



Research Article

The Role of E-Satisfaction in Mediating the Relationship of E-Service Quality on E-Loyalty

(A Study on Bukalapak E-Commerce Application Users in Denpasar)

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Abstract: The advancement of information technology has transformed consumption patterns, including shopping activities that have increasingly shifted to digital platforms or e-commerce. Bukalapak, as one of the early players in this industry, is currently facing challenges in the form of declining market share and user complaints related to digital service quality (e-service quality). This research aims to analyze the effect of electronic service quality on consumer loyalty (e-loyalty), with electronic satisfaction (e-satisfaction) as a mediating variable among Bukalapak users in Denpasar City. The sampling technique employed a non-probability sampling method with a purposive sampling approach, and the number of samples was determined based on the number of indicators used. The research findings indicate that electronic service quality has a positive and significant effect on both user satisfaction and user loyalty. Electronic satisfaction is also proven to significantly affect user loyalty and serves as a partial mediator in the relationship between service quality and loyalty. These findings affirm that improving the quality of digital services can enhance customer satisfaction and ultimately build loyalty toward the Bukalapak platform.

Keywords: Bukalapak Users; Digital Services; E-Loyalty; E-Satisfaction; E-Service Quality

1. Introduction

Advancements in technology and information have driven changes in human behavior toward digitalization. The development of the internet and technology has made Indonesian society accustomed to using online shopping sites or e-commerce platforms to purchase goods (Hendrayanti & Pratama, 2021). Data released by Databoks also shows the development of e-commerce in Indonesia. The number of users and the penetration rate of e-commerce in Indonesia are predicted to continue increasing until 2023 and projected to reach 75 percent. As of 2020, more than 10 e-commerce platforms operate in Indonesia, one of which is Bukalapak. Bukalapak is one of the marketplaces that has been operating in Indonesia since 2011. Bukalapak conducts its business operations using a customer-to-customer (C2C) business model, allowing sellers to directly sell products to consumers through the Bukalapak website or application. Bukalapak is a marketplace founded by an Indonesian entrepreneur, Achmad Zaky, in 2010. At its inception, the company carried a vision to create a trading system that could improve the quality of MSMEs in Indonesia, with the spirit of expanding economic access that can be felt by all levels of society. Until today, Bukalapak remains one of the marketplaces most frequently visited by Indonesian consumers. However, Bukalapak users have expressed dissatisfaction with the application, such as slow performance after updates and a less optimal visual layout design that causes user confusion. Several communication channels provided by Bukalapak—such as live chat, product review features, and a frequently asked questions (FAQ) feature—also do not sufficiently help consumers in resolving

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transaction-related complaints, based on feedback from 32 individuals who frequently shop on e-commerce platforms. The results of the pre-survey are presented in Table 1 below.

Table 1. Pre-Survey.

Question	Answer
Do you like shopping on e-commerce platforms?	100% Yes (32 people) 0% No (0 people)
What do you usually buy online?	71.9% (23 people) Clothing 6.3% (2 people) Electronic /gadgets 12.5% (4 people) Food 9.4% (3 people) Phone credit/electricity tokens
Which e-commerce platform do you currently use?	84.4% (27 people) Shopee 15.6% (5 people) Tokopedia
Why do you use that e-commerce platform?	46.8% (15 people) easy to use 31.2% (10 people) Fast Delivery 12.5% (4 people) Variety of products 9.5% (3 people) Many promotions
Have you ever used another e-commerce platform?	90.6% (29 people) Yes 9.4% (3 people) No
Which e-commerce platform do you use most often?	62.1% (18 people) Tokopedia 34.5% (10 people) Lazada 3.4% (1 person) Bukalapak
Which e-commerce platform do you rarely use?	46.9% (15 people) Bukalapak 25% (8 people) Blibli 18.8% (6 people) Lazada 6.3 (2 people) Tokopedia 3.1% (1 person) Shopee
Have you ever used Bukalapak?	53.1% (17 people) No 46.9% (15 people) Yes
What do you think is Bukalapak's advantage?	50% (16 people) Easy to use 25% (8 people) Sellers perceived as more trusted 25% (8 people) Variety of products
What do you think is Bukalapak's disadvantage?	60% (20 people) Slow delivery 40% (12 people) Lack of promotions

Source: Primary Data (Processed, 2024).

Table 1 shows the pre-survey results based on 32 respondents (100 percent) conducted in Denpasar City. The results also show that most respondents prefer conducting transactions on e-commerce platforms. It was found that 23 respondents prefer to purchase clothing online, two respondents prefer to buy electronics or gadgets, four respondents prefer to buy food, and three respondents prefer to buy phone credit or electricity tokens. Regarding the purchase of clothing on e-commerce platforms, the results indicate that all respondents who buy clothing prefer e-commerce platforms. Furthermore, 27 out of 32 respondents prefer using Shopee, while five respondents prefer Tokopedia. The reasons for choosing a particular e-commerce platform include: 15 respondents stated that the application is easier to use, 10 respondents cited faster delivery, four respondents mentioned variety of products, and three respondents highlighted the availability of promotions. Based on the answers from the pre-survey above, it can be concluded that e-satisfaction and e-service quality have the effect on e-loyalty.

