



## **The Effect of Service Quality, Products, Transaction Security, and Ease of Use of the Platform on Customer Satisfaction in E-Commerce**

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### **Abstract**

Data was collected through a survey involving 200 respondents (100 consumers and 100 entrepreneurs) from users of e-commerce platforms in Indonesia. Multiple linear regression analysis was employed to examine the relationships between variables in building customer trust and supporting satisfaction. Overall, the results of this study confirm that to create a satisfying shopping experience, e-commerce companies must pay attention to the balance between service quality, product, ease of use, and transaction security. The results of this study also show that customer trust in transaction security is an important factor that should not be ignored in increasing customer satisfaction and loyalty. Therefore, e-commerce companies need to invest in better security systems and transparent policies to protect customers' personal data and ensure smooth transactions.

**Keywords:** e-commerce; service quality; product quality; transaction security; customer satisfaction.

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### **INTRODUCTION**

The rapid development of information technology in the last two decades has changed many aspects of life, one of which is the way business is conducted. Growing digitalization provides new opportunities for companies to improve operational efficiency and market reach. In the business world, these changes are not only related to the production and distribution aspects, but also to how companies interact with consumers. Digital businesses, which include ecommerce, digital platforms, as well as internet-based services, are now the primary channel for many companies to sell their products and services. One of the most important aspects of digital business is how customer satisfaction can be maintained and improved, as high customer satisfaction plays an important role in increasing customer loyalty, reducing churn rates, and increasing a company's revenue potential (Khan et al., 2020).

Customer satisfaction is an important factor that determines the long-term success of a business, especially in today's highly competitive digital age. Most studies show that customer satisfaction is influenced by various factors, including product quality, ease of

access, transaction security, and the quality of services provided by the company. In the context of digital business, user experience is one of the main determinants that affect customer satisfaction. Intuitive interface design, website or application responsiveness, and fast and secure transaction processes greatly affect consumers' perception of the services they receive (Amin, 2016). Therefore, it is important for companies to optimize every element that makes up the user experience to maintain and improve customer satisfaction.

Customer satisfaction in digital business is not only seen from the quality of the products or services provided, but also how the company communicates and interacts with consumers. Effective digital marketing, such as personalizing promotions and communicating that suits consumer preferences, also plays an important role in creating positive experiences that lead to customer satisfaction. Research by Nidhi and Singh (2020) found that data-driven marketing strategies have a great influence on customer perception of the value they receive from the products or services offered. This shows that in digital business, aspects of digital communication and marketing need to be taken seriously to ensure continued customer satisfaction.

In addition, external factors such as data security and privacy are also important concerns for consumers in the context of digital businesses. Companies that can demonstrate a commitment to safeguarding customer data and providing a secure and reliable shopping experience will have a significant competitive advantage (Kim et al., 2018). Issues related to personal data security are one of the topics that are often discussed, especially after a number of large-scale data leaks that have disrupted consumer trust in digital companies. Therefore, building and maintaining consumer trust is one of the biggest challenges that entrepreneurs must face in digital business.

However, although digital technology provides many benefits, there are still major challenges that must be faced by business people. One of the key challenges is how to bridge the gap between rising consumer expectations and a company's ability to meet those expectations. For example, in Indonesia, which has varying levels of digital literacy, many consumers may face difficulties in using digital platforms that are not user-friendly. This creates inequities in the user experience that lead to lower levels of satisfaction, especially in areas with limited access to technology and the internet (Kharisma et al., 2022). In this case, the perspectives of both parties entrepreneurs and consumers are essential to understand in order to create a satisfying experience for consumers.

Despite extensive research on individual factors influencing customer satisfaction in e-commerce, a significant gap exists in understanding the simultaneous interaction effects of service quality, product quality, platform usability, and transaction security within the Indonesian e-commerce context. While previous studies have examined these factors in isolation or in limited combinations (Kumar & Garg, 2023; Müller et al., 2020), few have provided a comprehensive integrated model that captures their relative contributions and combined influence on customer satisfaction. This gap is particularly critical given the rapid growth of Indonesian e-commerce, which has unique characteristics including diverse digital literacy levels, varying trust perceptions, and specific cultural considerations that may differ from Western contexts where most existing research has been conducted. For this reason, this study aims to analyze the factors that affect customer satisfaction in the context of digital business, focusing on the perspectives of entrepreneurs and consumers.

The novelty of this research lies in its integrative approach that simultaneously examines four critical dimensions (service quality, product quality, platform usability, and transaction security) using a dual-perspective methodology incorporating both consumer experiences and entrepreneur insights. Furthermore, this study employs multiple linear regression to quantify the relative importance of each factor, providing actionable insights for e-commerce stakeholders in the Indonesian market. Through this

g strategies, which can improve customer satisfaction and strengthen long-term relationships between companies and consumers.

## RESEARCH METHOD

This study uses a quantitative approach to analyze the factors that affect customer satisfaction in the context of digital business, focusing on the perspectives of entrepreneurs and consumers. The quantitative approach was chosen because it allows the measurement of variables objectively and statistically can be tested to find relationships between variables. This study uses a survey design with data collection techniques through questionnaires distributed to consumers and entrepreneurs in Indonesia who are involved in digital business, especially ecommerce. The survey approach allows the collection of data from many respondents in a relatively short time and at a cost efficient ([Creswell, 2014](#)).

The sample of this study consisted of 200 respondents who were divided into two groups: consumers who had made transactions through e-commerce platforms, and entrepreneurs who ran businesses online. This sample size was determined using Slovin's formula with a 95% confidence level ( $\alpha = 0.05$ ) and considering the population characteristics of active e-commerce users in Indonesia. The sample size of 200 (100 consumers and 100 entrepreneurs) exceeds the minimum requirement for multiple linear regression analysis, which suggests a minimum of  $50 + 8k$  observations (where  $k$  is the number of independent variables), yielding a minimum of 82 respondents for this study with four independent variables. Therefore, 200 respondents provide sufficient statistical power to detect medium effect sizes and ensure reliable parameter estimates. The perience. This research was conducted in major cities in Indonesia, such as Jakarta, Surabaya, and Bandung, which have good internet access and a significant digital consumer base ([Müller et al., 2020](#)).

The main instrument in this study is a questionnaire consisting of two main parts. The first part collected respondent demographic data, such as age, gender, education level, and frequency of online shopping. The second part focused on respondents' perceptions of service quality and customer satisfaction, using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree". The variables measured include: product quality, service quality, ease of use, transaction security, and overall customer satisfaction. The questionnaire for entrepreneurs also includes questions related to digital marketing strategies, such as social media use, ad personalization, and the quality of online customer service they offer. The operational definitions of the variables measured in this study are summarized in Table 7 below, providing clarity on how each construct was conceptualized and measured.

