customer Satisfaction -> Customer Loyalty	0.017	0.502	0.617
H 16	Availability -> Customer Satisfaction -> Customer Loyalty	0.010	0.195	0.846
H 17	Timeliness -> Customer Satisfaction -> Customer Loyalty	0.010	0.25 0	0.803
H 18	Condition -> Customer Satisfaction -> Customer Loyalty	0.074	1.79 0	0.075
H 19	Ease of Return -> Customer Satisfaction -> Customer Loyalty	0.013	0.632	0.528

***: Significant at α=5% (p-value ≤ 0.05)**

Source: SmartPLS.4.0 Data Processing Results

Based on the mediation hypothesis test table, it can be seen:

H 14: Customer Satisfaction Mediates the Effect of E-Business Quality on Customer Loyalty

Based on Table in E-Business Quality -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 2.425 (≥ 1.96) with a p-value of 0.016 (≤ 0.05). So, according to decision-making using the 5% significance test, it can be concluded that E-Business Quality has a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction mediates the influence of E-Business Quality on Customer Loyalty. Thus, the fourteenth research hypothesis (H14) which suspects that " Customer Satisfaction Mediates the Effect of E-Business Quality on Customer Loyalty " is accepted or data supports the hypothesis.

H 15: Customer Satisfaction Mediates the Effect of Product Quality on Customer Loyalty

Based on Table in Product Quality -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 0.502 (< 1.96) with a p-value of 0.617 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Product Quality does not have a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction does not mediate the influence of Product Quality on Customer Loyalty. Thus, the fifteenth research hypothesis (H15) which suspects that " Customer Satisfaction Mediates the Effect of Product Quality on Customer Loyalty " is rejected. or the data does not support the hypothesis

H 16: Customer Satisfaction Mediates the Effect of Availability on Customer Loyalty

Based on Table in Availability -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 0.195 (< 1.96) with a p-value of 0.846 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Availability does not have a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction does not mediate the influence of Availability on Customer Loyalty. Thus, the sixteenth

research hypothesis (H16) which suspects that "Customer Satisfaction Mediates the Effect of Availability on Customer Loyalty " is rejected. or the data does not support the hypothesis.

H 17: Customer Satisfaction Mediates the Effect of Timeliness on Customer Loyalty

Based on Table in Timeliness -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 0.25 0 (< 1.96) with a p-value of 0.803 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Timeliness does not have a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction does not mediate the influence of Timeliness on Customer Loyalty. Thus, the seventeenth research hypothesis (H17) which suspects that " Customer Satisfaction Mediates the Effect of Timeliness on Customer Loyalty " is rejected. or the data does not support the hypothesis

H 18: Customer Satisfaction Mediates the Effect of Conditions on Customer Loyalty

Based on Table in Condition -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 1.79 0 (< 1.96) with a p-value of 0.075 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Conditions do not have a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction does not mediate the influence of Conditions on Customer Loyalty. Thus, the eighteenth research hypothesis (H1 8) which suspects that " Customer Satisfaction Mediates the Influence of Conditions on Customer Loyalty " is rejected. or the data does not support the hypothesis.

H 19: Customer Satisfaction Mediates the Effect of Ease of Return on Customer Loyalty

Based on Table in Condition -> Customer Satisfaction -> Customer Loyalty, the t statistics value is 0.632 (< 1.96) with a p-value of 0.528 (> 0.05). So, according to decision-making using the 5% significance test, it can be concluded that Conditions do not have a significant effect on Customer Loyalty through Customer Satisfaction, or it could be said that Customer Satisfaction does not mediate the influence of Conditions on Customer Loyalty. Thus, the nineteenth research hypothesis (H19) which suspects that " Customer Satisfaction Mediates the Effect of Conditions on Customer Loyalty" is rejected. or the data does not support the hypothesis

The following summary of the results of this research hypothesis decision is shown in Tablebelow:

Table 13. Results of Comparison of Hypothetical Decisions of Direct Influence and Mediation Influence