Based on the phenomenon identified, the aspects of e-service quality on Bukalapak provide a less positive experience for its users, particularly aspects related to speed and ease of use. Users reported that the transaction process and service responses on the Bukalapak platform tend to be slow and complicated, thereby reducing convenience and effectiveness in online shopping. When an e-commerce site offers ease in searching for products, fast access, and suitability with user needs, consumers will have a positive shopping experience which will

lead to satisfaction (Riza & Sutopo, 2017). Satisfied consumers will be interested in making repeat purchases and gradually become loyal customers (Fang et al., 2011). Customer loyalty is a commitment to repurchase or subscribe to preferred products or services (Kotler & Keller, 2012). Consumer loyalty is one of the key factors in strengthening market competitiveness and achieving sustainable competitive advantage (Choi & Mai, 2018), and in online businesses this is known as e-loyalty.

The e-satisfaction factor in this research is used as a mediating variable, based on the consideration that electronic loyalty (e-loyalty) can increase when users of electronic services are more satisfied (Pradnyaswari & Aksari, 2020). E-satisfaction is an important element in market competition and contributes to forming consumer loyalty (Zeglat et al., 2016). According to Tobagus (2019), e-service quality also has a direct relationship with e-satisfaction; an increase in e-service quality will lead to a rise in e-satisfaction. The findings of Pudjarti et al. (2019) state that e-service quality has a positive and significant effect on e-satisfaction, meaning that the better and higher the quality of service provided by e-commerce platforms, the more satisfied consumers will be.

E-loyalty is the intention of consumers to revisit a website, which indicates their interest in a company and potentially leads to repeat purchases (Kartono & Halilah, 2019). E-satisfaction refers to the experience felt by customers after using a product and comparing what they expect with what they actually receive (Prasmara et al., 2018).

E-service quality is the service provided through the internet network as an extension of a website's capability to facilitate shopping, purchasing, and distribution effectively and efficiently (Wu, 2014). In addition, e-service quality is one of the most widely studied topics in marketing due to its relationship with cost, satisfaction, retention, and loyalty (Gounaris et al., 2010)).

Table 2. Market Share of E-Commerce Marketplaces in Indonesia in 2023.

Ranking	Marketplace	Market Share
1	Shopee	36%
2	Tokopedia	35%
3	Lazada	14%
4	Blibli	6%
5	Bukalapak	4%

Source: SimilarWeb (Data processed, 2024).

According to SimilarWeb data, at the end of 2023 Bukalapak again became the marketplace with the lowest market share in Indonesia, amounting to only 4 percent. Shopee and Tokopedia remain the two strongest marketplaces in Indonesia. Both continue to innovate and offer various attractive features to attract buyers and sellers. Lazada is also making efforts to increase its market share through various promotions and appealing programs. Blibli is likewise making improvements to enhance its competitiveness. Based on data cited from mojok.co, the issues experienced by Bukalapak include the lack of marketing techniques and insufficient company branding, which have resulted in the loss of market share. These factors have placed Bukalapak in the lowest position in the Indonesian e-commerce marketplace market share in 2023.

Based on the phenomenon identified, the aspects of e-service quality on the Bukalapak application provide a less positive experience for its users. When an e-commerce site offers convenience in accordance with user needs, consumers tend to have a positive shopping experience and feel satisfied (Riza & Sutopo, 2017). Consumers who feel satisfied will be interested in making repeat purchases and gradually become loyal consumers (Fang et al., 2011). This statement is supported by the results of the pre-survey conducted on 32 individuals, which showed that 16 respondents stated that the Bukalapak application was easy to use, 8 respondents indicated that sellers on Bukalapak were more trusted based on reviews,

and 8 respondents continued to use Bukalapak because it offered a wide variety of products. Customer loyalty is a commitment to repurchase or subscribe to preferred products or services (Kotler & Keller, 2012). Consumer loyalty is one of the key factors for strengthening market competitiveness and enhancing sustainable competitive advantage (Choi & Mai, 2018), which in the context of online business is known as e-loyalty.

According to Romadhoni et al. (2015), e-service quality and e-satisfaction are variables that play a key role in building customer loyalty in online stores. Service quality in the online environment (e-service quality) is essential in determining the success or failure of electronic commerce (Santika & Pramudana, 2018), as online shoppers do not assess physical elements of a company and instead evaluate the services provided digitally. Research conducted by Purnamasari (2018), Gusandara (2019), and Santika & Pramudana (2018) found that e-service quality has a positive and significant effect on e-loyalty in e-commerce usage. However, different results were found in research by Melinda (2017), which stated that e-service quality does not have a significant effect on e-loyalty.

The e-satisfaction factor in this research is used as a mediating variable, based on the consideration that electronic loyalty (e-loyalty) can increase when users of electronic services become more satisfied (e-satisfaction) (Pradnyaswari & Aksari, 2020). E-satisfaction is an important aspect in market competition and plays a role in forming consumer loyalty (Zeglat et al., 2016). According to Tobagus (2019), e-service quality also has a direct relationship with e-satisfaction; if there is an improvement in e-service quality, there will be an increase in e-satisfaction. Findings by Pudjarti et al. (2019) state that e-service quality has a positive and significant effect on e-satisfaction, meaning that the better and higher the quality of services provided by an e-commerce platform, the more satisfied consumers will feel.

