

Analysis of E-Commerce Website Service Quality on Customer Satisfaction Using the WebQual 4.0 Method

Zakiatul Fuada ^{a*}

^{a*} Universitas Abulyatama, Aceh Besar Regency, Aceh Province, Indonesia.

ABSTRACT

The rapid growth of e-commerce has significantly reshaped retail practices and consumer behavior in Indonesia. Digital platforms such as Shopee, Tokopedia, and Bukalapak have become integral to daily transactions, yet their long-term success depends on how users perceive the quality of services provided through their websites. This study applies the WebQual 4.0 framework to evaluate three critical dimensions of website quality—usability, information quality, and service interaction quality—and their influence on user satisfaction. A quantitative approach was employed, involving a survey of 120 active e-commerce users in Aceh Besar. Data collection was conducted through structured questionnaires, and the results were analyzed using validity and reliability testing, supported by regression analysis to test the proposed hypotheses. The findings reveal that all three WebQual 4.0 dimensions significantly affect user satisfaction. Among them, usability emerged as the most dominant factor, reflecting the importance of ease of navigation, intuitive design, and functional accessibility in shaping consumer experiences. Information quality also plays a crucial role, particularly in ensuring that consumers trust the accuracy and clarity of product descriptions. Service interaction, while less influential compared to the other two dimensions, remains essential in fostering customer trust and loyalty. Comparative analysis shows that Shopee outperformed Tokopedia and Bukalapak across all dimensions, suggesting that continuous innovation in interface design and user support has strengthened its market position. These results confirm that enhancing website quality is not only vital for increasing satisfaction but also for sustaining consumer loyalty in the competitive e-commerce environment. For practitioners, the study emphasizes the necessity of prioritizing usability while simultaneously improving content reliability and responsiveness to user needs. For future research, expanding the scope to include additional variables such as pricing strategies, digital promotions, or cross-platform shopping experiences may provide broader insights into consumer decision-making patterns in online retail.

ARTICLE HISTORY

Received 19 April 2025
Accepted 20 June 2025
Published 30 June 2025

KEYWORDS

Webqual 4.0; Usability;
Information Quality; Service
Interaction; E-Commerce.

1. Introduction

The rapid advancement of information technology in the era of globalization has reshaped multiple aspects of human activity, particularly within the business sector. The increasing penetration of the internet has encouraged the emergence of *e-commerce* platforms, which offer consumers practical access to products and services at any time and from any location. These platforms allow users to compare alternatives, make transactions conveniently, and rely on integrated digital payment systems. To meet customer expectations, providers are required to maintain service quality that not only facilitates purchases but also fosters long-term trust and loyalty (Diana & Veronika, 2018; Purwandani & Syamsiah, 2021). Earlier studies highlight that usability is often perceived as the most decisive factor in user satisfaction, while aspects such as direct communication with the company are seen as less influential (Faza & Utomo, 2021). Other findings emphasize that the perceived quality of service in platforms such as Shopee positively influences customer satisfaction and strengthens their intent to continue using the platform (Lestari, 2018; Ramdani *et al.*, 2023).

The WebQual 4.0 model has been widely applied to measure *e-commerce* website quality based on user perceptions, focusing on usability, information accuracy, and service interaction (Giyanti & Suparti, 2018; Rakhmadani & Nabila, 2024). Evidence suggests that these dimensions not only enhance satisfaction but also affect customer loyalty and purchase decisions (Wisnel *et al.*, 2022). Studies by Priscillia *et al.* (2021) and Wilson & Keni (2018) show that website design quality and service delivery foster trust, which mediates repurchase intentions. Similarly, research by Nurdin & Jannah (2022) demonstrates that website navigation, layout, and product information significantly influence user satisfaction. Given the variety of platforms in Indonesia—such as Tokopedia, Bukalapak, Shopee, and Lazada—service quality differences become a crucial factor in attracting and retaining customers. Evaluating these platforms through WebQual 4.0 thus provides a structured approach to understanding how service quality impacts consumer perceptions and purchasing behavior.

2. Methodology

This study adopts a descriptive design with a quantitative approach, which is appropriate for surveys aiming to capture perceptions, attitudes, and behaviors to test hypotheses regarding user satisfaction with *e-commerce* websites (Triase *et al.*, 2024; Rezeki, 2018). The research relies on primary data collected through structured questionnaires distributed to respondents who have previously engaged in online transactions. Questionnaires are considered efficient when the researcher is able to identify the relevant variables and anticipate meaningful responses from participants (Imilda *et al.*, 2024). To complement this, interviews were also conducted to obtain deeper insights from users and validate the survey findings, as suggested by Hidayat & Diartono (2024), who highlight the importance of combining structured data collection with interactive engagement to ensure reliability.

