

Investigating E-Service Quality, Ease of Use, Trust and Satisfaction in Indonesian E-Commerce Platforms

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Abstract. In the dynamic Indonesian e-commerce landscape, this study addresses the need for companies in Jabodetabek to adapt to evolving user preferences. Using a quantitative approach, we surveyed 470 e-commerce users and applied SEM analysis with AMOS 24. Our investigation reveals the significant positive impact of e-service quality and ease of use on Trust, with Trust emerging as a crucial intervening variable. Both e-service quality and ease of use also directly contribute positively to customer satisfaction. Notably, Trust is identified as a key determinant positively influencing customer satisfaction. This research provides valuable insights for enhancing user satisfaction and strategic considerations for e-commerce companies amid intense competition in the Indonesian market.

Keywords: e-service quality, ease of use, customer satisfaction, Trust

1. Introduction

The rapid growth of e-commerce in Indonesia, evidenced by a 12 percent increase in transaction value to Rp. 30.8 trillion in February 2022, is a noteworthy trend (Ramli, 2022). This surge extends to transaction volume, with a notable 27 percent increase, reaching 222.9 million transactions in the same period. However, alongside this growth, there is a discernible rise in challenges.

A significant tenfold increase in consumer complaints in 2021, with 95.3 percent related to e-commerce transactions, as reported by the Ministry of Trade, highlights the emerging issues in the sector (Sandi, 2022). User dissatisfaction, reflected in poor ratings on major platforms, underscores concerns such as slow applications, subpar user experiences, and unhelpful customer service. Our observations on 19 informants in Jabodetabek further reveal persistent issues, including application-related problems and challenges with customer service, suggesting substantial gaps in the existing e-commerce systems and services. Likewise, a study by Rahman et al. (2022) and insights from Amin et al. (2014), Pham & Ahmad (2017), and Juliana et al. (2020) underscore the pivotal role of the ease of use factor in influencing customer satisfaction in e-commerce. Furthermore, businesses that successfully cultivate customer trust in their brand stand to benefit from elevated marketing effectiveness and enhanced customer retention rates, as emphasized by Zamry & Nayan (2020).

This study aims to address the specific research gap stemming from the prevailing challenges in Indonesian e-commerce. Despite the widespread adoption of e-commerce platforms, user complaints persist, indicating unresolved issues. Understanding the factors contributing to customer dissatisfaction and the role of trust in influencing satisfaction is crucial for e-commerce companies to enhance their services and retain a competitive edge in the market. Building on previous studies that emphasize the importance of ease of use and customer trust, this research seeks to provide a more nuanced understanding of the dynamics influencing user satisfaction in the context of Indonesian e-commerce.

2. Literature Review

E-Commerce Challenges and User Dissatisfaction

The surge in e-commerce, indicative of widespread adoption, has also brought about a surge in challenges. Complaints lodged with the Ministry of Trade increased tenfold in 2021, totaling 9,393 complaints, with 95.3 percent linked to e-commerce services (Sandi, 2022). Popular platforms like Shopee, Tokopedia, Lazada, and Bukalapak faced user dissatisfaction, reflected in low app store ratings. Complaints ranged from slow applications to poor user experience, highlighting challenges in transactional processes (Sandi, 2022).

Observations on 19 e-commerce users in Jabodetabek unveiled varied complaints, particularly related to application-related problems and challenges with customer service. This underscores the prevalence of user dissatisfaction despite the widespread use of e-commerce platforms.

The susceptibility of online consumers to the systems offered positions them as discerning users who can compare and shift services based on encountered failures.

E-Service Quality and Its Impact

E-Services, defined as internet-mediated, customer-managed, and interactive, are pivotal in shaping online shopping experiences (Al-were et al., 2017). The concept of service quality, primarily assessed through perception, encompasses the output produced, how a service is provided, and how it is delivered (Çelik, 2021). E-service quality, focusing on the efficiency and effectiveness of websites in supporting purchases and goods distribution, yields diverse outputs such as satisfaction, loyalty, purchase intention, and perceived value (Suhartanto et al., 2019; Shankar & Datta, 2020).

