



## Beyond Usability: Modeling User Satisfaction in Alumni Networking Platforms Using WebQual 4.0 and SEM-PLS

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### Abstract

This study examines the effect of website quality on user satisfaction using the WebQual 4.0 framework in the context of an alumni networking platform. The study aims to determine which dimension—usability quality, information quality, or service interaction quality—has the most dominant influence on user satisfaction. A quantitative approach was employed using a survey method, with data collected from 298 respondents through purposive sampling. The data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SmartPLS 4. The results indicate that the research model has moderate explanatory power, with an  $R^2$  value of 0,495, meaning that 49,5% of user satisfaction is explained by the three website quality dimensions. Hypothesis testing reveals that service interaction quality has a positive and significant effect on user satisfaction ( $\beta = 0,440$ ;  $p < 0,001$ ;  $f^2 = 0,239$ ) and is the most dominant factor. Information quality also has a positive and significant effect ( $\beta = 0,329$ ;  $p < 0,001$ ;  $f^2 = 0,133$ ). In contrast, usability quality does not have a significant effect ( $\beta = 0,090$ ;  $p = 0,059$ ;  $f^2 = 0,016$ ), indicating that usability is perceived as a basic requirement rather than a primary driver of satisfaction. These findings indicate that user satisfaction is primarily influenced by service interaction quality, followed by information quality.

**Keywords:** WebQual 4.0, User Satisfaction, Service Interaction Quality, Information Quality, Usability Quality, SEM-PLS.

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## INTRODUCTION

The success of a website is not determined solely by the sophistication of the technology it uses, but more importantly by how well the website is able to meet the needs and expectations of its users (Maulana & Legowo, 2025). In this context, user satisfaction becomes a key indicator of the success of an information system. User satisfaction is defined as users' affective evaluation of their experience when interacting with a system, which is formed when the system's performance meets or exceeds their initial expectations (Rerung et al., 2020; I. S. Utami et al., 2021).

The WebQual 4.0 model has become one of the most widely used instruments for evaluating website quality from the users' perspective (Nurhadi et al., 2019; Rismayani, 2020). This model measures website quality through three main dimensions: usability quality (ease of use, navigation, and interface design), information quality (accuracy, relevance, and timeliness of information), and service interaction quality (responsiveness, security, and ease of interaction with administrators) (Faqih et al., 2020; I. S. Utami et al., 2021).

To examine the relationships between the three dimensions of WebQual 4.0 and user satisfaction, this study employed the Structural Equation Modeling-Partial Least Squares (SEM-PLS) approach. This method was selected because it is capable of handling complex research models with reflective constructs, does not require strict assumptions of data normality, and is suitable for medium sample sizes such as those used in this study (Cidral et al., 2020; Demir, 2025).

Compared with covariance-based SEM (CB-SEM), PLS-SEM is considered more advantageous in predictive research contexts because it focuses on maximizing the explained variance of the dependent variables (Guti et al., 2020; Salameh et al., 2022). Therefore, PLS-SEM is an appropriate approach for identifying which dimension of WebQual 4.0 is the most dominant in shaping user satisfaction on an alumni networking platform (Winarno & Legowo, 2024).

