E-Service Quality Factors and Customer Satisfaction in Shopee's E-Commerce Platform

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ARTICLE INFO	ABSTRACT
	The rapid growth of e-commerce has intensified competition among platforms in providing the best services to customers. Shopee, one of the largest e-commerce platforms in Southeast Asia, faces challenges in maintaining e-service quality that enhances customer satisfaction. This study aims to analyze the influence of security, reliability, and responsiveness on e-service quality, as well as its impact on customer satisfaction in Shopee's e-commerce platform. This research employs a quantitative approach with purposive random sampling, involving 150 Shopee users as respondents. The data collected were analyzed using structural equation modeling-partial least squares (SEM-PLS). The results indicate that security, reliability, and responsiveness have a positive and significant impact on e-service quality. Furthermore, e-service quality positively and significantly influences customer satisfaction. These findings suggest that transaction security, system reliability, and customer service responsiveness are key factors in building high-quality e-commerce services. Therefore, Shopee must continuously improve its security system, maintain platform stability, and enhance customer service responsiveness to increase customer satisfaction and loyalty.

Introduction

The development of digital technology has driven changes in various aspects of life, including the way people shop. E-commerce is one of the fastest-growing industries, allowing consumers to make online transactions easily and quickly. Shopee, as one of the largest e-commerce platforms in Southeast Asia, has become the top choice for many consumers in Indonesia. With various excellent features such as free shipping, flash sales, and a flexible payment system, Shopee has managed to attract the attention of millions of users.

However, along with the rapid growth of these platforms, the quality of electronic services (E-Service Quality) has become a crucial factor in maintaining customer loyalty and satisfaction [1]. In the digital ecosystem, service quality includes aspects of security, reliability, and responsiveness. Security is one of the important

aspects because customers need assurance that their data and transactions are well protected. Reliability refers to the platform's ability to provide stable services without technical glitches. Responsiveness relates to the speed and effectiveness of customer service in handling issues or queries from users.

Various previous studies have shown that the e-service quality has a direct effect on customer satisfaction. The dimensions of electronic service quality include efficiency, reliability, privacy, and responsiveness. If an e-commerce platform fails in this aspect, customers are likely to move to other, more adequate services [2]. Researchers have found that the security, reliability, and responsiveness of electronic services significantly influence customer satisfaction in the e-commerce sector [3]. The study also confirms that customer experience in using e-commerce platforms is influenced by trust in the security systems implemented as well as efficiency in handling transactions and customer service.

Although Shopee has provided various innovations to improve the user experience, there are still various problems that are often complained about by customers. Some of the main problems that are often found include: Security that is Still Vulnerable. Shopee often faces challenges related to user account security. Many cases involve account hacking, data theft, and fraud committed by irresponsible parties. According to a report from [4], several customers complained that their accounts were hacked despite using security features such as two-step verification. In addition, E-commerce platforms with weak security systems tend to lose customers because users perceive them as untrustworthy, which ultimately reduces their willingness to continue using the platform [5]. Furthermore, when users perceive a high level of trust in an e-commerce platform, it contributes positively to building customer loyalty and long-term engagement [6].

Another aspect that is still lacking is the inconsistent reliability of the system. Shopee sometimes experiences technical glitches that hinder the smooth running of transactions. Some users complained about difficulties in accessing the application, delays in updating the delivery status, and errors in the payment system. This leads to customer distrust of the platform's reliability in providing stable and uninterrupted services.

Not only that, the responsiveness of customer service is not optimal. Responsiveness in handling customer complaints and questions is one aspect that still needs improvement. Many users expressed dissatisfaction with Shopee's customer service which was considered slow in responding to complaints, especially in the case of refunds and returns. Many users feel that Shopee's customer service is still not able to handle problems quickly and effectively [7]. According to research explain e-commerce platforms that have poor customer service responsiveness are more likely to experience customer churn due to a lack of trust in problem-solving [8].

This sub-optimal quality of service can negatively impact the user experience and ultimately lower customer satisfaction levels. Therefore, it is important to examine the extent of the influence of security, reliability, and responsiveness on E-Service Quality and its impact on Shopee customer satisfaction.

This study aims to analyze the relationship between these three main factors and E-Service Quality, as well as examine how the quality of electronic services affects overall customer satisfaction. By understanding these factors, Shopee can develop a better strategy to improve service quality and maintain customer loyalty in an increasingly competitive e-commerce market.

Research Methods

This research is quantitative research that aims to understand the influence of security, reliability, and responsiveness on e-service quality and its impact on customer satisfaction in the use of Shopee e-commerce.