Ease of Use and Customer Satisfaction

In e-commerce, the influence of the ease of use factor on customer satisfaction is emphasized by Amin et al. (2014), Pham & Ahmad (2017), and Juliana et al. (2020). Furthermore, businesses stand to benefit

significantly from building customer trust, as highlighted by Zamry & Nayan (2020), leading to enhanced marketing effectiveness and increased customer retention rates.

The ease of use, reflecting the level of effort required by users to engage with technology, is integral to user satisfaction (Anugrah, 2020; Badir & Andjarwati, 2020). A seamless and user-friendly experience significantly contributes to user satisfaction, as users can navigate products and information effortlessly (Juliana et al., 2020).

Trust in E-Commerce Transactions

Trust, a fundamental element in online transactions, is the belief or perception that a person or party can fulfill expectations or goals (Fandini & Ratnasari, 2020). Building and proving trust from the outset is crucial in the online shopping context (Cynthia Kumala et al., 2020). Prior research consistently establishes the positive influence of e-service quality on trust (Puriwat & Tripopsakul, 2017; Anser et al., 2021) and the significant impact of ease of use on trust (Rizan et al., 2019; Al-were et al., 2017). Additionally, Trust emerges as a key driver of customer satisfaction in various studies (Sitorus & Yustisia, 2018; Diputra & Yasa, 2021).

In summary, the synthesis of transactional growth, challenges, and the pivotal dimensions of e-service quality, ease of use, and trust sets the stage for a comprehensive exploration of e-commerce dynamics and user satisfaction in Indonesia.

3. Research Methodology

The research design employed in this study is associative, focusing on examining the relationships between variables (Sugiyono, 2019). The primary objective is to investigate the impact of e-service quality and ease of use on customer satisfaction, with Trust serving as an intervening variable. Utilizing a quantitative approach, the research involves the use of numerical data collected through a structured questionnaire. The research variables in this study are e-service quality and ease of use as independent variables, customer satisfaction as dependent, and trust as intervening.

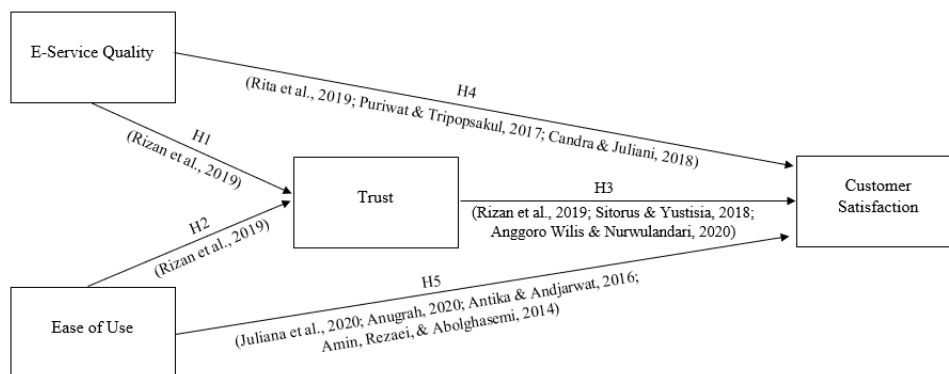


Fig.1: Research Framework

Research Framework

The study's conceptual framework is illustrated in Figure 1, which outlines the hypotheses tested:

- Hypothesis 1: There is a significant influence between e-service quality on trust.
- Hypothesis 2: There is a significant influence between ease of use on trust.
- Hypothesis 3: There is a significant influence between trust on customer satisfaction.
- Hypothesis 4: There is a significant influence between e-service quality on customer satisfaction.
- Hypothesis 5: There is a significant influence between ease of use on customer satisfaction.

- Hypothesis 6: There is a significant influence between e-service quality on customer satisfaction through trust.
- Hypothesis 7: There is a significant influence between ease of use on customer satisfaction through trust

Sampling Technique

The data collection process involved distributing online questionnaires to e-commerce users residing in Jabodetabek. The purposive sampling technique was employed to select respondents based on predetermined criteria, ensuring they met the domicile requirements in Jabodetabek. Respondents without current residency in Jabodetabek, even if possessing a Jabodetabek domicile ID card, were excluded from the study. The calculated sample size using the Cochran formula resulted in 385 respondents.