The research process began with problem formulation and the identification of variables through a literature review, which drew on earlier studies concerning website quality assessment. WebQual 4.0 was employed as the central analytical framework because of its widespread application in evaluating website service quality from the user perspective, focusing on *usability*, *information quality*, and *service interaction* (Ilhadi *et al.*, 2024; Adji & Mailoa, 2024). A conceptual framework was then constructed to guide hypothesis testing. The hypotheses propose that each of the three dimensions of WebQual 4.0 has a significant influence on user satisfaction. This approach aligns with prior methodological practices in technology adoption and service evaluation studies (Meylano *et al.*, 2025; Gusfi *et al.*, 2024).

The data collection phase lasted four months, from February to May 2019. Questionnaires were distributed directly and via online platforms to reach a broader sample, consistent with the recommendations of Aguilika *et al.* (2025) and Kiedrowsky & Andrianingsih (2023), who emphasize that digital surveys expand reach while enabling analysis of customer sentiment in *e-commerce* contexts. The data obtained were subsequently processed and analyzed using the Statistical Package for the Social Sciences (SPSS). Validity tests were conducted by comparing the correlation coefficients of each questionnaire item against the critical values in the *r-table*. Items with coefficients above the threshold were classified as valid. Reliability was tested using Cronbach's Alpha, where values exceeding 0.6 indicated acceptable internal consistency (Kaizia *et al.*, 2024).

3. Results

The results of this study are presented through descriptive statistics, WebQual 4.0 dimension scores, validity and reliability tests, hypothesis testing, and comparative analysis across the three e-commerce platforms studied—Shopee, Tokopedia, and Bukalapak. The survey involved 120 respondents who were active users of e-commerce in Aceh Besar, with 40% frequently using Shopee, 35% Tokopedia, and 25% Bukalapak. The demographic analysis shows that most respondents were between 18 and 30 years old (62%), and the gender distribution consisted of 55% female and 45% male participants, which reflects the increasing participation of young consumers in online shopping activities. Respondents evaluated each platform based on three WebQual 4.0 dimensions: usability, information quality, and service interaction quality. As shown in Table 1, Shopee received the highest scores across all dimensions, achieving an overall satisfaction score of 4.32, followed by Tokopedia with 4.07, while Bukalapak had the lowest with 3.82. These findings indicate that Shopee consistently outperforms its competitors by providing a user-friendly interface, accurate and clear product information, and effective interaction features.

Table 1. WebQual 4.0 Dimension Scores for Tokopedia, Bukalapak, and Shopee

Platform	Usability	Information Quality	Service Interaction	Overall Satisfaction
Tokopedia	4.15	4.05	4.0	4.07
Bukalapak	3.85	3.9	3.7	3.82
Shopee	4.4	4.3	4.25	4.32

The validity test results, using Pearson correlation, showed that all questionnaire items had correlation values above the r-table threshold, thereby confirming their validity. Meanwhile, the reliability test using Cronbach's Alpha indicated values greater than 0.80 for all constructs, which demonstrates a high level of internal consistency and confirms the reliability of the data. Hypothesis testing using regression analysis revealed that all three hypotheses were supported with a significance value of $p < 0.05$. Among the three WebQual 4.0 dimensions, usability had the strongest influence on user satisfaction ($\beta = 0.42$), followed by information quality ($\beta = 0.35$), and service interaction ($\beta = 0.28$). This finding confirms that Indonesian consumers place greater importance on ease of navigation, system efficiency, and intuitive website design compared to other factors, although accurate product information and responsive interaction features remain important contributors to overall satisfaction.

When comparing the three platforms, Shopee achieved the highest satisfaction level due to its superior performance across all dimensions, demonstrating its commitment to continuous improvement in interface design and customer support services. Tokopedia ranked second, with relatively good usability and information quality but slightly lower service responsiveness compared to Shopee, while Bukalapak scored the lowest across all dimensions, highlighting the need for significant improvements in user interface design, information presentation, and customer support services to remain competitive. As illustrated in Figure 1, Shopee leads consistently across usability, information quality, and service interaction, confirming its position as the preferred e-commerce platform among respondents.