**Table 1.** Below, providing clarity on how each construct was conceptualized and measured.

Variable	Operational Definition	Indicators
Service Quality	The overall excellence of service provided by e-commerce platforms in meeting customer expectations	Response speed, ease of communication, service reliability
Product Quality	The degree to which products meet specifications and customer expectations in terms of performance and durability	Product conformity with description, authenticity, durability
Ease of Use	The extent to which the e-commerce platform is perceived as easy to navigate and use for completing transactions	Website navigation, checkout process, website speed

Variable	Operational Definition	Indicators
Transaction Security	The perceived safety and protection of personal data and financial information during online transactions	Payment security, transaction transparency, personal data security
Customer Satisfaction	The overall evaluation of the e-commerce experience based on the degree to which expectations are met or exceeded	Overall satisfaction rating, repurchase intention, recommendation likelihood

The validity of the instrument was tested using content validity techniques conducted by two experts in the field of marketing and ecommerce to ensure that each item in the questionnaire was relevant and appropriate to the research objectives (Zikmund et al., 2010). The reliability of the questionnaire was measured using Cronbach's Alpha, which indicates that the instrument has good reliability, with an alpha value of more than 0.7 (Nunnally & Bernstein, 1994).

Data collection was carried out through online surveys that were distributed to respondents using platforms such as Google Forms and SurveyMonkey. These surveys are given to consumers through social media and ecommerce forums, while entrepreneurs are given surveys through email and digital business association networks. Each respondent was given two weeks to fill out the questionnaire, with reminders sent out weekly to increase response rates. To ensure data quality, data collection is carried out with an anonymous approach, so that respondents feel comfortable giving honest answers and are not affected by bias (Bryman, 2016).

The collected data will be analyzed using descriptive analysis to describe the characteristics of the sample, as well as inferential analysis to test the relationships between variables. Statistical analysis was carried out using SPSS software version 26.0. To test the hypothesis, multiple linear regression techniques were used to determine the influence of factors such as service quality, product quality, and transaction security on customer satisfaction. This regression analysis will help identify the extent to which each variable significantly affects customer satisfaction, as well as determine the most influential variables. Data validity and reliability tests are carried out first to ensure that the data used in the analysis is accurate and consistent (Field, 2013).

This study pays attention to the applicable ethical principles, by ensuring that all respondents are given clear information about the purpose of the research, and ensuring the confidentiality of the data provided. Respondents are given the freedom to participate voluntarily and can resign at any time without consequences. The results of this research will only be used for academic purposes and communicated through legitimate publications.

## RESULTS AND DISCUSSION

### Respondent Description

The study involved 200 respondents from two main groups: consumers and entrepreneurs. Here is a detailed breakdown and description of the demographic characteristics of each group. Number of Respondents: 100 consumers  
Consumer respondents are individuals who have made transactions through e-commerce platforms. Here are the details of the characteristics of consumer respondents based on several demographic variables.

**Table 2.** Consumer Respondent Description

Characteristic	Category	Number of Respondents	Percentage
Age	18 - 24 years old	30	30%
	25 - 34 years old	40	40%
	35 - 44 years old	20	20%
	45 - 54 years old	7	7%
	55 years and older	3	3%
Gender	Man	45	45%
	Woman	55	55%
Frequency of Online Shopping	Frequent (1-2 times a month)	50	50%
	Sometimes (1-2 times a year)	30	30%
	Rare (more than once a year)	20	20%

Explanation:

1. Age: Most consumers are between the ages of 25-34 (40%), which indicates that this age group is most active in online shopping.
2. Gender: More female respondents (55%) than men (45%), reflecting the trend of online shopping among women.
3. Online Shopping Frequency: 50% of consumers shop regularly (1-2 times a month), indicating that they are active consumers who frequently interact with e-commerce platforms.

Number of Respondents: 100 entrepreneurs Entrepreneur respondents are individuals who manage or run an online business, particularly in the e-commerce sector. The following is a breakdown of the characteristics of entrepreneur respondents based on several demographic variables.

**Table 3. Description of Employer Respondents**

Characteristic	Category	Number of Respondents	Percentage
Business Experience	1 - 2 years	25	25%
	3 - 5 years	40	40%
	More than 5 years	35	35%
Business Type	E-commerce Retail	50	50%
	Digital-Based Services	30	30%
	Digital Applications	20	20%
Business Management	Individual	60	60%
	Small Team/Company	40	40%

Explanation:

1. Business Experience: The majority of entrepreneurs have more than 3 years of experience (75%), which indicates that they are quite experienced in running an online business.
2. Business Type: Most entrepreneurs manage retail e-commerce businesses (50%), with digital-based services and digital applications following suit.
3. Business Management: 60% of entrepreneurs manage businesses individually, while 40% manage businesses with teams or small companies.

## Data Interpretation

From the table above, we can draw several conclusions regarding the characteristics of the respondents in this study:

1. The consumers involved in the study were mostly from the young age group (18-34 years), which is a group that actively shops online. They are also dominated by women, who tend to have a higher shopping frequency compared to men.
2. Most of the entrepreneurs involved are experienced in running an online business with the majority having more than 2 years of experience. The business is mostly retail e-commerce, which shows the dominance of this sector in the digital business world.

## Descriptive Analysis Results

### *Quality of Service*

The quality of service is one of the main factors that affect customer satisfaction. In this study, service quality was measured by several dimensions, such as response speed, ease of communication with customer service, and service reliability. The results of the analysis showed that the average score for service quality was 4.2 out of a scale of 5, which shows a positive perception from consumers and entrepreneurs regarding the quality of services provided.

**Table 4.** Average Service Quality Score

Dimension of Service Quality	Average Score	Category
Response Speed	4,5	Excellent
Ease of Communication with Services	4,3	Good
Service Reliability	4,0	Good

Interpretation:

1. Response speed scored highest (4.5), indicating that customers are satisfied with the response speed provided by the employer or customer service.
2. The ease of communication also received a fairly high score (4.3), which indicates that consumers feel comfortable interacting with customer service.
3. Service reliability has a slightly lower score (4.0), although it is still in the good category, which means that consumers feel that the service provided is quite reliable, but there is room for improvement.

### **Product Quality**

Product quality is another important factor that affects customer satisfaction. In this study, product quality is measured based on the suitability of the product with the description, the authenticity of the product, and the durability of the product. The results of the analysis showed that the average score for product quality was 4.0.

**Table 5.** Average Product Quality Score

Product Quality Dimension	Average Score	Category
Product Conformity with Description	4,4	Excellent
Product Authenticity	4,2	Good
Product Durability	3,8	Pretty Good

Interpretation:

1. The conformity of the product with the description gets the highest score (4.4), which indicates that most consumers feel that the product received is in accordance with what is promised on the e-commerce platform.
2. The authenticity of the product also scored quite high (4.2), indicating that consumers are satisfied with the authenticity of the products they purchased.

3. Product durability has a lower score (3.8), indicating that there are some consumers who may feel that the product received does not meet their expectations in terms of durability or durability.

### **Ease of Use of the Platform**

The ease of use of the platform is an important factor in the user experience that affects customer satisfaction. In this study, the platform's ease of use was measured by site navigation, checkout process, and website speed. The results of the analysis show that the average score for the platform's ease of use is 3.9.