2. Method

This study employs a survey research design with a questionnaire as the primary instrument to obtain information from respondents representing the population of Bukalapak users in Denpasar City. The research location was chosen because Denpasar has the highest internet access rate in the Province of Bali, making it relevant for assessing e-service quality, e-satisfaction, and e-loyalty. The variables used in this study include e-service quality as the independent variable, e-satisfaction as the mediating variable, and e-loyalty as the dependent variable, each of which is operationally defined through relevant indicators based on the literature. (Sudaryo et al., 2019; Sugiyono, 2019; BPS Bali Province, 2023)

The population of this research consists of residents of Denpasar City who have used Bukalapak, with the exact number unknown; therefore, a non-probability purposive sampling method was applied. The number of samples was determined based on the total number of indicators, which amounted to 13, resulting in 130 respondents. The collected data include qualitative data in the form of respondents' perceptions and quantitative data such as variable rating scores. Data were collected using an online questionnaire via Google Form, distributed through social media, with a Likert scale ranging from 1 to 5. The instrument was tested using confirmatory factor analysis for validity and Cronbach's Alpha for reliability, and all variables met the required instrument quality standards. (Rahyuda, 2020; Ghazali, 2016; Sugiyono, 2019)

Data analysis was conducted using descriptive statistics to describe respondents' characteristics and perceptions, and inferential statistics through classical assumption tests and path analysis to examine direct and indirect relationships among variables. Normality, multicollinearity, and heteroscedasticity tests were conducted to ensure the feasibility of the regression model prior to hypothesis testing. Subsequently, path analysis was used to examine the mediating role of e-satisfaction in the relationship between e-service quality and e-loyalty, with data processing performed using SPSS and mediation verification conducted through the Sobel test. (Utama, 2016; Ghazali, 2016; Sugiyono, 2019)

3. Results And Discussion

General Overview of the Research Site

Bukalapak is one of the leading digital-based buying and selling companies in Indonesia. Adopting a marketplace and online mall business model, Bukalapak enables individuals, small shops, and brands to open and manage online stores. Bukalapak carries a new slogan, #Bikinasik, because Bukalapak intends to provide a pleasant and exciting transaction experience for both sellers and buyers using the platform.

Bukalapak was established in February 2010 by Achmad Zaky as the CEO of Bukalapak. At that time, Bukalapak was founded as a division of a digital agency called Suitmedia located in Jakarta. Bukalapak officially became a Limited Liability Company (PT) in September 2011 under the leadership of Achmad Zaky as CEO and Nugroho Herucahyono as CTO.

One year after its establishment, Bukalapak received funding from Batavia Incubator, which was then a joint venture company of Rebright Partners. In 2012, Bukalapak obtained funding from GREE Ventures, led by Kuan Hsu.

In 2014, specifically on March 18, after announcing investments from Aucfan, GREE Ventures, and 500 Startups, Bukalapak launched its first Android-based application. The application, known as mobile 50 Bukalapak, was created to make it easier for sellers to access their online stalls and conduct transactions using smartphones. Four months after its launch, the Bukalapak application had been downloaded by more than 87 thousand Bukalapak users.

Bukalapak continued to maintain a good reputation in terms of customer service even though it had only been established for three years; moreover, the ease of accessing the website also contributed to strengthening Bukalapak's reputation. Over time, Bukalapak consistently advanced by introducing new innovations to facilitate users in conducting transactions through Bukalapak. In 2015, based on the financial report of EMTEK, which at that time held 49% of Bukalapak's shares, it was noted that Bukalapak received an investment fund of Rp. 439 billion from EMTEK. However, in that same year, Bukalapak experienced a loss of Rp. 229 billion, while revenue amounted to only Rp. 6.4 billion. Despite experiencing losses, Bukalapak has managed to survive until today by continuously introducing various innovations that attract more users who wish to conduct online transactions more conveniently.

Respondent Characteristics

Table 3. Respondent Characteristics.

Characteristics	Classification	Number (people)	Percentage (%)
Gender	Male	52	40.0
	Female	78	60.0
Total		130	100
Age	18-24 Years	68	52.3
	25-31 Years	57	43.8
	32-38 Years	5	3.8
Total		130	100
Occupation	Student	67	51.5
	Civil Servant	6	4.6
	Private employees	38	29.2
	Entrepreneur	19	14.6
Total		130	100

Source:(Data processed, 2025).

The respondent characteristics presented in Table 3 show that the sample consisted of 130 individuals with the following characteristics:

Based on gender, it can be identified that respondents with male gender totaled 52 people with a percentage of 40 percent, while respondents with female gender totaled 78

people with a percentage of 60 percent. Based on this, it can be concluded that respondents with female gender dominated this research.

Based on age, it can be identified that respondents aged 18–24 years totaled 68 people with a percentage of 52.3 percent, respondents aged 25–31 years totaled 57 people with a percentage of 43.8 percent, and respondents aged 32–38 years totaled 5 people with a percentage of 3.8 percent. Based on this description, it can be concluded that respondents aged 18–24 years dominated this research.

Based on occupation, it can be identified that respondents whose occupation is Student totaled 67 people with a percentage of 51.5 percent, respondents with the occupation of Civil Servant totaled 6 people with a percentage of 4.6 percent, respondents with the occupation of Private Employee totaled 38 people with a percentage of 29.2 percent, and respondents with the occupation of Entrepreneur totaled 19 people with a percentage of 14.6 percent. Therefore, it can be concluded that respondents whose occupation is Student dominated this research.