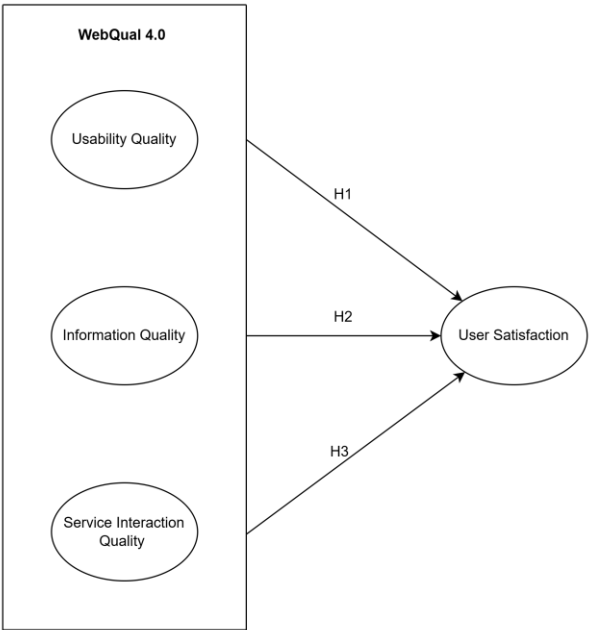
However, empirical research findings regarding the influence of each dimension on user satisfaction remain inconsistent. On the one hand, several studies have found that all three dimensions of WebQual 4.0 significantly affect user satisfaction, both in the context of academic portals (Qurrata A'yun et al., 2023) and public information services (Handayani et al., 2020). On the other hand, other studies on public service websites have shown that usability quality does not have a significant effect, while service interaction quality emerges as the most dominant predictor (Nugraha et al., 2020). Research on local government websites also confirms that service interaction is the most influential factor in driving user engagement and satisfaction (Rokhman et al., 2024).

This inconsistency suggests that the effect of website quality on user satisfaction may be contextual, depending on user characteristics and the type of website being evaluated (Candiwan, 2021; Pathania & Rasool, 2017). Therefore, this study reexamines the influence of WebQual 4.0 dimensions on user satisfaction within the context of an alumni networking platform, a setting that remains underexplored in previous studies. Specifically, this study seeks to answer the following research question: among usability quality, information quality, and service interaction quality, which dimension is the most dominant in shaping user satisfaction with an alumni networking website? Based on this question, three research hypotheses are proposed:

H1: Usability Quality has a significant positive effect on User Satisfaction.

H2: Information Quality has a significant positive effect on User Satisfaction.

H3: Service Interaction Quality has a significant positive effect on User Satisfaction.



**Figure 1. Conceptual Model**

Figure 1 presents the conceptual model proposed in this study based on the WebQual 4.0 framework. In this model, website quality is represented by three independent variables, namely usability quality, information quality, and service interaction quality, while user satisfaction serves as the dependent variable. The model illustrates the hypothesized relationships between each WebQual dimension and user satisfaction within the context of an alumni networking platform.

Usability quality refers to the extent to which the website is easy to learn, simple to navigate, and visually appealing for users. A website with good usability quality is expected to provide a more convenient and efficient user experience, thereby increasing user satisfaction. Information quality relates to the accuracy, relevance, completeness, and timeliness of the

information provided on the website. Users are more likely to feel satisfied when the platform delivers reliable and useful information that meets their needs. Meanwhile, service interaction quality reflects the quality of interaction and services provided by the platform, including security, responsiveness, trust, and communication support. Better interaction services are expected to strengthen positive user experiences and enhance overall satisfaction.

The arrows shown in the conceptual model indicate the direction of the hypothesized influence between variables. H1 examines the effect of usability quality on user satisfaction, H2 examines the effect of information quality on user satisfaction, and H3 examines the effect of service interaction quality on user satisfaction. Through this conceptual model, the study seeks to identify which dimension of website quality has the strongest contribution to shaping user satisfaction in an alumni networking website environment.

## **LITERATURE REVIEW**

### **WebQual 4.0**

WebQual 4.0 is one of the most widely used methods for measuring website quality based on users' perceptions (Giyanti & Suparti, 2018; Purwandani & Syamsiah, 2021; Wijaya et al., 2021). This model was developed by Barnes and Vidgen as an instrument for evaluating website quality from the perspective of end users (Faqih et al., 2020; Rerung et al., 2020; I. S. Utami et al., 2021). WebQual 4.0 focuses on users' experiences while interacting with a website; therefore, website quality is assessed not only from technical aspects but also from how users perceive the benefits, convenience, and services provided by the website (Nurhadi et al., 2019; Rerung & Ramadhan, 2024; I. S. Utami et al., 2021).