This study uses the purposive random sampling technique, which is a sampling method based on certain criteria that have been set. Respondents in this study are active users of the Shopee e-commerce application who have made transactions at least three times in the last six months. The sample selection was carried out randomly but still considered the relevant criteria to obtain representative data. The number of samples in this study is 150 users of the Shopee application.

The data obtained were analyzed using the Structural Equation Modeling - Partial Least Squares (SEM-PLS) method. This method was chosen because it can test the relationship between latent variables simultaneously and is suitable for research with complex models as well as medium-sized samples [16]. SEM-PLS is used to test the validity and reliability of research constructs, as well as to analyze the relationships between predetermined variables.

Measurement

Table 1 outlines the measurement indicators used for each variable in this study, which include security, reliability, responsiveness, e-service quality, and customer satisfaction.

Table 1 Measurement

Variable	Measurement
Security Source : [17]	• I feel confident sharing sensitive details (such as credit card information) when making online purchases. • Shopee has sufficient security measures in place. • Shopee keeps my personal information private and does not disclose it to third parties. • Shopee is transparent and trustworthy regarding its online transaction services.
Reliability Source: [17]	• Shopee keeps accurate records of my account transactions. • The order service is complete • Its online booking records are always accurate • The Shopee Apps do not freeze once I enter my transaction information.
Responsiveness Source: [17]	• It provides me with convenient options for returning items. • This site handles product returns well. • It tells me what to do if my transaction is not processed.
E-Service Quality Source: [18]	• Based on my previous e-commerce experience, I feel Shopee service quality is good. • Shopee quality is better than I expected.

Variable	Measurement
Satisfaction Source: [2]	• Physical evidence, such as the appearance of an e-commerce application or ease of navigation. • Consistency of service in meeting customer expectations. • Speed and accuracy in responding to customer needs. • Trust is given by the service to customers. • Care and attention are given to customers.

(Source: Adapted from Kaur et al., 2023; Singh, 2019; Parasuraman et al., 1988)

These indicators were adapted from previously validated instruments in relevant studies to ensure both reliability and construct validity : (a) The Security variable measures users' perceptions of how secure their personal and transactional data are on the Shopee platform. It includes items related to data confidentiality, transparency in transactions, and user trust in Shopee's protection mechanisms. (b) The Reliability variable reflects the extent to which Shopee delivers consistent and accurate services, such as system stability, accuracy of transaction records, and proper order fulfillment. (c) The Responsiveness variable evaluates the platform's ability to handle product returns, guide users during issues, and provide timely responses. (d) E-Service Quality is measured based on users' overall perceptions of service performance compared to their expectations. (e) The Customer Satisfaction variable captures user experiences regarding application design, consistency of service, responsiveness to customer needs, and the sense of care and attention received from the platform.

Result and Discussion
Result

The results of structural model testing using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. This model is designed to analyze the effect of three antecedent variables security, reliability, and responsiveness - on e-service quality, which is then tested for its effect on satisfaction. The numbers listed on the structural path (arrows between constructs) are t-statistic values generated through the bootstrapping procedure, which is used to test the significance of the relationship between latent variables.

The results of the structural model analysis (inner model) show that the three exogenous variables have a positive and statistically significant influence on E-Service Quality. Specifically, Reliability is the predictor with the strongest influence on E-Service Quality, as indicated by the t-statistic value of 5.580. Furthermore, Responsiveness also showed a significant influence (t-statistic = 2.956), followed by Security (t-statistic = 2.428). Furthermore, the model confirms that E-Service Quality has a very strong and significant positive influence on Satisfaction, with the t-statistic value reaching 13.351. Given that all t-statistic values far exceed the critical threshold (generally 1.96 for 5% significance), all hypotheses proposed in this model are accepted.

Overall, these findings provide strong empirical evidence that E-Service Quality plays a crucial mediating variable. To increase Satisfaction, service providers should prioritize improving E-Service Quality, with a primary focus on the Reliability aspect which is shown to be the strongest driver. The findings provide clear managerial