Description of Research Variables

The description of research variables aims to provide an overview of each variable presented through descriptive statistics. This study uses survey data collection techniques with a questionnaire instrument; therefore, respondents' answers need to be presented in the description of research variables. The score for each indicator is divided into 5 categories based on the following calculation.

$$\text{Interval Value} = \frac{\text{Highest score} - \text{Lowest score}}{\text{interval}}$$

$$= \frac{5-1}{5} = 0,80$$

The measurement criteria used are as follows:

Table 4. Variable Description Criteria.

Average Score	Criteria		
	E-Service Quality	E-Satisfaction	E-Loyalty
1.00 - 1.80	Very Bad	Very Low	Very Low
1.81 - 2.60	Not good	Low	Low
2.61 - 3.40	Enough	Enough	Enough
3.41 - 4.20	Good	Tall	Tall
4.21 - 5.00	Very good	Very high	Very high

Source: (Sugiyono, 2019: 206).

E-Service Quality

Table 5. Description of E-Service Quality.

Indicators/Statement		Respondents' Answers (people)					Amount	Average	Criteria
		1	2	3	4	5			
X1	The Bukalapak application is easy to access without experiencing technical difficulties.	0	20	28	33	49	501	3.85	Good
X2	The Bukalapak application provides features that facilitate shopping, such as product search.	0	7	32	21	70	544	4.18	Good
X3	The Bukalapak application always provides the products users are looking for without stock shortages.	1	21	34	42	32	473	3.64	Good
X4	The transaction process on Bukalapak is equipped with	0	17	26	23	64	524	4.03	Good

	adequate security systems such as passwords, fingerprint, PIN, and similar features.									
X5	The Bukalapak application provides fast responses to user requests, such as questions or complaints.	1	19	36	45	29	472	3.63	Good	
X6	Bukalapak provides an adequate return service guarantee if the product received does not match.	0	18	30	36	46	500	3.85	Good	
X7	Bukalapak has a 24-hour customer service to assist users' issues.	0	20	29	34	47	498	3.83	Good	
Total Average Score of E-Service Quality Variable								3.86	Good	

Source: (Data processed, 2025).

Based on Table 5, it is known that respondents' perceptions of the e-service quality variable have a total average value of 3.86, which falls under the good category. This indicates that respondents generally have a positive assessment of the e-service quality offered by Bukalapak. The lowest average score is found in the statement: "The Bukalapak application provides fast responses to user requests, such as questions or complaints," with an average score of 3.63, categorized as good. This means that respondents generally feel that the Bukalapak application has not fully provided fast responses to user inquiries or complaints. The highest average score is found in the statement: "The Bukalapak application provides features that facilitate users in shopping, such as product search and category filters," with an average score of 4.18, categorized as good. This indicates that respondents generally feel that Bukalapak provides helpful features that make the shopping process easier.

E-Satisfaction

Table 6. Description of E-Satisfaction.

Indicators/Statements		Respondents' Answers (person)					Amount	Average	Criteria
		1	2	3	4	5			
M1	Users find it easy to provide suggestions to Bukalapak through the available system.	0	2	33	14	81	564	4.34	Very high
M2	Users find it easy to interact with Bukalapak services like a regular customer.	0	26	36	51	17	449	3.45	Tall
M3	Bukalapak has an effective method of contacting customers who have stopped shopping.	0	25	25	50	30	475	3.65	Tall
M4	Users feel satisfied with their shopping experience on the Bukalapak application.	6	18	25	33	48	489	3.76	Tall
Total Average Score of E-Satisfaction Variable								3.80	Tall

Source: (Data processed, 2025).

Based on Table 6, respondents' perceptions of the e-satisfaction variable show a total average value of 3.80, which falls into the high category, indicating that respondents generally have high levels of e-satisfaction. The lowest average score is found in the statement: "Users find it easy to interact with Bukalapak's system and services like a regular customer," with an average score of 3.45 (high). This means that respondents, in general, do not yet fully feel that interacting with Bukalapak's system and services is easy. The highest average score is found in the statement: "Users find it easy to provide suggestions or feedback to Bukalapak through

the available system,” with an average score of 4.34 (very high). This indicates that respondents generally feel that giving input or suggestions to Bukalapak is very easy through the system provided.

E-Loyalty

Table 7. Description of E-Loyalty.

Indicators/Statements	Respondents' Answers (person)					Amount	Average	Criteria
	1	2	3	4	5			
Y1 Sharing positive shopping experiences on Bukalapak with friends and family.	8	15	27	48	32	471	3.62	High
Y2 Users' recommendations about Bukalapak can influence my friends' decisions to shop there.	11	12	45	32	27	445	3.42	High
Overall Average Score of E-loyalty Variable							3.52	High

Source: (Data processed, 2025).

Based on Table 7, it is known that respondents' perceptions regarding the e-loyalty variable have an overall average score of 3.52, which falls into the high criteria. This indicates that respondents have high e-loyalty toward the Bukalapak e-commerce platform. The respondents' assessment of the e-loyalty variable with the lowest average score is the statement: “Users feel that my positive recommendations about Bukalapak can influence my friends' decisions to shop there,” with an average score of 3.42, which is within the high criteria. This means that, in general, respondents do not fully feel that their positive recommendations about Bukalapak can influence their friends' shopping decisions. The respondents' assessment of the e-loyalty variable with the highest average score is the statement: “Users often share positive shopping experiences on Bukalapak with friends and family,” with an average score of 3.62, which is within the high criteria. This means that, in general, respondents often share positive shopping experiences on Bukalapak with friends and family.