In information systems research, WebQual 4.0 has been widely used because it is capable of providing a comprehensive evaluation of website quality (Purwandani & Syamsiah, 2021; Rokhman et al., 2024). This method has frequently been applied to various types of digital platforms, such as educational websites, government services, e-commerce platforms, and public service platforms (Giyanti & Suparti, 2018; Rerung & Ramadhan, 2024; Rismayani, 2020). Previous studies have shown that high website quality can increase user satisfaction, loyalty, trust, and the intention to reuse a system (Marko van Deventer, 2023; Mofokeng, 2025; Rerung et al., 2020; Wijaya et al., 2021). WebQual 4.0 consists of three main dimensions: usability quality, information quality, and service interaction quality.

### **Usability Quality**

Usability quality refers to the extent to which users can easily learn, understand, and use a website (Giyanti & Suparti, 2018; Hertiana et al., 2024; Qurrata A'yun et al., 2023; I. S. Utami et al., 2021). This dimension includes aspects such as ease of navigation, interface appearance, visual design, and the ease with which users can operate the system (Faqih et al., 2020; Marko van Deventer, 2023; Purwandani & Syamsiah, 2021; Rerung et al., 2020). Websites with good usability tend to provide a more comfortable and efficient user experience (Al & Hasan, 2026; Parwal et al., 2025; Qurrata A'yun et al., 2023; T. Utami et al., 2022). Users generally prefer websites that are easy to understand, have clear navigation, and do not require significant effort to access information or services (Aekthanate et al., 2024; Mofokeng, 2025; Salamah et al., 2022).

### **Information Quality**

Information quality refers to the quality of information provided by a website (Chen et al., 2017; Hsieh et al., 2022; Nurkasanah et al., 2024). This dimension includes the accuracy, relevance, completeness, clarity, and timeliness of information (Chen et al., 2017; Magatef et al., 2023; Salamah et al., 2022). High-quality information helps users obtain knowledge or services that meet their needs (Salameh et al., 2022; Vatolkina et al., 2020). In contrast, inaccurate or outdated information can reduce users' trust and satisfaction with a website (Hsieh et al., 2022; Magatef et al., 2023; Nurkasanah et al., 2024; Zhao et al., 2024).

### **Service Interaction Quality**

Service interaction quality refers to the quality of interactions and services provided by a website to its users (Melani et al., 2025; Pathania & Rasool, 2017). This dimension includes service responsiveness, data security, user trust, ease of communication, and service support provided by website administrators (Chen et al., 2017; Melani et al., 2025; Pathania & Rasool, 2017). In today's digital platform environment, users not only expect informative websites but also responsive services that effectively support their needs (Nguyen, 2026; Zhao et al., 2024). Therefore, service

interaction quality has become one of the key factors in shaping user experience and satisfaction (Magatef et al., 2023; Pathania & Rasool, 2017; Vatolkina et al., 2020).

## METHOD

### Research Design and Respondents

This study employs a quantitative approach using a survey method. The study population consists of users of an alumni networking website. A purposive sampling technique was applied with the following respondent criteria: (1) being a member of the alumni network; (2) having accessed the alumni networking website at least once; and (3) being willing to complete the questionnaire in full.

Data were collected online through a web-based questionnaire. After the screening process, a total of 298 respondents met the criteria and were included for further analysis.

### Research Instrument

The questionnaire was developed based on indicators from the WebQual 4.0 model adapted from previous studies. All items were measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Table 1 presents the blueprint of the research instrument.