implications and theoretical contributions that strengthen the model of the relationship between service quality dimensions and satisfaction in an electronic context.
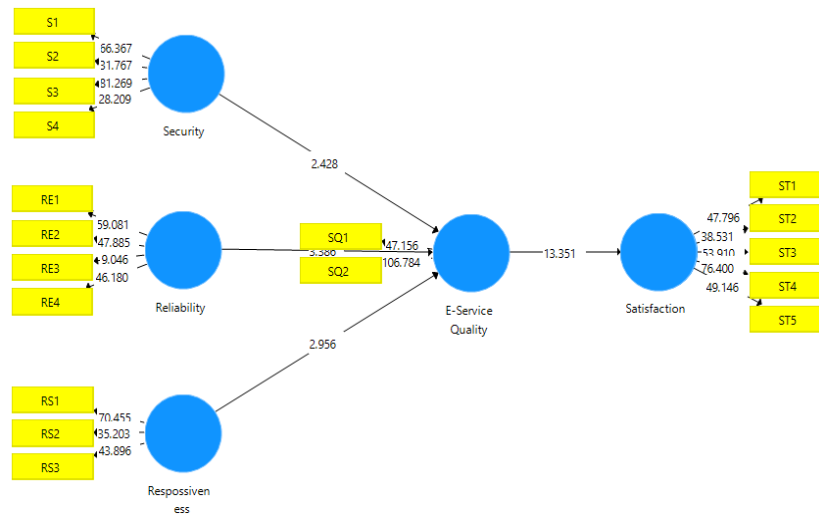

Figure 1 Result Data Analysis SmartPLS
(Source: Data analysis, 2025)

1. Convergent Validity

Convergent validity refers to how strongly multiple measures of the same concept relate to each other, indicating they capture the same underlying idea [19]. When a construct demonstrates high convergent validity, its indicators show strong inter-correlations. This is commonly evaluated through the Average Variance Extracted (AVE), where a value of 0.5 or above suggests that over half of the variance in the construct is accounted for by its indicators [20]. This assessment confirms that the items designed to measure a construct are closely aligned, reinforcing the construct's internal reliability.

Table 2 Convergent Validity

Variable	Indicator	Outer Loading
Security	S1	0.917
	S2	0.881
	S3	0.920
	S4	0.805
Reliability	RE1	0.895
	RE2	0.892
	RE3	0.642
	RE4	0.870
Responsiveness	RS1	0.920
	RS2	0.876
	RS3	0.895
E-Service quality	SQ1	0.922
	SQ2	0.937

Variable	Indicator	Outer Loading
Satisfaction	ST1	0.884
	ST2	0.847
	ST3	0.911
	ST4	0.928
	ST5	0.906

(Source: Data analysis, 2025)

2. Composite Reliability and Cronbach's Alpha

Composite reliability is a measure of internal consistency for latent constructs, which assesses the reliability of a set of indicators and their shared variance in measuring the same construct [19]. Unlike Cronbach's alpha, which assumes all indicators contribute equally to the construct, composite reliability considers the varying contributions of each item and is therefore often viewed as a more accurate measure of reliability in structural equation modeling. Composite reliability values above 0.7 are generally acceptable, indicating that the indicators consistently represent the construct [21]. And, Cronbach's alpha is a widely used reliability coefficient that measures the internal consistency of a set of items within a construct, assessing how well the items work together to measure a concept.

Table 3 Composite Reliability and Cronbach's Alpha

Variable	Cronbach's Alpha	Composite Reliability
E-Service Quality	0.843	0.927
Reliability	0.846	0.898
Respossiveness	0.879	0.925
Satisfaction	0.938	0.953
Security	0.904	0.933

(Source: Data analysis, 2025)

Higher Cronbach's alpha values, typically above 0.7, indicate greater internal consistency, meaning the items are closely related as a group. Although commonly used, Cronbach's alpha assumes equal reliability among items and can underestimate reliability when item contributions vary, making it less suitable than composite reliability in cases with unequal item contributions [22]

3. Average Variance Extracted (AVE)

AVE value should be greater than 0.50 to indicate good convergent validity. A higher AVE value implies that the construct explains more than 50% of the variance in its indicators, signifying strong validity. Conversely, if AVE is below 0.50, it suggests that the variance explained by measurement error exceeds that explained by the construct. Furthermore, AVE can also be used to test discriminant validity by comparing the square root of AVE with the correlations between constructs. If the square root of AVE is greater than the correlation between constructs, discriminant validity is considered to be achieved[21].