Inferential Analysis Results

Classical Assumption Test

A regression model will produce accurate parameter estimations if it meets the classical regression assumptions, which include the normality test, multicollinearity test, and heteroscedasticity test.

Normality Test

Table 8. Normality Test Results.

Equality	Asymp. Sig. (2-tailed)	Kolmogorov-Smirnov Z
Structure 1	0.200	
Structure 2	0.200	

Source: (Data processed, 2025).

Based on the normality test using the One-Sample Kolmogorov-Smirnov Test shown in Table 8, the Asymp. Sig. (2-tailed) value for both tests is 0.200. Since these values are greater than 0.05, the data used in this study are normally distributed. Therefore, it can be concluded that the model meets the normality assumption.

Multicollinearity Test**Table 9.** Multicollinearity Test Results.

Equality	Model	Collinearity Statistics	
		Tolerance	VIF
Structure 2	E-service quality	0.551	1,815
	E-satisfaction	0.551	1,815

Source: Processed data, 2025).

Based on Table 9, none of the independent variables have a tolerance value below 0.10, and no variable has a VIF value above 10. Therefore, the regression model is free from multicollinearity issues.

Heteroscedasticity Test**Table 10.** Heteroscedasticity Test Results.

Equality	Model	t	Sig.
Structure 1	E-service quality	-1,308	0.193
	E-service quality	1,024	0.308
Structure 2	E-satisfaction	-1,098	0.274

Source: (Data processed, 2025).

Based on Table 10, all models have significance values greater than 0.05. Thus, this study is free from heteroscedasticity symptoms.

Path Analysis Results

The variables analyzed consist of E-service quality (X), E-satisfaction (M), and E-loyalty (Y). Path analysis can only be applied if certain assumptions have been fulfilled. The steps in testing the formulated hypotheses using path analysis are as follows.

Formulating the hypotheses and structural equations

The first step in path analysis is formulating the hypotheses and structural model based on existing theories.

- E-service quality has a positive and significant effect on e-loyalty among Bukalapak e-commerce users in Denpasar.
- E-service quality has a positive and significant effect on e-satisfaction among Bukalapak e-commerce users in Denpasar.
- E-satisfaction has a positive and significant effect on e-loyalty among Bukalapak e-commerce users in Denpasar.
- E-satisfaction is a mediating variable in the effect of e-service quality on e-loyalty among Bukalapak e-commerce users in Denpasar.

Based on the formulated hypotheses, the structural equation for Structure 1 can be expressed as follows.

$$M = \beta_2 X + e_1$$

Meanwhile, the structural equation for Structure 2 can be expressed as follows.

$$Y = \beta_1 X + \beta_3 M + e_2$$

In this study, the effect of e-service quality on e-satisfaction was calculated using SPSS 26.0 for Windows. The results of the first structural analysis are presented in Table 11.

Table 11. Path Analysis Results for Structure 1.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5,706	0.959		5,948	0,000
E-service quality	0.352	0.034	0.670	10,216	0,000

R2 : 0.449

Source: processed primary data, 2025.

Based on the path analysis in Table 11, the structural equation for Structure 1 is as follows:

$$M = \beta_2 X + e_1$$

$$M = 0.670X + e_1$$

This structural equation can be interpreted as follows:

The e-service quality variable has a coefficient of 0.670, meaning that e-service quality has a positive effect on e-satisfaction. This indicates that when e-service quality increases, e-satisfaction will also increase.

In this study, the effect of e-service quality and e-satisfaction on e-loyalty was calculated using SPSS 26.0 for Windows. The results of the second structural analysis are presented in Table 12.

Table 12. Path Analysis Results for Structure 2.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.364	0.704		0.517	0.606
E-service quality	0.067	0.030	0.200	2,210	0.029
E-satisfaction	0.321	0.057	0.505	5,594	0,000
R2 : 0.430					

Source: processed primary data, 2025.

Based on the path analysis in Table 12, the structural equation for Structure 2 is as follows:

$$Y = \beta_1 X + \beta_3 M + e_2$$

$$Y = 0.200X + 0.505M + e_2$$

This structural equation can be interpreted as follows:

The e-service quality variable has a coefficient of 0.200, meaning that e-service quality has a positive effect on e-loyalty. This indicates that when e-service quality increases, e-loyalty will also increase. The e-satisfaction variable has a coefficient of 0.505, meaning that e-satisfaction has a positive effect on e-loyalty. This indicates that when e-satisfaction increases, e-loyalty will increase.

Diagram Form of Path Coefficients

a. Direct effect

A direct effect occurs when one variable affects another variable without any mediating variable.

- 1) The effect of e-service quality on e-loyalty is 0.200.
- 2) The effect of e-service quality on e-satisfaction is 0.670.
- 3) The effect of e-satisfaction on e-loyalty is 0.505.

b. Indirect effect

An indirect effect occurs when another variable mediates the relationship between two variables. The effect of e-service quality on e-loyalty with e-satisfaction as a mediating variable is $0.670 \times 0.505 = 0.338$.

c. Total effect

To understand the total effect, the direct effect of e-service quality on e-loyalty of 0.200 is added to the indirect effect of e-service quality on e-loyalty through e-satisfaction of 0.338, resulting in $0.200 + 0.338 = 0.538$.