Direct Influence Relationship				Mediating Influence Relationships			
Direct	**Path Coeff**	**P values**	**Note**	**Mediation**	**Path Coeff**	**P values**	**Note**
E-Business	-0.015	0.841	Not significant	E-Business Quality ->	0.100	0.016 *	Significant

Quality -> Customer Loyalty				Customer Satisfaction -> Customer Loyalty			
Product Quality -> Customer Loyalty	0.244	0.005 *	Significant	Product Quality -> Customer Satisfaction -> Customer Loyalty	0.017	0.617	Not significant
Availability -> Customer Loyalty	0.046	0.646	Not significant	Availability -> Customer Satisfaction -> Customer Loyalty	0.010	0.846	Not significant
Timeliness -> Customer Loyalty	0.147	0.073	Not significant	Timeliness -> Customer Satisfaction -> Customer Loyalty	0.010	0.803	Not significant
Condition -> Customer Loyalty	0.238	0.009 *	Significant	Condition -> Customer Satisfaction -> Customer Loyalty	0.074	0.075	Not significant
Ease of Return -> Customer Loyalty	0.120	0.047 *	Significant	Ease of Return -> Customer Satisfaction -> Customer Loyalty	0.013	0.528	Not significant

***: Significant at α=5% (p-value ≤ 0.05)**

H1: E-business quality has a significant influence on customer satisfaction=accepted

According to Indriastuti, et.al 2022, they found that e-service quality has an influence on customer satisfaction, (Shafie & bazargan, 2018) mentioned that e-service quality has a direct significant impact on customer satisfaction.

H 2: Product Quality Has a Significant Influence on Customer Satisfaction

H 3: Availability has a significant influence on customer satisfaction

H 4: Timeliness has a significant influence on customer satisfaction

H 5: Conditions have a significant influence on customer satisfaction= accepted

H6: Ease of Return Has a Significant Influence on Customer Satisfaction

H 7: Customer Satisfaction Has a Significant Influence on Customer Loyalty= accepted

H 8: E-Business Quality Has a Significant Influence on Customer Loyalty

H 9: Product Quality Has a Significant Influence on Customer Loyalty ====accepted

H 10: Availability has a significant influence on customer loyalty ==== rejected
H 11: Timeliness has a significant influence on customer loyalty ==== rejected
H 12: Conditions Have a Significant Influence on Customer Loyalty ==== accepted
H 13: Ease of Return Has a Significant Influence on Customer Loyalty ======== accepted
H 14: Customer Satisfaction Mediates the Effect of E-Business Quality on Customer Loyalty ===== accepted
H 15: Customer Satisfaction Mediates the Effect of Product Quality on Customer Loyalty ==== rejected
H 16: Customer Satisfaction Mediates the Effect of Availability on Customer Loyalty =====rejected
H 17: Customer Satisfaction Mediates the Effect of Timeliness on Customer Loyalty ===== rejected
H 18: Customer Satisfaction Mediates the Effect of Conditions on Customer Loyalty===== Rejected
H 19: Customer Satisfaction Mediates the Effect of Ease of Return on Customer Loyalty ==== Rejected

CONCLUSION

This study examined the factors that influence customer satisfaction and loyalty in online shopping by analyzing various e-fulfillment aspects, including e-business quality, product quality, availability, timeliness, condition, and ease of return. The findings highlight that e-business quality and customer satisfaction significantly impact customer loyalty, confirming that a positive shopping experience directly leads to greater customer retention and repeat transactions. Specifically, customer satisfaction mediates the influence of e-business quality on customer loyalty, reinforcing the importance of creating a seamless and satisfying online shopping experience. However, certain factors such as product quality, availability, and timeliness did not show significant influence on customer satisfaction or loyalty when tested in isolation.

The study provides valuable insights for online retailers to enhance their service offerings. Improving areas such as website functionality, ease of return, and ensuring high product quality can lead to better customer satisfaction, which in turn drives customer loyalty. Despite the positive findings, limitations such as the sample size and method of data collection (snowball sampling) were acknowledged, suggesting that future studies should employ broader sampling techniques to ensure more generalizable results. Overall, this research emphasizes the integral role of customer satisfaction as a mediator in fostering long-term customer loyalty within the online shopping environment.

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