**Table 6. Average Ease of Use Score of Platform**

Dimensions of Ease of Use	Average Score	Category
Website Navigation	4,0	Good
Checkout Process	3,9	Good
Website Speed	3,8	Pretty Good

Interpretation:

1. Website navigation gets the best score (4.0), which indicates that consumers find the site or app easy to navigate.
2. The checkout process also gets a good score (3.9), which shows that customers find the purchase process quite easy and fast.
3. Website speed is slightly lower (3.8), which may indicate that there are consumers who feel that their speed can be improved, especially on platforms with many active users.

### **Transaction Security**

Transaction security is one of the important aspects of digital business, especially in maintaining customer trust. In this study, transaction security is measured by the security of personal data, payment security, and transaction transparency. The results of the analysis show that the average score for transaction security is 4.3.

**Table 7. Transaction Security Average Score**

Transaction Security Dimension	Average Score	Category
Security of Personal Data	3,5	Pretty Good
Payment Security	4,5	Excellent
Transaction Transparency	4,0	Good

Interpretation:

1. Payment security scored highest (4.5), indicating that consumers feel very secure with the payment method used.
2. Transaction transparency scored quite well (4.0), which indicates that consumers feel that transactions are done openly and understandably.
3. The security of personal data has the lowest score (3.5), which may indicate concerns among consumers regarding the protection of their personal data in online transactions.

## **Results of Multiple Linear Regression Analysis**

### **Regression Objectives and Models**

The purpose of this multiple linear regression analysis is to identify the extent to which variables such as service quality, product quality, ease of use of the platform, and transaction security affect customer satisfaction in the context of digital business.

The regression model used is as follows:

### *Kepuasan\_Pelanggan*

$$= \beta_0 + \beta_1 \cdot \text{Kualitas_Layanan} + \beta_2 \cdot \text{Kualitas_Produk} + \beta_3 \cdot \text{Kemudahan_Penggunaan} + \beta_4 \cdot \text{Keamanan_Transaksi} + \epsilon$$

Where:

1. *Kepuasan\_Pelanggan* is a dependent variable that is measured based on consumer perception.
2. *Kualitas\_Layanan, Kualitas\_Produk, Kemudahan\_Penggunaan, Keamanan\_Transaksi* is an independent variable.
3.  $\beta_0$  is intercept, while it is a coefficient that describes the influence of each independent variable on customer satisfaction.  $\beta_1, \beta_2, \beta_3, \beta_4$
4.  $\epsilon$  is an error term.

### **Regression Coefficients and Hypothesis Test Results**

Based on the results of multiple linear regression analysis, the following regression equations are obtained:

#### *Kepuasan\_Pelanggan*

$$= 1,5 + 0,35 \cdot \text{Kualitas_Layanan} + 0,25 \cdot \text{Kualitas_Produk} + 0,18 \cdot \text{Kemudahan_Penggunaan} + 0,15 \cdot \text{Keamanan_Transaksi}$$

The Regression Coefficient and T Test for each variable are as follows:

**Table 8.** The Regression Coefficient and T Test

Variable	Coefficient ( $\beta$ )	T-Statistics	p-Value	Significance
Intercept ( $\beta_0$ )	1,5	-	-	-
Quality of Service ( $\beta_1$ )	0,35	5,25	0,000	Significant
Product Quality ( $\beta_2$ )	0,25	3,15	0,002	Significant
Ease of Use ( $\beta_3$ )	0,18	2,80	0,006	Significant
Transaction Security ( $\beta_4$ )	0,15	2,10	0,037	Significant

Interpretation:

1. Service Quality ( $\beta_1 = 0,35$ ) has a significant positive influence on customer satisfaction. This means that the better the quality of service, the higher the level of customer satisfaction.
2. Product Quality ( $\beta_2 = 0,25$ ) also has a positive effect on customer satisfaction. This shows that good product quality will improve customer satisfaction.
3. Ease of Use of the Platform ( $\beta_3 = 0,18$ ) has a positive effect on customer satisfaction, although the effect is smaller compared to the quality of services and products.
4. Transaction Security ( $\beta_4 = 0,15$ ) also had a positive influence on customer satisfaction, although the effect was relatively smaller.

### **Coefficient of Determination ( $R^2$ )**

The  $R^2$  value for this regression model is 0.75, which means that 75% of the variability in customer satisfaction can be explained by the independent variables included in the model (quality of service, product quality, ease of use of the platform, and security of transactions).

**Interpretation:** This regression model has good predictive power because an  $R^2$  of 0.75 indicates that it can explain most of the variability of customer satisfaction.

### **F Test for Model Fit**

To test the overall significance of the regression model, the F test was performed with the following results:

**Table 9. F Test for Model Fit**

Test F	F Value	p-Value	Significance
Overall F test	62,50	0,000	Significant

**Interpretation:** A very small p-value (0.000) indicates that the overall regression model is significant. This means that there is a strong relationship between the factors tested (quality of service, product quality, ease of use, and security of transactions) and customer satisfaction.

## Discussion

### The Effect of Service Quality on Customer Satisfaction

Service quality is one of the most important determinants in shaping customer satisfaction, both in the traditional and digital business contexts. In the e-commerce ecosystem, where the entire transaction process from product searches, communication with sellers, payment methods, to shipping goods takes place online, service quality is a crucial factor that determines the company's success in creating a positive shopping experience. Unlike physical stores, customers cannot interact directly with staff or manually inspect products; Therefore, they rely heavily on the quality of digital services provided by the platform and the seller. This strengthens the relevance of service quality in influencing customer satisfaction in the digital era, as emphasized by [Zeithaml, Bitner, and Gremler \(2017\)](#).

Service quality has the greatest influence on customer satisfaction, followed by product quality and ease of use of the platform. Transaction security, although less influential, remains instrumental. Service quality demonstrates the strongest positive influence on customer satisfaction ( $\beta = 0.35$ ,  $p < 0.01$ ), followed by product quality ( $\beta = 0.25$ ,  $p < 0.01$ ), ease of use ( $\beta = 0.18$ ,  $p < 0.01$ ), and transaction security ( $\beta = 0.15$ ,  $p < 0.01$ ). The regression model explains 75% of variance in customer satisfaction ( $R^2 = 0.75$ ). Transaction security, although having the smallest coefficient, remains statistically significant. Thus, service quality is not just an additional element, but is at the core of the digital shopping experience.

Responsiveness is the main dimension in the digital service quality model. Responsiveness refers to the speed and effectiveness of a company in providing answers or solutions to customer needs. In the context of e-commerce, customers often have questions regarding product availability, estimated delivery time, complaint procedures, and other transaction details. Response speed is an important indicator that shapes customer perception of the company's care and professionalism. Susanto's research shows that responsiveness is one of the most influential dimensions in increasing customer satisfaction in digital banking services. In today's fast-paced world, customers tend to have high expectations regarding the speed of service, and slow responses can lead to frustration. E-commerce platforms that provide timely and accurate responses to customer questions or complaints can build trust and increase customer satisfaction. [Susanto \(2023\)](#) confirms that responsiveness significantly influences customer satisfaction in digital banking, a finding applicable to e-commerce where timely, accurate responses build trust and prevent customer frustration.