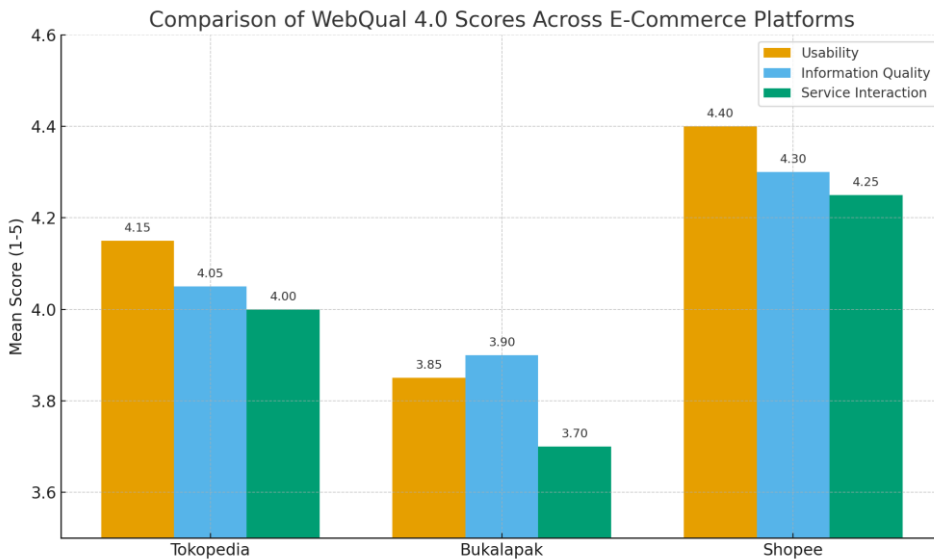


Figure 1. Comparison of WebQual 4.0 Dimensions Across Three Platforms

4. Discussion

The findings of this study provide important insights into how the three WebQual 4.0 dimensions—usability, information quality, and service interaction quality—affect user satisfaction in the context of Indonesian e-commerce platforms, specifically Shopee, Tokopedia, and Bukalapak. The results show that all dimensions significantly influence satisfaction, with usability emerging as the strongest factor, followed by information quality and service interaction. This outcome highlights that Indonesian consumers prioritize ease of navigation, fast system response, intuitive design, and overall website functionality when engaging with e-commerce platforms, as these elements directly enhance the convenience and efficiency of their shopping experiences. The high ranking of usability is consistent with prior studies such as those by Priscillia et al. (2021) and Wilson & Keni (2018), which found that website design and functionality strongly influence consumer trust and repurchase intentions. Similarly, the importance of information quality observed in this study supports the conclusions of Diana & Veronika (2018) and Giyanti & Suparti (2018), who emphasized that clarity, accuracy, and completeness of information are vital to consumer decision-making and confidence. Although service interaction quality ranked lowest among the three, it remains essential for fostering trust, problem resolution, and customer loyalty, as also noted by Wisnel et al. (2022) and Ramdani et al. (2023).

Comparative analysis across platforms reinforces the dominance of Shopee, which achieved the highest satisfaction levels due to its ability to integrate user-friendly design, accurate product descriptions, and effective customer support systems, thereby creating a holistic and reliable shopping environment. Tokopedia performed moderately well but requires improvement in responsiveness and interaction features to close the gap with Shopee, while Bukalapak's relatively low scores across all dimensions reveal its urgent need for innovation and service enhancement to remain competitive. The practical implications of these findings suggest that e-commerce providers should prioritize continuous development of usability aspects, especially navigation design and mobile-friendly accessibility, while simultaneously strengthening the accuracy and reliability of product information as well as expanding customer service responsiveness through AI-based chatbots, live assistance, and integrated feedback mechanisms. From a theoretical

perspective, this study validates the relevance of the WebQual 4.0 framework in assessing website quality within the Indonesian market context and confirms its applicability for explaining variations in user satisfaction across different platforms. The results also open avenues for further research by recommending the inclusion of additional variables such as pricing strategies, promotional activities, logistics efficiency, and cross-device or cross-platform experiences, which may provide a broader understanding of the complex determinants of satisfaction and loyalty in the dynamic e-commerce industry.