Table 4 Average Variance Extracted

Variable	Average Variance Extracted (AVE)
E-Service Quality	0.864
Reliability	0.691
Responsiveness	0.805
Satisfaction	0.802
Security	0.778

(Source: Data analysis, 2025)

4. Testing Hypothesis

The path coefficient is used to evaluate the strength and direction of the relationship between latent variables in the SEM-PLS model. The significance value for the path coefficient is < 0.05 :

Table 5 Hypothesis

Hypothesis	Original Sample (O)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values
E-Service Quality → Satisfaction	0.691	0.690	13.351	0.000
Reliability → E-Service Quality	0.305	0.313	3.386	0.001
Responsiveness → E-Service Quality	0.283	0.280	2.956	0.003
Security → E-Service Quality	0.181	0.178	2.428	0.016

(Source: Data analysis, 2025)

Discussion

The Effect of Security on E-Service Quality in Shopee E-Commerce

Security in e-commerce is the main factor that affects customer trust and satisfaction. Security includes the protection of personal data, encrypted transactions, and protection against cyberattacks [9]. Customers are more likely to use e-commerce platforms that offer high-security features, such as two-factor authentication and strong encryption systems. When customers feel secure in transacting, they are more likely to maintain loyalty to the platform [5], [9].

Security is one of the main factors in determining the quality of electronic services (e-service quality) on e-commerce platforms. In the context of Shopee, security includes the protection of users' data, the security of payment transactions, and protection from the risk of fraud and account hacking [23].

The results of this study explain that security has a significant positive influence on e-service quality with a p-value of 0.016 < 0.05. If the security aspect is guaranteed, then customer trust in e-commerce services will increase, which ultimately improves their perception of the overall quality of the service.

E-service quality includes various dimensions, one of which is security. They emphasized that security in online transactions affects users' perception of the credibility and reliability of an e-commerce platform [3]. In another study, found that security has a significant effect on user experience and customer satisfaction in e-commerce and shows that transaction security [5], [24]. If customers feel confident that their data is safe, they are more likely to continue using the service and recommend it to others

In the context of Shopee, various cases of account hacking and fraud show that improving security is still a challenge that must be overcome, several Shopee customers experienced account hacking despite implementing security measures such as two-step verification [4]. This shows that although security has a significant influence on e-service quality, suboptimal implementation can reduce customer perception of service quality. Therefore, Shopee needs to continue to develop its security system to improve the user experience.

Thus, it can be concluded that security has a positive and significant influence on e-service quality in Shopee e-commerce. Customers who feel secure in transacting will have a better perception of the quality of service, which ultimately increases their satisfaction and loyalty to the platform.

The Influence of Reliability on E-Service Quality in Shopee E-Commerce

Reliability refers to a platform's ability to deliver consistent services without technical disruptions. It encompasses key aspects such as system uptime, accurate product information, and consistent order processing. System instability in e-commerce, such as frequent errors or service interruptions, can result in customer dissatisfaction and may even drive users to switch to competing platforms [10].Moreover, customers who face delays in transaction processes or encounter errors in order status updates are more likely to report lower levels of satisfaction.

Reliability is one of the key dimensions of e-service quality that plays an important role in ensuring that e-commerce services run consistently, accurately, and free from interruptions [23]. The results of this study explain that reliability has a significant positive influence on e-service quality with a p-value of $0.001 < 0.05$

In the context of Shopee, reliability includes system stability, accuracy of product information, accuracy of transaction processes, and speed and accuracy of delivery of goods. When the services provided are reliable, customers will have a better perception of the quality of e-service services, which ultimately increases customer trust and loyalty to the platform.

Reliability in e-commerce refers to the ability of a platform to provide services accurately and on time. This study confirms that reliability has a significant impact on e-service quality because customers expect consistent service and minimal disruption in every transaction [2]. In addition, research shows that reliability is the main factor that affects customer perception of the quality of digital services [25]. They state that customers will be satisfied if an e-commerce system is reliable in every aspect, from payment processing to delivery accuracy. This is strengthened by the findings from Ladhari (2010), who found that the higher the level of reliability of a service, the more positive the customer's perception of the overall e-service quality.

In the context of Shopee, several challenges related to reliability still often arise, such as delays in order processing, errors in the payment system, and inconsistencies in product information provided by sellers. Therefore, improving the reliability aspect is needed to strengthen the overall quality of service. Thus, it can be concluded that reliability has a positive and significant influence on e-service quality in Shopee e-

commerce. Customers who feel the high reliability of the service will have more trust in the platform, which ultimately increases their satisfaction and loyalty.

The Effect of Responsiveness on E-Service Quality in Shopee E-Commerce

Responsiveness refers to an e-commerce platform's ability to address customer complaints, inquiries, and needs promptly and effectively. It plays a crucial role in shaping the overall quality of electronic services, as it reflects the platform's commitment to customer satisfaction [2]. Customers are more likely to feel satisfied when customer service teams respond quickly and offer adequate solutions to their problems [11].