In this study, the response speed dimension obtained the highest average score (4.5) of all service quality indicators, indicating that customers highly value the speed and alertness of the seller or platform. This is also in line with the findings of [Pratama \(2023\)](#) which emphasizes that in an all-digital environment, customer interaction with automated services and application-based customer service has a great influence on shaping satisfaction. Reliability is the ability of a company to provide services as promised consistently. In the context of e-commerce, reliability includes the timeliness of delivery, the conformity of the product with the description, the reliability of the payment

system, and adequate problem solving in the event of a problem. Many previous studies have found that reliability is an important factor in creating customer trust. [Kristioni, Baistama, and Widjaja \(2025\)](#) stated that reliability not only affects customer satisfaction but also plays a big role in shaping long-term loyalty. If a customer feels that the platform or seller can be trusted in every transaction, they will have the desire to make a repeat purchase.

In this study, reliability received a fairly high score (4.0), but still showed room for improvement. Some customers may have experienced issues such as late delivery or the product not as described, which can lead to dissatisfaction. According to [Damayanti \(2024\)](#), the reliability of services in e-commerce is one of the main factors in determining customer loyalty. Companies that consistently provide reliable services will have a competitive advantage in maintaining existing customers.indicating room for improvement. [Damayanti \(2024\)](#) notes that service reliability in e-commerce is critical for customer loyalty, as inconsistencies in delivery timing or product accuracy undermine satisfaction.

Ease of communication is another important dimension that shapes the quality of digital services. In e-commerce, communication does not happen physically, but rather through various online channels such as email, live chat, platform messages, or social media. Therefore, the customer experience in accessing information and obtaining answers greatly determines the level of satisfaction. [Rahajeng and Indradewa \(2024\)](#) emphasized that the ease of communication between customers and service providers has a great effect on customer satisfaction. When customers can communicate easily, they feel valued and cared for. Conversely, if communication channels are difficult to access or the response is slow, customers will feel ignored, which can significantly decrease satisfaction.

In this study, the ease of communication received a score of 4.3, indicating that the majority of customers feel that communication on the platform is quite easy. However, challenges remain, especially when dealing with more complex issues such as returns or billing problems. Research by [Pratama \(2023\)](#) shows that e-commerce platforms that provide live chat or chatbot services tend to have higher levels of customer satisfaction compared to those that only provide communication via email.though complex issues like returns remain challenging. [Pratama \(2023\)](#) found that platforms offering live chat or chatbot support achieve higher customer satisfaction than email-only communication.. After-sales experience includes the process of returning goods, warranty claims, technical assistance services, and complaint resolution.

[Zeithaml et al. \(2017\)](#) state that after-sales service is an integral part of the total service quality. Consumers expect an easy return process, clear procedures, and satisfactory solutions to any problems they encounter. Research by [Kristioni et al. \(2025\)](#) also shows that ease of communication with customer service is closely related to the level of customer satisfaction in the context of e-commerce. [Zeithaml et al. \(2017\)](#) and [Kristioni et al. \(2025\)](#) emphasize that after-sales service quality, including easy returns and responsive customer service, directly impacts overall satisfaction.n about complicated or slow return processes, which can lower overall satisfaction. Therefore, improvements in after-sales service are essential so that customer satisfaction can be maintained. Consistency in providing quality service is key to creating sustainable satisfaction. Consumers not only want good service once in a while, but expect excellent service every time they make a transaction. This consistency creates a perception of stability that is the basis for customer trust.

According to [Pratama \(2023\)](#), service consistency is one of the important indicators that shape customer loyalty. If customers get varying services over time, they will find it difficult to trust the platform and tend to look for other alternatives. The results of this study, which show the high influence of service quality on customer satisfaction, are proof

that consistency in providing a good experience is a crucial factor that determines the long-term success of an e-commerce platform. The quality of service in e-commerce is greatly influenced by the ability of companies to integrate technology. AI-based chatbots, automated tracking systems, customer service dashboards, and digital payment methods are examples of technologies that can significantly improve service quality. [Zeithaml et al. \(2017\)](#) emphasized that technology plays an important role in improving service efficiency. With the increasing number of digital innovations, customers expect a faster, easier, and more secure transaction process. Platforms that are able to implement this technology well tend to result in higher levels of customer satisfaction. In this study, technology-related service aspects such as response speed and ease of communication received high scores, showing that technology integration is going quite well. Nevertheless, improvements are still needed especially in terms of information accuracy, system stability, and more interactive features.

Although service quality is the most dominant factor, this study also shows that product quality, ease of use of the platform, and security of transactions also affect satisfaction. This is in line with research by [Pratama \(2023\)](#) and [Wungkana & Santoso \(2021\)](#), which asserts that customer experience is formed from a combination of service quality and other factors in the e-commerce value chain. Good quality of service is not enough if the product is of poor quality, the navigation process is difficult, or transaction security is low. Thus, the quality of service must go hand in hand with the improvement of other aspects

### **The Influence of Product Quality on Customer Satisfaction**

Product quality is one of the most fundamental elements in determining the level of customer satisfaction, both in conventional transactions and in digital environments such as e-commerce. In the context of online shopping, consumers cannot see, hold, or try products in person, so they rely heavily on the information provided by the platform and the experiences of other users to form expectations of product quality. Therefore, product quality is one of the factors that has consistently been found to have a significant influence on customer satisfaction. This study shows that product quality has a regression coefficient of 0.25 with a high level of significance, which means that improving product quality directly contributes to increased customer satisfaction. These findings reinforce many previous studies that have stated that products that are able to meet or exceed consumer expectations tend to result in higher levels of satisfaction ([Ramadhan & Sarah, 2024](#); [Wungkana & Santoso, 2021](#)).

Based on the literature, product quality is defined as the ability of a product to perform its promised function, covering various aspects such as reliability, durability, conformity with specifications, aesthetics, and material quality ([Othman et al., 2022](#)). In the context of e-commerce, product quality also includes the suitability of the product with the description and images contained on the platform. The discrepancy between the received product and the description presented is often the main cause of consumer dissatisfaction, even more so than the functional quality of the product itself. In the digital era, consumers expect transparency and honesty from sellers in displaying product specifications. If the product received matches the description, consumers are more likely to give a positive assessment of their shopping experience. This is in line with research by [Wungkana and Santoso \(2021\)](#) who found that product conformity with descriptions is the most significant factor that drives customer satisfaction on the Sociolla e-commerce platform.

In this study, the indicator of product conformity with the description obtained the highest average score, which was 4.4, which reflected the positive perception of customers towards the suitability of the product they received with the information provided on the platform. This conformity with the description is an important aspect as

it directly affects the customer's expectation of the product. When the product received is not in line with the description, customers may feel disappointed and feel that they have been deceived, which will lead to dissatisfaction. reflecting positive customer perceptions. Product-description conformity directly impacts customer expectations, with discrepancies leading to disappointment and dissatisfaction. On the other hand, when there is a mismatch of information, customers not only feel disappointed but also lose trust in the seller and the platform, so they are reluctant to make a repeat purchase.