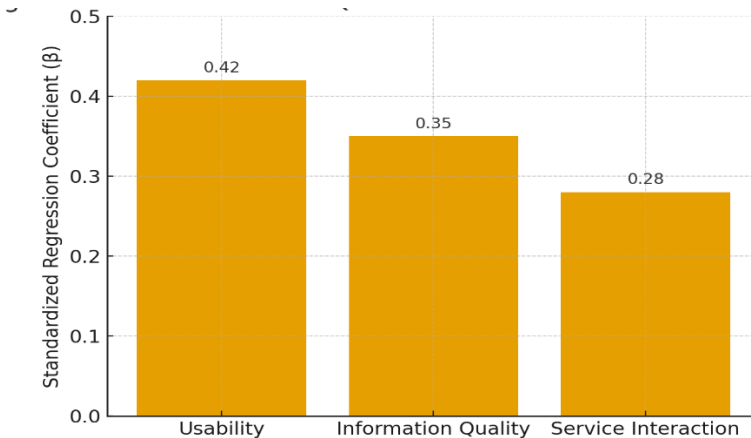


Figure 2. Influence of WebQual 4.0 Dimensions on User Satisfaction

5. Conclusion and Recommendations

This study examined the influence of WebQual 4.0 dimensions—usability, information quality, and service interaction quality—on e-commerce user satisfaction in Aceh Besar, focusing on Tokopedia, Bukalapak, and Shopee. The findings confirm that all three dimensions significantly affect user satisfaction, with usability emerging as the strongest predictor. Respondents emphasized the importance of easy navigation, fast access, and user-friendly interfaces as the main factors shaping their online shopping experiences. Information quality and service interaction quality also demonstrated positive effects, although their influence was weaker compared to usability.

Comparative analysis showed that Shopee achieved the highest satisfaction levels, followed by Tokopedia and Bukalapak. This highlights Shopee's strength in optimizing all WebQual dimensions, while Tokopedia and especially Bukalapak must improve their service quality to maintain competitiveness in Indonesia's dynamic e-commerce landscape. From a practical perspective, e-commerce providers should prioritize interface usability while also enhancing information delivery and customer interaction features. Theoretically, the results validate the applicability of the WebQual 4.0 model for assessing website quality in the Indonesian context. Finally, the study's scope was limited to three platforms and one geographic area. Future studies should expand the sample, compare additional e-commerce providers, and integrate other variables such as pricing, promotional strategies, and cross-device user experiences.

References

- Aguilika, D., Ibrahim, M. M., Kholil, M., Violin, V., & Ulimaz, A. (2025). Analisis pengaruh kualitas konten promosi digital, harga dan customer experience terhadap purchase intention produk preloved. *JEMSI (Jurnal Ekonomi, Manajemen, dan Akuntansi)*, 11(3), 1436–1442. <https://doi.org/10.35870/jemsi.v11i3.4117>
- Adji, L. S. A., & Mailoa, E. (2024). Pembuatan REST API manajemen data karyawan berbasis website menggunakan Spring Boot. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(2), 1543–1552. <https://doi.org/10.35870/jimik.v5i2.713>
- Diana, D., & Veronika, N. (2018). Analisis kualitas website Provinsi Bengkulu menggunakan metode WebQual 4.0. *Pseudocode*, 5(1), 10–17. <https://doi.org/10.33369/pseudocode.5.1.10-17>
- Faza, A., & Utomo, A. (2021). Analisa kualitas layanan website PT. Masusskita United menggunakan metode WebQual. *Jurnal Tekno Kompak*, 15(2), 88–96. <https://doi.org/10.33365/jtk.v15i2.1155>
- Giyanti, I., & Suparti, E. (2018). Penilaian kualitas aplikasi halal MUI dengan WebQual 4.0 dan pengaruhnya terhadap keputusan penggunaan. *Jurnal Teknik Industri*, 13(2), 91–98. <https://doi.org/10.14710/jati.13.2.91-98>
- Gusfi, D. A., Widodo, A., Dewi, C. K., Rubiyanti, N., & Silvanita, A. (2024). Pengaruh user experience terhadap customer satisfaction dengan e-service quality sebagai mediator pada Blibli: A conceptual paper. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(2), 2011–2023. <https://doi.org/10.35870/jimik.v5i2.843>
- Hidayat, J. T., & Diartono, D. A. (2024). Perancangan sistem pendukung keputusan pemilihan supplier dengan metode analytical hierarchy process (AHP) pada CV. Safina Abadi. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(3), 2877–2887. <https://doi.org/10.35870/jimik.v5i3.968>
- Ilhadi, V., Aidilof, H. A. K., Fakhurrrazi, Sahputra, I., Zohra, S. F. A., & Angelina, D. (2024). Pelatihan dan pendampingan teknologi informasi pengembangan gampong digital Gampong Uteunkot berbasis web di Kota Lhokseumawe. *Jurnal Pengabdian Nasional (JPN) Indonesia*, 5(3), 727–737. <https://doi.org/10.35870/jpni.v5i3.1064>
- Imilda, Hajriyanti, R., & Zahra, R. (2024). Pengaruh faktor yang memengaruhi pembelian impulsif online produk fashion melalui siaran langsung: Perbandingan antara Instagram dan TikTok. *Jurnal Manajemen dan Teknologi*, 1(2), 1–15. <https://doi.org/10.63447/jmt.v1i2.1055>
- Kiedrowsky, F. F., & Andrianingsih. (2023). Sentiment analysis marketplaces digital menggunakan machine learning. *Jurnal JTik (Jurnal Teknologi Informasi dan Komunikasi)*, 7(3), 493–499. <https://doi.org/10.35870/jtik.v7i3.1002>
- Lestari, F. (2018). Pengaruh web e-commerce, kualitas produk dan kualitas layanan terhadap kepuasan konsumen. *Sosio E-Kons*, 10(1), 87–97. <https://doi.org/10.30998/sosioekons.v10i1.2411>
- Meilia, K. D., Oktaviani, S., & Puspita, A. S. (2024). Pengaruh kualitas layanan J&T Express terhadap kepuasan pelanggan e-commerce. *JEMSI (Jurnal Ekonomi, Manajemen,*