Validity and Reliability Measures

Validity and reliability of the collected data were rigorously assessed. Confirmatory Factor Analysis (CFA) was performed, comprising tests for convergent validity and construct reliability. Convergent validity was established by ensuring standardized loading values exceeded 0.5. For construct reliability, a value above 0.7 was considered acceptable. The reliability calculation formula was as follows:

Questionnaire Items

The questionnaire included items to assess e-service quality, ease of use, trust, and customer satisfaction. Examples of these items are available in the supplementary materials.

$$n = \frac{Za^2(p.q)}{e^2}$$

Information:

n = Number of samples

Za = Level of confidence (5%) or value Z = 1.96

p = 50% chance of being correct

q = 50% chance of being wrong

e = Sampling error (5%) or alpha = 0.05

Based on the calculations that have been done, the Number of samples to be studied is 384.14 rounded up to 385 respondents.

Data Analysis

Structural Equation Modeling (SEM) was employed as the analytical method, with data processed using AMOS 24 software. The analysis included CFA, goodness-of-fit testing, and hypothesis testing to evaluate the model's overall fit and the significance of the proposed relationships.

$\sum \lambda_i$ = Sum of loading

$\sum \varepsilon_i$ = Sum of error, where $\varepsilon = 1 - \text{loading}$

The goodness of fit test technique shows how well a predetermined model produces the observed covariance between indicators and mathematical calculations. The following is an index that can be used to test the feasibility of a model (Hair et al., 2018)

Table 1. Goodness of Fit Index and Cut-off Value

Goodness of Fit Index	Cut-off Value
Chi-Square	Lower value recommend
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08
Goodness of Fit Index	≥ 0.90
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90
Minimum Sample Discrepancy Function/ Degree of Freedom (CMIN/DF)	≤ 2
Tucker Lewis Index (TLI)	≥ 0.95
Comparative Fit Index (CFI)	≥ 0.95

4. Results and Discussion

The data used in this study consisted of 385 respondents. The data that has been collected is processed using AMOS 24 software to perform model formation and data input so that a model structure with values is formed, as shown in Figure 2 below.

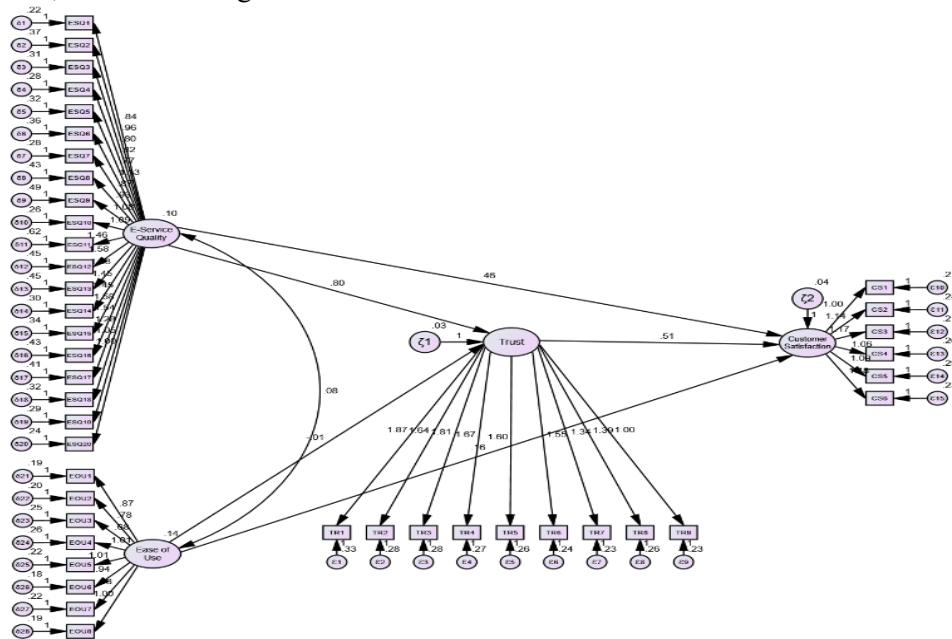


Fig.2: Structural Model

The research methodology underwent rigorous validation and reliability assessments, essential components of Confirmatory Factor Analysis (CFA). This phase aimed to ensure the validity and reliability of the data, a critical step in advancing the research.