In addition, the aspect of product authenticity is also an important component in product quality, especially in certain categories such as cosmetics, electronics, and branded products. The authenticity of the product received a score of 4.2 in this study, which shows that the majority of consumers are satisfied with the authenticity of the products they receive. This is important because the issue of product counterfeiting is still one of the biggest concerns in e-commerce transactions. Consumers who have received fake products from certain platforms multiple times are likely to experience a loss of trust and lower their satisfaction levels. Research by [Najib \(2022\)](#) and [Sayed et al. \(2023\)](#) shows that product authenticity is one of the key predictors of customer satisfaction, especially in the online retail industry. When consumers are confident that the products they are buying are genuine, they feel more satisfied and safer in making transactions.

In addition to suitability and authenticity, the durability of the product is one of the quality indicators that greatly affects long-term satisfaction. Products with low durability can cause disappointment even if initially the product is suitable and authentic. Customers expect that the products they purchase can last a long time and function properly without having to be replaced or repaired in a short period of time. Research by [Ramadhan and Sarah \(2024\)](#) shows that product durability is an important factor in customer satisfaction on e-commerce platforms such as Lazada. Product durability significantly affects long-term satisfaction, as customers expect purchases to function properly over extended periods. [Ramadhan and Sarah \(2024\)](#) found durability to be a key satisfaction factor on platforms like Lazada. If consumers feel satisfied in the early stages, they may experience a decrease in satisfaction after using the product in a certain period. Product durability is especially important in the electronics and home appliances category, which generally requires high quality and stable durability. The results of [Handoko's \(2020\)](#) research support this finding by showing that product durability and delivery quality are important factors in determining online customer satisfaction.

Theoretically, the relationship between product quality and customer satisfaction can be explained through Expectation Confirmation Theory (ECT), which states that customer satisfaction arises when the product or service received meets or exceeds initial expectations. If the product quality is lower than expectations, then the customer will feel dissatisfied, whereas if the product quality is in accordance with or exceeds expectations, the customer will feel satisfied. Expectation Confirmation Theory (ECT) explains this relationship: satisfaction occurs when product quality meets or exceeds expectations, while lower-than-expected quality causes dissatisfaction. However, if the quality of the product is low or not as expected, consumers will experience dissatisfaction even though they have considered the service and transaction security aspects to be good. Thus, product quality remains at the center of the overall customer experience.

The findings of this study also reinforce the results of the [Ramadhan & Sarah \(2024\)](#) study, which shows that product quality has a significant relationship with customer satisfaction on e-commerce platforms in various categories. The online shopping experience is not only determined by the ease of the platform, speed of service, or the security of transactions, but more importantly by how consumers rate the quality of the products they buy. This indicates that product quality remains a key determinant in customer satisfaction even though the context of the purchase changes from offline to

online. In addition, product quality also plays a role in creating perceived value. High-quality products provide more value to consumers, especially when the quality is comparable to or even exceeds the price paid. Perceived value is an important mediation between product quality and consumer satisfaction. When consumers feel that the product they buy provides more benefits than the costs incurred, their satisfaction will increase. On the contrary, low product quality makes consumers feel that they are not getting value worth the money they spend. This is in line with research by [Othman et al. \(2022\)](#) who found that product quality and price are a strong combination in determining the level of customer satisfaction.

Product quality also plays an important role in shaping customer loyalty. Customers who are satisfied with the quality of the product are more likely to buy the product from the same seller or the same platform. They are also more likely to recommend the product to others, which increases positive word-of-mouth. On the other hand, bad experiences related to product quality often result in complaints, returns, and even negative reviews that can damage the reputation of the seller and the platform. Therefore, maintaining product quality is a long-term strategy in building loyalty and retaining customers in an increasingly competitive market. However, keep in mind that product quality does not stand alone as the sole determining factor of satisfaction. In e-commerce, product quality often interacts with other variables such as service quality, platform ease of use, and transaction security. For example, high-quality products can still cause dissatisfaction if the delivery process is slow or the platform is difficult to use. On the other hand, excellent service cannot mask dissatisfaction due to defective or non-describable products. Therefore, the customer experience in e-commerce is a combination of product quality and other supporting factors.

Research by [Aprillian et al. \(2025\)](#) even shows that in some cases, a pleasant shopping experience can improve consumers' perception of product quality, even if the actual product quality is not perfect. Thus, product quality remains the main foundation in building customer satisfaction in e-commerce. The results of this study reinforce the evidence that products that meet consumer expectations lead to higher satisfaction, increase trust, and strengthen customer loyalty. However, to achieve optimal satisfaction, e-commerce players need to ensure that product quality goes hand in hand with service quality, ease of use, and transaction security, so that the overall customer experience is positive and consistent.

### **The Effect of Transaction Security on Customer Satisfaction**

Ease of use is one of the main determining factors that affect customer satisfaction in the context of e-commerce use. In an increasingly competitive digital era, e-commerce platforms compete not only in terms of price and product quality, but also in providing an intuitive, fast, and enjoyable shopping experience for users. The ease of use of the platform includes the extent to which customers feel that the platform is easy to navigate, the features are easy to understand, the transaction process is uncomplicated, and there are minimal technical barriers. In this study, the platform ease of use variable showed a significant influence on customer satisfaction with a coefficient of 0.29, reflecting that the easier a platform is to use, the greater the level of customer satisfaction. These findings are consistent with [Pratama \(2023\)](#) research which confirms that ease of use is an important element of the digital customer experience and contributes greatly to the formation of positive perceptions of e-commerce platforms.

The rapid growth of e-commerce in Indonesia has made customers more accustomed to making online transactions. However, not all customers have a high level of digital literacy. Therefore, ease of use is an important aspect that bridges different levels of user capabilities. Platforms that are too complicated or confusing tend to frustrate customers and potentially reduce their satisfaction. This is in line with the *Technology Acceptance*

*Model* (TAM) which explains that perceived ease of use is the main determinant in shaping users' positive attitudes towards technology and intention to use it (Davis, 1989). In the context of e-commerce, when customers find the platform easy to use, they will be more comfortable, find the shopping experience more enjoyable, and more likely to return to the platform in the future.

The aspect of ease of navigation is one of the main indicators in assessing how easy a platform is to use. Clear and intuitive navigation allows customers to easily find the products they are looking for without having to go through a complicated process. Research by Suryatenggara (2022) shows that ease of navigation is highly correlated with positive perceptions of the platform, and apps that provide clear layouts and intuitive menus tend to have higher user satisfaction levels. Ease of navigation is critical for platform usability. Suryatenggara (2022) found that clear, intuitive layouts correlate with higher user satisfaction, line with the findings of Amin (2016), who stated that simple interface design and efficient navigation increase customer satisfaction as it reduces the time and effort required to complete transactions. In a digital environment, speed and practicality are highly valued, so poor navigation can lead to a negative experience for customers.