- dan Akuntansi), 10(3), 1683–1691. <https://doi.org/10.35870/jemsi.v10i3.2431>
- Meylano, N. H., Woda, Y. W. B., Mukin, D. P., Pereira, F. L., & Theresia, D. E. (2025). Penerapan requirement engineering dalam pengembangan website e-commerce sebagai media promosi dan pemasaran pada kelompok UMKM tenun ikat. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 6(1), 240–251. <https://doi.org/10.35870/jimik.v6i1.1195>
- Muliadi, S., Arthawati, S., Oktavera, R., Gustiawan, W., & Putra, W. (2024). Determinan proses keputusan pembelian online di kalangan konsumen muslim pengguna Shopee: Kepercayaan sebagai variabel mediasi. *Jurnal Manajemen Maranatha*, 23(2), 233–246. <https://doi.org/10.28932/jmm.v23i2.8719>
- Nurdin, N., & Jannah, M. (2022). Pengaruh kualitas dan fasilitas website Shopee terhadap kepuasan konsumen. *Jurnal Impresi Indonesia*, 1(5), 473–484. <https://doi.org/10.36418/jii.v1i5.65>
- Priscillia, M., Budiono, H., Wiyanto, H., & Widjaya, H. (2021). The effects of website design quality and service quality on repurchase intention among Shopee customers in Jakarta, with customer trust as a mediating variable. *Advances in Economics, Business and Management Research: Proceedings of the International Conference on Economics, Business, Social, and Humanities*, 172–178. <https://doi.org/10.2991/aebmr.k.210507.006>
- Purwandani, I., & Syamsiah, N. (2021). Analisis kualitas website menggunakan metode WebQual 4.0: Studi kasus MyBest e-learning system UBSI. *Jurnal Sistem dan Teknologi Informasi (Justin)*, 9(3), 300–310. <https://doi.org/10.26418/justin.v9i3.47129>
- Rakhmadani, D. P., & Nabila, V. (2024). Kombinasi metode WebQual 4.0 dan importance performance analysis pada pengukuran kualitas website Stock Exchange. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(2), 1143–1159. <https://doi.org/10.35870/jimik.v5i2.616>
- Ramdani, R., Alpiansah, R., Komala, R., & Mulawarman, L. (2023). Kepuasan mahasiswa Universitas Bumigora terhadap pelayanan e-commerce. *Income*, 1(2), 105–114. <https://doi.org/10.30812/income.v1i2.3210>
- Rezeki, R. (2018). Perancangan perbaikan kualitas layanan e-commerce: Studi pelanggan Jakarta. *Operations Excellence Journal of Applied Industrial Engineering*, 10(3), 275–284. <https://doi.org/10.22441/oe.v10.3.2018.007>
- Triase, Manurung, L. A., & Atsil, R. A. (2024). Aplikasi survei kepuasan peserta diklat berbasis mobile untuk meningkatkan pelayanan diklat. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(2), 1320–1331. <https://doi.org/10.35870/jimik.v5i2.670>
- Wilson, N., & Keni, K. (2018). Pengaruh website design quality dan kualitas jasa terhadap repurchase intention: Variabel trust sebagai variabel mediasi. *Jurnal Manajemen dan Pemasaran Jasa*, 11(2), 291–310. <https://doi.org/10.25105/jmpj.v11i2.3006>
- Wisnel, W., Wirdianto, E., & Cantika, T. (2022). Analysis of the effect of e-service quality on e-commerce customer satisfaction and loyalty. *Motivaction Journal of Mechanical Electrical and Industrial Engineering*, 4(3), 209–222. <https://doi.org/10.46574/motivaction.v4i3.145>