Responsiveness is one of the main dimensions of e-service quality related to the speed and effectiveness of a platform in responding to customer questions, requests, and complaints [26]. In the context of Shopee's e-commerce, responsiveness includes the speed of customer service in handling complaints, the ability to provide effective solutions, and the availability of responsive support services through various channels such as live chat, email, and social media. The results of this study also explain that responsiveness and e-service quality have a significant positive influence with a p-value of $0.003 < 0.05$

Responsiveness in electronic services refers to how quickly and effectively a platform responds to customer needs. They emphasized that high responsiveness will increase customer perception of the overall quality of service [2]. And, responsiveness has a significant impact on e-service quality because customers expect a quick and appropriate solution when experiencing problems in online transactions. When the platform can provide quick and accurate responses, customers feel valued, which ultimately increases their trust in the service [27]. When customers get a quick and solution-oriented response, they tend to have a more positive experience, thus increasing their perception of the quality of the services provided.

In the context of Shopee, several challenges related to responsiveness are still often complained about by customers. A survey shows that many Shopee users are dissatisfied with customer service that is considered slow in handling problems, especially related to refunds and returns of goods [7]. This shows that although responsiveness has a significant influence on e-service quality, suboptimal implementation can reduce customer satisfaction. Furthermore, the company must minimize potential issues to create a positive shopping experience, as such experiences have a significant impact and play a decisive role in influencing customers' decisions to engage in repeat purchases [28]. Therefore, improving the customer service system, including the use of smarter chatbots and improving the response speed of the customer service team, can help improve the overall quality of Shopee's services.

Thus, it can be concluded that responsiveness has a positive and significant influence on e-service quality in Shopee e-commerce. Customers who feel like they are getting fast and responsive service will have a better perception of the platform, which ultimately increases their satisfaction and loyalty.

The Influence of E-Service Quality on Customer Satisfaction in Shopee E-Commerce

E-service quality is a crucial component of the customer experience on e-commerce platforms, encompassing key factors such as efficiency, reliability, privacy, and responsiveness [12]. Platforms that consistently deliver high-quality electronic services are more likely to retain customers over time [13]. In the case of Shopee, enhancing e-service quality can play a significant role in boosting user loyalty and minimizing churn rates.

The results of this study also explain that e-service quality has a significant influence on satisfaction with a p-value of $0.000 < 0.05$. E-service quality is an important factor in building a positive customer experience in online transactions. In Shopee e-commerce, e-service quality includes various aspects, such as security, reliability, responsiveness, ease of use, and system efficiency [29]. The higher the quality of services provided by the platform, the more likely customers are to feel satisfied and loyal to the service. E-service quality refers to the extent to which an e-commerce platform can meet customer expectations in online transactions. They assert that customers who experience a high-quality service experience will have a higher level of satisfaction compared to customers who experience problems in using the service .

Customer satisfaction in e-commerce is largely shaped by the overall experience users have while interacting with the platform [14]. Elements such as security, system reliability, and the responsiveness of customer service significantly influence how customers evaluate their experience [17]. When users feel that the platform is secure, dependable, and responsive to their needs, they are more likely to develop a sense of trust and satisfaction [15]. This satisfaction not only increases their likelihood of continuing to use the service but also encourages them to recommend the platform to others, strengthening brand loyalty and organic growth over time [30].

Thus, it can be concluded that e-service quality has a positive and significant influence on customer satisfaction in Shopee e-commerce. Customers who get a good service experience tend to be more satisfied, trust and have the potential to continue using the e-commerce service in the long run.

Conclusion

This study aims to analyze the influence of security, reliability, and responsiveness on e-service quality and their impact on customer satisfaction in the use of Shopee's e-commerce platform. Based on the analysis using the SEM-PLS method, several key findings emerged. First, security has a positive and significant effect on e-service quality, indicating that the higher the perceived security in transactions and data protection, the better users' perception of Shopee's electronic service quality. Second, reliability also positively and significantly affects e-service quality, with factors such as platform stability, accuracy of product information, and timely delivery contributing to the improvement of service quality. Third, responsiveness, reflected in prompt handling of complaints and user inquiries by customer service, plays a crucial role in enhancing users' experience on Shopee. Finally, higher perceived e-service quality significantly increases customer satisfaction, meaning that better service quality leads to greater satisfaction among Shopee's customers.

From these findings, it can be concluded that security, reliability, and responsiveness are essential factors in building high-quality electronic services, which ultimately contribute to increased customer satisfaction on Shopee. Therefore, Shopee must continue to enhance transaction security, maintain system reliability, and improve customer service responsiveness to sustain and grow customer satisfaction in the long term.

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