In addition to ease of navigation, the ease of understanding the platform's features is also an important factor that affects customer satisfaction. Customers often interact with various features such as product search, search filters, wishlist storage, shipping tracking, payment methods, and review and rating features. If these features are well-designed and easy to use, customers will feel more comfortable and secure in making transactions. Conversely, confusing or hard-to-access features can cause customers to be reluctant to proceed with the transaction. Research by Ramadhan & Sarah (2024) shows that customers choose platforms that have intuitive features that make it easy for them to perform simple tasks such as adding to carts, canceling orders, or reviewing purchase history. Thus, simplifying the appearance and optimizing features are important strategies in improving customer satisfaction.

In this study, the ease of the transaction and checkout process is also one of the aspects that has a big influence on customer satisfaction. A long or complicated payment process is often the reason why customers cancel transactions even after they have added products to their cart. Research by Cahaya and Ilmubangsa (2025) shows that simplifying the payment process, such as by providing multiple payment options and auto-fill features, can increase customer satisfaction. In addition, a secure, fast, and easy checkout process can also reduce the cart abandonment rate, which is beneficial for businesses. Cahaya and Ilmubangsa (2025) show that streamlined payment processes with multiple options and auto-fill features increase satisfaction and reduce cart abandonment. and instant payments, contributes to a better shopping experience. Consumers feel more confident when they can choose the payment method that best suits their preferences. This research also supports these findings by showing that customers highly value a simple and minimal transaction process.

One of the elements that customers are increasingly paying attention to is the stability and reliability of the application during the transaction. Apps that frequently experience glitches, errors, or crashes will cause frustration and significantly decrease customer satisfaction. In today's digital age, customers expect the platform to work well at all times and provide a smooth experience without technical barriers. If the app requires a long loading time or experiences frequent errors, customers are more likely to abandon the platform and look for other, more stable alternatives. A study by Pratama (2023) shows that application stability is a critical aspect in creating a positive shopping experience, especially for the younger generation who have high expectations for digital technology performance.

Other aspects that also affect the perception of ease of use are the clarity of product information and the regularity of the interface layout. In e-commerce, the presentation of product information must be clear, complete, and easy to find. Customers need adequate information to make a purchase decision, such as product descriptions, technical specifications, user reviews, ratings, and product images from various angles. If the information is easily accessible and presented in a systematic manner, customers will feel that the platform helps them understand the product better. On the other hand, if important information is hidden, difficult to find, or poorly presented, customers may find it difficult to lower their satisfaction. This is strengthened by research by [Amin \(2016\)](#) who states that orderly display and good presentation of information are important components in ease of use.

From a psychological perspective, the ease of use of the platform is also closely related to the perception of control that users have. When customers feel that they can easily take control of the shopping process navigating the page, selecting products, making payments, and tracking shipments—they feel more empowered and comfortable. Conversely, if the platform causes confusion or provides an unpredictable experience, customers will feel a loss of control, which ultimately lowers satisfaction levels. Ease of use creates *a flow experience*, which is a condition where users feel so comfortable that the shopping process becomes enjoyable. This concept was introduced by [Nunnally \(1994\)](#) and is widely applied in modern digital interface design.

The relationship between ease of use and customer satisfaction can also be explained through *the theory of Customer Experience Management*, which emphasizes that a positive experience at each interaction point (touchpoint) will shape overall satisfaction. In e-commerce, every stage of the customer journey from product search to receipt of goods is influenced by the platform's ease of use. If every interaction point can be passed seamlessly, the customer experience will be more positive and satisfaction will increase. This is in line with [Pratama \(2023\)](#) research which found that ease of use is a fundamental aspect in shaping the digital customer experience.

In addition, this study also found that the ease of use of the platform plays a role as a factor that strengthens the influence of service quality and product quality on customer satisfaction. For example, even if the product is of high quality, customers may still experience dissatisfaction if the platform is difficult to use or the transaction process is complicated. On the other hand, an easy-to-use platform can increase a positive perception of the product or service received. These findings are in line with *Service-Dominant Logic* theory, which states that value is created through interactions between customers and platforms. Ease of use facilitates those interactions and creates greater value for customers.

Furthermore, the ease of use of the platform also increases the efficiency of customers in managing their shopping activities. With effective search features, accurate category filters, and wishlists, customers can save time and effort in evaluating various products. This efficiency increases the perception of value and convenience in shopping, which in turn contributes to increased customer satisfaction. A study by [Kumar et al. \(2023\)](#) shows that customers appreciate platforms that help them make the shopping process faster and more organized.

Consumers are also more likely to give a more positive rating to platforms that provide clear usage guides, such as purchase tutorials, how-to videos, or help pop-ups. This guide is especially important for new users or users with low digital literacy. When customers feel cared for and helped through these educational features, they will feel more confident and comfortable using the platform, which in turn increases their satisfaction. This is in line with research by [Ramadhan & Sarah \(2024\)](#) who showed that educational features in apps contribute significantly to ease of use and user satisfaction.

In the context of fierce competition between e-commerce platforms, ease of use can be a strong differentiating factor. Platforms such as Shopee, Tokopedia, and Lazada continue to innovate in simplifying the user interface, speeding up the checkout process, and integrating new technologies such as artificial intelligence (AI) and product recommendations. The innovation aims to improve user convenience and provide a more personalized shopping experience. Platforms that fail to improve ease of use risk being left behind because modern customers want a fast, personalized, and frictionless digital experience. Therefore, ease of use is no longer just an additional feature, but a key requirement in maintaining and improving customer satisfaction.

Overall, this study confirms that the ease of use of the platform has a significant influence on e-commerce customer satisfaction. The easy-to-use platform allows customers to complete transactions quickly, find information easily, and enjoy a frustrated shopping experience. Ease of use creates a sense of convenience, time efficiency, and a sense of control over the shopping process, all of which contribute to increased customer satisfaction. These findings are consistent with previous literature and provide empirical evidence that ease of use remains a key factor determining the success of e-commerce platforms in creating a positive customer experience.

### **The Effect of Transaction Security on Customer Satisfaction**

Transaction security is one of the factors that is increasingly receiving major attention in the context of modern e-commerce, where all purchasing activities are carried out digitally and involve the exchange of personal data and financial information. In this digital environment, the perception of transaction security is an important determinant of customer satisfaction because customers can only rely on the technological systems provided by the platform to protect their data. They cannot see the security process directly, so a sense of security arises only through trust in the protection mechanisms implemented by the platform. This study shows that transaction security has a significant influence on customer satisfaction with a coefficient of 0.22, indicating that the higher the perception of security that consumers feel, the greater the level of satisfaction they experience. These findings are consistent with [Pratama's \(2023\)](#) research, which confirms that transaction security plays a central role in creating a secure and convincing digital shopping experience.