Testing the Coefficient of Determination (R^2) and Error Variables (e)

In this test, the coefficient of determination for structure 1 and structure 2 as well as the error values for each structure will be examined for the purpose of constructing the final path diagram model. The following are the results of the calculations for the error variables in each structure.

$$e_i = \sqrt{1 - R_i^2}$$

$$e_1 = \sqrt{1 - R_1^2} = \sqrt{1 - 0,449} = 0,742$$

$$e_2 = \sqrt{1 - R_2^2} = \sqrt{1 - 0,430} = 0,755$$

Based on the error (e) calculation, the error value for structure 1 (e1) is 0.742, and the error value for structure 2 (e2) is 0.755. Next, the total coefficient of determination is calculated as follows.

$$\begin{aligned} R^2_m &= 1 - (e_1)^2 (e_2)^2 \\ &= 1 - (0,742)^2 (0,755)^2 \\ &= 1 - (0,551) (0,570) \\ &= 1 - 0,314 = 0,686 \end{aligned}$$

Based on the total coefficient of determination value, which is 0.686, it can be concluded that 68.6% of the e-loyalty variable is influenced by e-service quality both directly and indirectly through e-satisfaction, while the remaining 31.4% is influenced by other variables not included in the research model or outside the model. Based on the explanation of the structural equations, the values of the path coefficients are derived from the standardized coefficient beta for each causal relationship between the variables. These path coefficient values are presented in Figure 1.

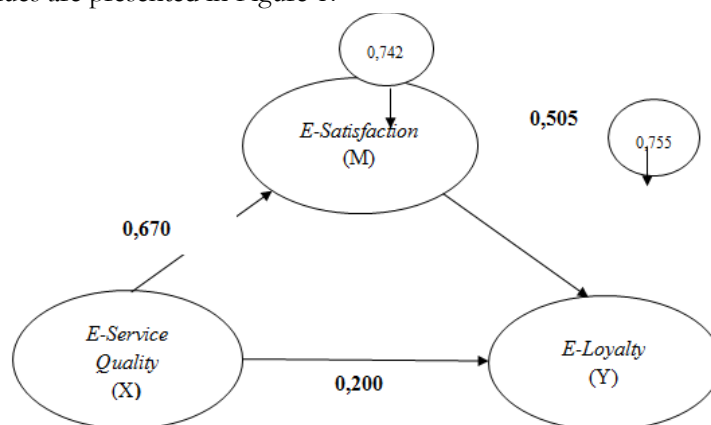


Figure 1. Path Analysis Model.

In Figure 1, the magnitude of the effect of e-service quality on e-satisfaction and e-loyalty is shown, as well as the magnitude of the effect of e-satisfaction on e-loyalty. Each coefficient presented corresponds to the standardized coefficient beta for each causal relationship, along with the respective error values from each structural equation.

Hypothesis testing

The criteria used to interpret the influence between variables are as follows:

If $\text{sig} \leq 0.05$ then H_0 is rejected and H_a is accepted.

If $\text{sig} > 0.05$ then H_0 is accepted and H_a is rejected.

a. The Effect of E-Service Quality on E-Loyalty

H_0 : E-service quality does not have a positive and significant effect on e-loyalty.

H_a : E-service quality has a positive and significant effect on e-loyalty.

Based on the results of the path analysis for Structure 2 in Table 4.10, e-service quality shows a Beta value of 0.200 and a Sig. value of 0.029. Therefore, H_0 is rejected and H_a is accepted because the Sig. value of $0.029 < 0.05$. Thus, it can be concluded that e-service quality has a positive and significant effect on e-loyalty. The first hypothesis in this study is proven..

b. The Effect of E-Service Quality on E-Satisfaction

H_0 : E-service quality does not have a significant positive effect on e-satisfaction.

H_a : E-service quality has a positive and significant effect on e-satisfaction.

Based on the results of the path analysis for Structure 1 in Table 4.9, e-service quality shows a Beta value of 0.670 and a Sig. value of 0.000. Therefore, H0 is rejected and Ha is accepted because the Sig. value of $0.000 < 0.05$. It can be concluded that e-service quality has a positive and significant effect on e-satisfaction. The second hypothesis in this study is proven.

c. The Effect of E-Satisfaction on E-Loyalty

H0: E-satisfaction does not have a positive and significant effect on e-loyalty.

Ha: E-satisfaction has a positive and significant effect on e-loyalty.

Based on the results of the path analysis for Structure 2 in Table 4.10, e-satisfaction shows a Beta value of 0.505 and a Sig. value of 0.000. Therefore, H0 is rejected and Ha is accepted because the Sig. value of $0.000 < 0.05$. It can be concluded that e-satisfaction has a positive and significant effect on e-loyalty. The third hypothesis in this study is proven.

Summarizing and Concluding

Table 13. Direct and Indirect Effects of E-Service Quality (X) on E-Satisfaction (M) and E-Loyalty (Y).