Validity and Reliability Assessment

Convergent validity, a vital aspect of the validation process, was examined, requiring loadings and estimates exceeding 0.5. Additionally, the reliability of constructs was assessed, with a benchmark construct reliability value greater than 0.7. The results indicate that 10 out of 20 indicators for e-service quality, 7 out of 8 indicators for ease of use, and all 9 and 6 indicators for Trust and customer satisfaction, respectively, meet the validity criteria. Construct reliability values are notably high: 0.890 for e-service quality, 0.866 for ease of use, 0.921 for Trust, and 0.881 for customer satisfaction, affirming the reliability of the utilized variables. These robust results pave the way for subsequent testing stages.

Table 2. Goodness of Fit Test Final Result

Fit Indicator	Cut Off Value	Analysis Result	Model Evaluation
Chi-Square	Lower value recommended	581.629	Fit model
RMSEA	≤ 0.08	0.029	Fit model
GFI	≥ 0.90	0.917	Fit model
AGFI	≥ 0.90	0.900	Fit model
TLI	≥ 0.95	0.953	Fit model
CFI	≥ 0.95	0.958	Fit model
CMIN/DF	≤ 2.0	1.316	Fit model

Goodness of Fit Test

The Goodness of Fit Test analyzed key metrics such as chi-square, RMSEA, GFI, AGFI, TLI, CFI, and CMIN/DF values. Initial assessments revealed incongruities in fit, leading to the application of modification indices through AMOS software. The final results indicate an improved alignment with the underlying theoretical framework, reinforcing the credibility of the research findings.

The value of the goodness of fit test in Table 2 shows all indicators of the fit model because the resulting value does not exceed the cut-off value that has been set according to Hair et al. (2018)

Based on the value of the tests carried out and the results obtained where the data used is known to be valid and reliable and the components owned are fit, it can be continued with hypothesis testing.

Hypothesis Testing

Hypothesis testing was conducted, measuring the critical ratio (C.R.), with values greater than or equal to 1.96 and a probability value smaller than 0.05 considered significant.

Table 3. Hypothesis Result

Hypothesis	Estimates	C.R.	P
H1: ESQ → TR	0.700	6.731	***
H2: EOU → TR	0.305	4.486	***
H3: TR → CS	0.323	3.499	0.001
H4: ESQ → CS	0.311	3.242	***
H5: EOU → CS	0.361	5.203	***

*** p = under 0.001

Based on Table 3 above that the overall C.R. value is more than 1.96, and the probability value is less than 0.05, so each hypothesis in this study is stated to have a significant influence.

Table 4. Direct and Indirect Effect

Latent Variable	Intervening	End	Effect		
			Direct	Indirect	Total
EService Quality		Trust	0.597		
EService Quality	Trust	Customer Satisfaction	0.293	0.213	0.507
Ease of Use		Trust	0.302		
Ease of Use	Trust	Customer Satisfaction	0.394	0.108	0.502
Trust		Customer Satisfaction	0.357		

Direct and Indirect Effects

The anticipated outcomes regarding the indirect effect are presented in Table 4. The computation of the indirect effect coefficient is derived from the multiplication of the direct effect coefficients. Hypotheses 6 and 7 exhibit cumulative influence values of 0.507 and 0.502, respectively.

Discussion

The results of the conducted tests reveal insights that carry significant implications for the understanding of e-commerce dynamics, particularly in the Indonesian context. Aligning these findings with past studies from the literature review allows us to draw comparisons and distinctions, providing a basis for practical recommendations for e-commerce providers.

Comparison with Past Studies:

The impact of e-service quality on trust and customer satisfaction resonates with the findings of previous studies (Puriwat & Tripopsakul, 2017; Anser et al., 2021). The multidimensional nature of e-service quality, including customer service, security/privacy, and fulfillment, has been consistently highlighted in literature. Our study reinforces this understanding, emphasizing that aspects such as service delivery, data security, and product quality significantly contribute to building trust and enhancing customer satisfaction.