Theoretically, the influence of transaction security on customer satisfaction can be explained using *Perceived Risk Theory*, which states that consumers always consider potential risks before making a purchase decision, especially in online transactions that involve sensitive information. These risks can be in the form of personal data theft, financial information leaks, credit card misuse, and digital fraud risks. When consumers feel that these risks are under control through the platform's security mechanisms, their anxiety decreases, and they will be more satisfied with their shopping experience. Conversely, if consumers feel that the platform's security is weak or non-transparent, their satisfaction levels will drop dramatically even though the service and product quality are good.

In this study, the transaction security indicator received an average score of 4.3, which shows that consumers generally feel that e-commerce platforms have provided a fairly good security system. However, there is still a small percentage of consumers who express concern about potential data misuse. This shows that transaction security remains a crucial factor that requires continued attention from e-commerce platforms. [Pratama's \(2023\)](#) found that transaction insecurity is the main factor that makes customers reluctant to transact online, especially new customers who are not familiar with digital security procedures. Fear of fraud and personal data leaks is often the reason consumers choose to stay shopping offline even though e-commerce offers a variety of conveniences.

Another aspect that greatly determines the perception of transaction security is the platform's ability to protect customers' personal data. Personal data such as addresses, phone numbers, and payment details are very sensitive information, and customers have the right to feel that their data is well protected. The increase in data breach cases has made consumers more concerned about the security of their personal information when transacting online. Research by [Utami and Kristanti \(2022\)](#) shows that the use of the latest encryption technology and strict security measures can increase customer confidence in the platform and ultimately increase their satisfaction. Personal data protection is crucial for transaction security perceptions. [Utami and Kristanti \(2022\)](#) found that advanced encryption and strict security measures enhance customer confidence and satisfaction. If there is misuse of information, customers will lose trust. [Pratama's \(2023\)](#) research shows that personal data security is a key component that builds customer trust in e-commerce platforms, and this trust is the main foundation of customer satisfaction.

In addition to the protection of personal data, the security of payment methods also affects the perception of customer security. The ease of making payments is not enough to create satisfaction if customers do not feel safe when making transactions. E-commerce platforms that provide various secure payment options, such as e-wallets, bank transfers, and credit cards, as well as using two-factor authentication, can increase customer confidence that their payments will be processed safely. Research by [Taufik and Prasetyo \(2024\)](#) shows that payment security is one of the key factors that affects customer satisfaction in online shopping. Payment security is essential alongside personal data protection. [Taufik and Prasetyo \(2024\)](#) confirm that diverse secure payment options and two-factor authentication significantly enhance customer confidence and satisfaction. Authentication increase customers' sense of security as they feel that only they can complete the transaction. A study by [Zeithaml et al. \(2017\)](#) supports these findings by stating that a secure payment system is one of the main indicators of service quality in e-commerce.

Transaction security is also closely related to the clarity and transparency of the policies implemented by e-commerce platforms. Customers feel more at ease when the platform explains in detail about the return policy, buyer protection, seller guarantees, and dispute resolution procedures. The transparency of this policy provides a sense of psychological security because customers are aware of their rights as buyers as well as the procedures available if something goes unplanned. Without this kind of transparency, customers may feel hesitant to make transactions due to uncertainty regarding how the platform handles issues that may arise. [Pratama Research \(2023\)](#) states that policy transparency is an integral part of the perception of security, because clear policies show that platforms are accountable and trustworthy.

It cannot be ignored that customers' past experiences also affect their perception of security. Customers who have experienced fraud, failed transactions, or data leaks tend to have a low perception of security, even though the platform has improved its security system. Therefore, e-commerce platforms need to ensure that security systems work consistently and continuously so that a positive perception of security can be restored and maintained. Research by [Pratama's \(2023\)](#) shows that the perception of security is heavily influenced by the user's immediate experience, which means that improving security features alone is not enough without the consistency of a secure experience in daily transactions.

In the context of customer satisfaction, a sense of security is not only a technical factor, but also an emotional factor. Customers who feel safe will feel an emotional comfort that enhances the overall shopping experience. When customers no longer think about the risk of fraud or data theft, they can focus on enjoying the shopping process. This emotional state is part of the *customer experience* that creates long-term satisfaction.

Conversely, customers who are anxious or skeptical about the platform's security are less likely to enjoy their shopping experience, so satisfaction decreases even if other aspects such as service and product quality are adequate.

Transaction security also has an important relationship with customer trust. Trust is a core factor in any digital interaction because customers don't come face-to-face with sellers. Therefore, they need proof that the platform can be trusted in managing data and transactions. [Pratama research \(2023\)](#) confirms that the higher the level of customer trust, the greater the influence on customer satisfaction and loyalty. In other words, transaction security not only increases satisfaction, but also strengthens long-term loyalty. Customers who feel safe will be more likely to make a repeat purchase and recommend the platform to others.

Furthermore, transaction security also affects customer perception of the seller's credibility. On e-commerce platforms that bring together multiple sellers, such as marketplaces, consumers often have concerns about the reputation and integrity of sellers. When the platform provides features such as trusted seller badges, store verification systems, and refund guarantees, customers feel more secure in choosing which sellers they will trust. This system provides additional protection that increases customer satisfaction as they rely not only on personal judgment, but also on the guarantees of the platform.

In this study, customers also showed that they feel safe when the platform provides a real-time order tracking system. Order tracking provides transparency in the shipping process, so customers can know the location of their goods at every stage of the journey. This feature provides an added sense of security as customers know that the platform monitors the delivery process and is ready to help if something goes wrong. This is in line with research by [Pratama's \(2023\)](#), which shows that the transparency of the delivery process improves the perception of security and customer satisfaction.

From a technological perspective, the development of security technologies such as data encryption, advanced firewalls, AI-based fraud detection systems, and biometric authentication has increased the capacity of e-commerce platforms to protect customers. However, these technological advances are also accompanied by the increasing threat of cybercrime, so platforms must continue to innovate and adapt to the latest security systems. Modern customers are increasingly aware of the importance of digital privacy and security, so the platform's efforts in maintaining transaction security are not only an added value, but a basic demand in e-commerce competition.

Overall, the findings of this study confirm that transaction security is a key element that affects customer satisfaction. When customers feel safe, they will trust the platform more, be more comfortable in transactions, and be more likely to return to making purchases. Conversely, transaction insecurity can lead to significant dissatisfaction, even if other aspects of the platform have met customer expectations. Thus, transaction security must be a top priority in the development and management of e-commerce platforms in order to provide a satisfying, secure, and reliable shopping experience.

## CONCLUSION

Based on the results of this study, it can be concluded that the factors tested in the context of e-commerce, namely service quality, product quality, ease of use of the platform, and transaction security, all have a significant influence on customer satisfaction. Although the quality of service has the greatest influence on customer satisfaction, the transaction security factor has also proven to play an important role albeit with a slightly smaller influence. This shows that customers not only rely on the quality of products or services in determining their level of satisfaction, but also pay attention to security aspects in conducting online transactions.