Variable Influence	Direct Effect	Indirect Effect Through M	Total Effect	Significance	Results
X→Y	0.200	0.338	0.538	0.030	0.029
X→M	0.670		0.670	0.034	0,000
M→Y	0.505		0.505	0.057	0,000

Source: processed primary data, 2025.

Table 13 presents a summary of the direct and indirect path effect values among variables as well as the error values for each structural equation produced through path analysis techniques. The following describes the meaning of the values in Table 13.

The Effect of E-Service Quality on E-Loyalty: The study conducted on Bukalapak e-commerce users in Denpasar regarding the effect of e-service quality on e-loyalty found that e-service quality has a direct effect on e-loyalty of 0.200 with a significance value of 0.029.

The Effect of E-Service Quality on E-Satisfaction: The study conducted on Bukalapak e-commerce users in Denpasar regarding the effect of e-service quality on e-satisfaction found that e-service quality has a direct effect on e-satisfaction of 0.670 with a significance value of 0.000.

The Effect of E-Satisfaction on E-Loyalty: The study conducted on Bukalapak e-commerce users in Denpasar regarding the effect of e-satisfaction on e-loyalty found that e-satisfaction has a direct effect on e-loyalty of 0.505 with a significance value of 0.000.

The Role of E-Satisfaction in Mediating the Effect of E-Service Quality on E-Loyalty: The study conducted on Bukalapak e-commerce users in Denpasar regarding the mediating role of e-satisfaction in the relationship between e-service quality and e-loyalty found that e-service quality has a direct effect on e-loyalty of 0.200, an indirect effect of 0.338, and a total effect of 0.538.

Sobel Test Results

The Sobel Test is conducted to examine the strength of the indirect effect of the independent variable (X) on the dependent variable (Y) through the mediating/intervening variable (M). Mediation hypothesis testing can be performed using the Sobel Test. This test is used to measure the strength of the indirect effect of e-service quality (X) on e-loyalty (Y) through e-satisfaction (M). The indirect effect of e-service quality (X) on e-loyalty (Y) through e-satisfaction (M) is calculated by multiplying the path coefficient from X to M (a) with the path coefficient from M to Y (b), or ab. The standard errors of coefficients a and b are written as Sa and Sb, respectively. These values are used to compute the standard error of the indirect effect. If the calculated Z-value is greater than 1.96 (with a 95% confidence level), the

mediating variable is considered to significantly mediate the relationship between the independent and dependent variables, indicating that H0 is rejected and Ha is accepted.

H0: E-satisfaction does not mediate the effect of e-service quality on e-loyalty.

Ha: E-satisfaction mediates the effect of e-service quality on e-loyalty.

$$Z = \frac{ab}{\sqrt{b^2 S_a^2 + a^2 S_b^2 + S_a^2 S_b^2}}$$

Given:

$$a = 0,670$$

$$S_a = 0,034$$

$$b = 0,505$$

$$S_b = 0,057$$

$$Z = \frac{0,670 \cdot 0,505}{\sqrt{(0,505^2 0,034^2) + (0,670^2 0,057^2) + (0,034^2 0,057^2)}}$$

$$Z = \frac{0,338}{0,042}$$

$$Z = 8,072$$

Based on the Sobel Test results, the calculated Z-value is 8.072, which is greater than 1.96. Therefore, H0 is rejected and Ha is accepted, meaning that e-satisfaction significantly mediates the relationship between e-service quality and e-loyalty among Bukalapak e-commerce users in Denpasar. Thus, the fourth hypothesis in this study is proven to be true.

VAF Test Results

Variance Accounted For (VAF) is a measure of how much of the direct effect is absorbed by the mediating variable. The VAF test is used to calculate the proportion between the indirect effect path coefficient and the total effect path coefficient. The formula for calculating the VAF value is as follows:

$$\text{VAF} = \frac{\text{Indirect Effect}}{\text{Pengaruirect Effect} + \text{Indirect Effect}}$$

$$= \frac{0,338}{0,200 + 0,338}$$

$$= 0.481 \text{ (48.1\%)}$$

Variance Accounted For (VAF) is a measure of how much the mediating variable is able to absorb the direct effect. The VAF value is calculated by comparing the indirect effect with the total effect (direct effect + indirect effect). Based on the calculation, the VAF value obtained is 48.1%, derived from $0.338 \div (0.200 + 0.338)$. According to the mediation criteria, a VAF value above 80% indicates full mediation, a value between 20%–80% indicates partial mediation, and a value below 20% indicates that the mediating effect is negligible. Since the VAF result in this study is 48.1%, which lies within the 20%–80% range, it can be concluded that e-satisfaction functions as a partial mediator in the relationship between e-service quality and e-loyalty among Bukalapak e-commerce users in Denpasar.