Similarly, the influence of ease of use on trust and customer satisfaction aligns with existing research (Amin et al., 2014; Pham & Ahmad, 2017; Juliana et al., 2020). The importance of factors like comprehension, clarity, and overall usability in fostering trust is reiterated in our study. Additionally, the convenience associated with ease of use directly impacts user satisfaction, a finding consistent with prior literature.

However, our study brings forth a nuanced perspective by highlighting the significance of website design. While e-service quality and ease of use exhibit substantial influence, the website design dimension did not withstand the validity test in our investigation. This raises a crucial point for future research, emphasizing the need for a more refined exploration and measurement of website design within the e-commerce context.

Practical Recommendations for E-commerce Providers

a. Enhance E-service Quality Components:

E-commerce providers should prioritize aspects encompassed by e-service quality, focusing on customer service, security/privacy, and fulfillment. Emphasizing efficient service delivery, robust data security measures, and ensuring the quality of delivered goods can significantly contribute to building trust and enhancing customer satisfaction.

b. Optimize Ease of Use:

E-commerce platforms should prioritize user experience by optimizing ease of use. This involves ensuring that platforms are easy to comprehend, provide clarity in navigation, and offer an overall user-friendly interface. Investing in these elements can enhance trust and directly impact user satisfaction.

c. Revise Website Design Strategies:

Acknowledging the invalidation of the website design dimension in our study, e-commerce providers should conduct a thorough review of their website design strategies. This entails a nuanced exploration of design elements, user interfaces, and overall aesthetics. Future research endeavors should delve into refining the measurement and evaluation of website design within the e-commerce landscape.

5. Conclusion

The quantitative evidence produced unravels the interconnected dynamics between e-service quality, ease of use, trust and satisfaction in e-commerce. The research contributes insights to guide strategies aimed at fortifying security systems, simplifying navigation, and enhancing customer service to optimize user experience. This research elucidates the substantial impact of E-service quality and Ease of use dimensions on both Trust and Customer Satisfaction within the e-commerce landscape. Notably, Trust emerges as a pivotal factor, wielding a significant influence on customer satisfaction. The intricate interplay between E-service quality, Ease of use, and Trust substantiates their collective impact on shaping user satisfaction in e-commerce activities. Elevated levels of e-service quality and ease of use correlate with heightened levels of trust and customer satisfaction, underscoring their interconnected nature.

Implications for E-commerce Providers:

The implications derived from these findings offer actionable insights for e-commerce service providers.

Prioritizing service quality through rigorous quality control measures, continuous improvement of application systems, and enhancing customer service mechanisms becomes a strategic imperative. Fortifying security systems, ensuring user-friendly interfaces, and aligning platforms with user preferences contribute significantly to heightened customer satisfaction. The clear and accessible presentation of information is emphasized as crucial to facilitate user understanding.

Contributions to Existing Knowledge:

This study significantly expands existing knowledge on e-commerce interfaces by affirming and refining relationships between key dimensions. It reinforces the importance of E-service quality and Ease of use, particularly highlighting the nuanced role of Trust as a pivotal intervening variable. The findings contribute to a deeper understanding of the intricate dynamics that influence user satisfaction in e-commerce interactions.

Future Research Directions:

Specific E-commerce Platforms:

Future research endeavors could explore specific e-commerce platforms, delving into their unique characteristics and user experiences. By concentrating on individual platforms, researchers can uncover platform-specific nuances that contribute to trust, security, and overall satisfaction, providing tailored insights for platform providers.

Website Design Dimensions:

Given the nuanced findings regarding website design dimensions, there is a need for dedicated research focusing on the intricacies of website design within e-commerce interfaces. Exploring design elements, user interfaces, and aesthetics in-depth can contribute to a more granular understanding, guiding e-commerce providers in optimizing their platforms.

Validity Testing in Website Design:

A critical future research direction involves a comprehensive examination of website design dimensions, specifically emphasizing the necessity for rigorous validity testing. This ensures a robust evaluation of website design elements within the e-commerce context, enhancing the methodological rigor of subsequent investigations.

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