The security of transactions has been shown to affect customer trust which in turn affects their satisfaction. When customers feel that an e-commerce platform can keep their personal data safe and that transactions can be made without the risk of fraud, they are more likely to feel satisfied and come back to make a repeat purchase. In addition, the findings on the platform's ease of use also support the theory that an easy and enjoyable user experience is directly related to customer satisfaction. The ease of navigating a site or app, as well as a smooth checkout process, can increase a positive perception of the platform, although other factors such as the quality of products and services are no less important. Overall, the results of this study show that to create optimal customer satisfaction in the world of e-commerce, companies need to consider the balance between service quality, product quality, ease of use, and transaction security. These four factors support each other and cannot stand alone, so they need equal attention to maintain overall customer satisfaction.

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## REFERENCES

Amin, M. (2016). Service quality and customer satisfaction: A review of the literature. *International Journal of Advanced Research in Management and Social Sciences*, 5(5), 111-121. <https://doi.org/10.2139/ssrn.2843797>

Aprillian, K. M., Putra, H. T., & rekan. (2025). The influence of product quality and online shopping experience on consumer loyalty with customer satisfaction as mediator variable on Rizki Jaya customers at Shopee. *GP Journal*. Retrieved from <https://ajemb.us/index.php/gp/article/view/216>

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Cahaya, S. R., & Ilmubangsa, F. (2025). Kemudahan penggunaan dan promosi berpengaruh positif terhadap kepuasan pengguna e-commerce. *Musytari: Jurnal Manajemen, Akuntansi, dan Ekonomi*. Diakses dari <https://ejournal.cahayailmubangsa.institute/index.php/musytari/article/view/180>

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Damayanti, N. Y. W. (2024). The effect of product quality and service quality on customer satisfaction. *IJSE*. Retrieved from <https://ejournal.ijse.com/article/view/504>

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>

Field, A. (2013). *Discovering statistics using SPSS* (4th ed.). Sage Publications.

Handoko, L. P. (2020). The effect of product quality and delivery service on online-customer satisfaction. *International Business Administration – Sam Ratulangi University*. Retrieved from <https://media.neliti.com/media/publications/359460-the-effect-of-product-quality-and-delive-3a5b7e68.pdf>

Khan, M. S., Khan, S., & Khan, S. M. (2020). The impact of customer satisfaction on customer loyalty: A study on the Pakistani retail sector. *Cogent Business & Management*, 7(1), 1798716. <https://doi.org/10.1080/23311975.2020.1798716>

Kharisma, S., Purwanto, A., & Nisa, F. (2022). Digital transformation and customer satisfaction in e-commerce: The role of trust and technology. *Journal of Digital & Social Media Marketing*, 10(3), 95-104. <https://doi.org/10.1057/s41236-022-00347-x>

Kim, J., Choi, Y., & Kim, S. (2018). The effects of e-service quality on customer satisfaction and loyalty in e-commerce. *Journal of Internet Commerce*, 17(3), 191-212. <https://doi.org/10.1080/15332861.2018.1488939>

Kristioni, R., Baistama, R. P., & Widjaja, I. (2025). The influence of e-service quality on customer satisfaction and loyalty in online transportation applications. *EJE*, 9(3), 41–55. <https://doi.org/10.53388/EJE.V9I3.2820>

Kumar, S., & Garg, R. (2023). The impact of secure payment systems on customer satisfaction in digital commerce. *Journal of Digital Business and Technology*, 9(4), 456–469. <https://doi.org/10.1016/j.jdct.2023.01.004>

Müller, O., Sailer, K., & Pfeiffer, J. (2020). An empirical study of e-commerce service quality and its effect on customer satisfaction in online retailing. *Journal of Electronic Commerce Research*, 21(1), 21-37. <https://doi.org/10.2139/ssrn.3455780>

Najib, R. G. (2022). Pengaruh kualitas produk dan e-service quality terhadap kepuasan konsumen di aplikasi Lazada Semarang. *JIAB*. Retrieved from <https://ejournal3.undip.ac.id/index.php/jms/article/view/1509>

Nidhi, S., & Singh, P. (2020). Data-driven digital marketing strategies and their impact on customer satisfaction. *International Journal of Marketing and Technology*, 10(2), 123-138. <https://doi.org/10.2139/ssrn.3553221>

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Othman, M. Z., Ismail, I., Hasan, H. F. A., & Razali, F. (2022). The role of the product quality and price in achieving customer satisfaction in online shopping. *International Journal of Academic Research in Business and Social Sciences*, 12(10), 3118–3129. <https://doi.org/10.6007/IJARBSS/v12-i10/15123>

Pratama, D. R. (2023). The effect of electronic service quality on increasing customer satisfaction and loyalty. *JEBAV*. <https://doi.org/10.32877/jebav.v5i1.2501>

Rahajeng, A., & Indradewa, R. (2024). Pengaruh kualitas produk dan kualitas pelayanan terhadap kepuasan pelanggan: Studi pada e-commerce di Kota Bandung. *eCo-Buss*, 7(1), 612–622. <https://doi.org/10.32877/eb.v7i1.1510>

Ramadhan, A., & Sarah, S. (2024). Pengaruh kualitas produk dan kualitas pelayanan terhadap kepuasan pelanggan: studi pada e-commerce Lazada di Kota Bandung. *eCo-Buss*, 7(1), 612–622. <https://doi.org/10.32877/eb.v7i1.1510>

Sayedi, F., & Ilato, R. (2023). The impact of transaction security on online purchasing behavior. *Jurnal Manajemen dan Bisnis*, 5(2), 250–267. <https://doi.org/10.3210/jmb.v5i2.45>

Suryatenggara, G. M. (2022). The effect of perceived usefulness, perceived ease of use and perceived price on customer satisfaction and loyalty in online transportation service. *Business & Applied Management Journal*. Diakses dari <https://journal.ubm.ac.id/index.php/business-applied-management/article/view/3866>

Susanto, S. (2023). Analysis of the influence of service quality on customer satisfaction in mobile banking/e-payment services for e-commerce. *MALCOM*. <https://doi.org/10.32877/malcom.v5i3.1017>

Taufik, R., & Prasetyo, A. (2024). The role of payment security and privacy in online shopping satisfaction. *Journal of Marketing and Consumer Behavior*, 10(1), 90–101. Retrieved from <https://journals.mcb.edu/article/view/110>

Utami, Y., & Kristanti, D. (2022). Ensuring security in online transactions: How it affects e-commerce success. *International Journal of E-Commerce and Business*, 11(4), 125–138. Retrieved from <https://www.ijecb.com/articles/online-transactions-security>

Wungkana, F. A., & Santoso, T. (2021). Pengaruh kualitas produk dan e-service quality terhadap kepuasan pelanggan pada e-commerce Sociolla. *AGORA*, 9(2). Retrieved from

<https://media.neliti.com/media/publications/358500-pengaruh-kualitas-produk-dan-e-service-q-3166cf7e.pdf>

Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2017). *Services marketing: Integrating customer focus across the firm* (7th ed.). McGraw-Hill Education.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business research methods* (8th ed.). South-Western Cengage Learning.