4. Discussion of Research Results

The Effect of E-Service Quality on E-Loyalty among Bukalapak E-Commerce Users in Denpasar

The results of the first hypothesis test in this study indicate that e-service quality has a positive and significant effect on e-loyalty. In other words, the better the e-service quality provided by Bukalapak e-commerce, the higher the e-loyalty of Bukalapak users in Denpasar. This first hypothesis is accepted. E-satisfaction is a fundamental variable or considered important because it can form e-loyalty (Purnamasari, 2018). The level of electronic customer satisfaction with a website will affect the magnitude of loyalty. This finding is consistent with the Expectation Confirmation Theory, which explains that expectations, combined with perceived performance, lead to consumer loyalty. E-service quality is the consumer's evaluation of the application's quality to see if it meets established expectations. Therefore,

when e-service quality performs well and meets consumer needs, it will positively influence e-loyalty among Bukalapak e-commerce users in Denpasar. This result aligns with research conducted by Wijitami & Octavia (2017), which stated that e-satisfaction has a positive and significant effect on e-loyalty. Similarly, Melinda (2017) concluded that customer e-satisfaction significantly affects e-loyalty. Studies by Purnamasari (2018), Gusandara (2019), and Santika & Pramudana (2018) also found that e-service quality has a positive and significant effect on e-loyalty in e-commerce usage.

The Effect of E-Service Quality on E-Satisfaction among Bukalapak E-Commerce Users in Denpasar

The results of the second hypothesis test in this study show that e-service quality has a positive and significant effect on e-satisfaction. This means that the better the e-service quality provided by Bukalapak e-commerce, the higher the e-satisfaction among Bukalapak users in Denpasar. The second hypothesis is accepted. This finding is consistent with the Expectation Confirmation Theory, which states that expectations combined with perceived performance lead to satisfaction. E-service quality is the consumer's evaluation of whether the application quality meets expectations. Therefore, when e-service quality performs well and fulfills consumer needs, it will positively influence e-satisfaction among Bukalapak users. This result aligns with research by Kim (2010), which stated that internet user satisfaction is influenced by e-service quality, with a positive and significant relationship. Al Hawari (2014) also reported that user satisfaction is influenced by e-service quality. Charles (2016) found that user satisfaction is positively and significantly affected by e-service quality. Tobagus (2019) also found a direct relationship between e-service quality and e-satisfaction: as e-service quality increases, e-satisfaction increases. Pudjarti et al. (2019) similarly found that e-service quality has a positive and significant effect on e-satisfaction, meaning that higher service quality in e-commerce leads to greater user satisfaction.

The Effect of E-Satisfaction on E-Loyalty among Bukalapak E-Commerce Users in Denpasar

The results of the third hypothesis test show that e-satisfaction has a positive and significant effect on e-loyalty. In other words, as e-satisfaction among Bukalapak users increases, e-loyalty also increases. This third hypothesis is accepted. This finding is consistent with the Expectation Confirmation Theory, which explains that expectations form the satisfaction perceived by consumers. E-satisfaction is the consumer's assessment of whether their experience meets expectations. High e-satisfaction will positively influence e-loyalty among Bukalapak users in Denpasar. E-satisfaction is important in market competition and simultaneously forms consumer loyalty (Zeglat et al., 2016). Satisfied consumers are more likely to repurchase and gradually become loyal customers (Fang et al., 2011). Customer loyalty refers to the commitment to repurchase or subscribe to a favored product or service (Kotler & Keller, 2012). This finding aligns with research by Sativa & Sri (2016), which found that higher e-satisfaction leads to higher e-loyalty. Hidayah (2021) also reported that e-satisfaction correlates with and affects e-loyalty. Therefore, e-satisfaction plays a crucial role in forming e-loyalty.

The Mediating Role of E-Satisfaction on the Effect of E-Service Quality on E-Loyalty among Bukalapak E-Commerce Users in Denpasar

The results of the fourth hypothesis test indicate that e-service quality affects e-loyalty with e-satisfaction as a mediator, making e-satisfaction a partial mediating variable. This shows that the better the e-service quality provided by Bukalapak e-commerce, the higher the e-satisfaction, and subsequently, the higher the e-loyalty of Bukalapak users in Denpasar. This fourth hypothesis is accepted. Expectation Confirmation Theory explains that expectations, combined with perceived performance, lead to satisfaction. E-service quality is the consumer's evaluation of whether the application quality meets expectations. High performance of e-service quality positively affects e-satisfaction, and satisfaction itself is derived from

confirmation and expectations of the product/service. When consumers' satisfaction is met, repeated purchases on the same e-commerce platform will likely occur, leading to customer loyalty. This finding aligns with Mariana & Fadli (2022), who reported that e-service quality affects e-loyalty through e-satisfaction. Mahdyvianra & Ramadani (2021) also found that e-satisfaction mediates the effect of e-service quality on e-loyalty.

5. Conclusion

Based on the research results obtained, several conclusions can be drawn as follows: E-service quality has a positive and significant effect on e-loyalty among Bukalapak e-commerce users in Denpasar. This result indicates that the better the e-service quality, the greater the impact on increasing e-loyalty among Bukalapak users in Denpasar. E-service quality has a positive and significant effect on e-satisfaction among Bukalapak e-commerce users in Denpasar. This result indicates that the better the e-service quality, the greater the impact on increasing e-satisfaction among Bukalapak users in Denpasar. E-satisfaction has a positive and significant effect on e-loyalty among Bukalapak e-commerce users in Denpasar. This result indicates that an increase in e-satisfaction will positively affect the enhancement of e-loyalty among Bukalapak users in Denpasar. E-satisfaction serves as a partial mediating variable in the effect of e-service quality on e-loyalty among Bukalapak e-commerce users in Denpasar. This result indicates that an improvement in e-service quality will increase e-satisfaction, and the increase in e-satisfaction, in turn, will enhance e-loyalty among Bukalapak users in Denpasar.

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