**Table 1. Research Variable Indicators**

| No  | Variable                    | Code | Statement                                                                                                          | Reference                     |
|-----|-----------------------------|------|--------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1.  | Usability Quality           | UQ1  | I find the MAGNET website easy to learn and operate.                                                               | (Rerung et al., 2020)         |
| 2.  |                             | UQ2  | I find the MAGNET website easy to use for accessing available information or services.                             | (Faqih et al., 2020)          |
| 3.  |                             | UQ3  | I find the MAGNET website interface visually appealing.                                                            | (Rerung & Ramadhan, 2024)     |
| 4.  | Information Quality         | IQ1  | I find that the MAGNET website provides accurate information.                                                      | (Candiwan, 2021)              |
| 5.  |                             | IQ2  | I find that the MAGNET website provides up-to-date information.                                                    | (Nugraha et al., 2020)        |
| 6.  |                             | IQ3  | I find that the MAGNET website provides information relevant to my needs as a scholarship recipient.               | (Purwandani & Syamsiah, 2021) |
| 7.  | Service Interaction Quality | SIQ1 | I find that the MAGNET website has a good reputation, as indicated by its responsiveness to my needs or inquiries. | (Jundillah et al., 2019)      |
| 8.  |                             | SIQ2 | I find that the MAGNET website protects the confidentiality of my personal data.                                   | (Handayani et al., 2020)      |
| 9.  |                             | SIQ3 | I find that the MAGNET website facilitates interaction with administrators or related parties.                     | (Rismayani, 2020)             |
| 10. | User Satisfaction           | US1  | I am satisfied with my overall experience using the MAGNET website.                                                | (Hertyana et al., 2024)       |
| 11. |                             | US2  | I find that the MAGNET website meets my expectations regarding the information and services provided.              | (Nurhadi et al., 2019)        |
| 12. |                             | US3  | I find that using the MAGNET website is beneficial for my needs as a scholarship recipient.                        | (Yohanes F Viriando, 2021)    |

### Data Analysis Technique

The data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 4 software. This method was chosen because it can handle complex research models, does not require strict data normality assumptions, and is suitable for a moderate sample size. The analysis was conducted in two stages. First, the measurement model (outer model) was evaluated by assessing convergent validity (loading factors > 0,70 and AVE > 0,50), discriminant validity (Fornell–Larcker criterion and HTMT < 0,90), and reliability (Cronbach's alpha > 0,70) (Hair et al., 2019; Setiabudhi et al., 2024). Second, the structural model (inner model) was

evaluated to test the research hypotheses using the bootstrapping procedure with 5.000 subsamples, with the criteria of t-statistic > 1,96 and p-value < 0,05 (Hair et al., 2019; Hair Jr. et al., 2021).

## RESULT AND DISCUSSION

### Respondent Characteristics

The respondents in this study were LPDP affirmative scholarship recipients from the Papua region who had accessed the MAGNET website. After undergoing a screening process to ensure data completeness and suitability, a total of 298 respondents met the criteria and were included in the analysis. The demographic characteristics of the respondents are presented in Table 2.

**Table 2. Respondent Characteristics**

| Variable                       | Category                                     | Frequency<br>(n) | Percentage<br>(%) |
|--------------------------------|----------------------------------------------|------------------|-------------------|
| <b>Gender</b>                  | Male                                         | 134              | 45%               |
|                                | Female                                       | 164              | 55%               |
| <b>Age</b>                     | < 25 years                                   | 5                | 2%                |
|                                | 25–30 years                                  | 122              | 41%               |
|                                | 31–35 years                                  | 73               | 24%               |
|                                | 36–40 years                                  | 53               | 18%               |
|                                | > 40 years                                   | 45               | 15%               |
|                                | Papua                                        | 87               | 29%               |
| <b>Province of Origin</b>      | West Papua                                   | 103              | 35%               |
|                                | Southwest Papua                              | 35               | 12%               |
|                                | Central Papua                                | 33               | 11%               |
|                                | South Papua                                  | 32               | 11%               |
|                                | Highland Papua                               | 8                | 3%                |
| <b>Status</b>                  | Awardee (currently studying)                 | 95               | 32%               |
|                                | Alumni (graduated)                           | 203              | 68%               |
|                                | Once                                         | 282              | 95%               |
| <b>MAGNET Access Frequency</b> | 2–3 times                                    | 14               | 5%                |
|                                | 4–5 times                                    | 1                | 0%                |
|                                | > 5 times                                    | 1                | 0%                |
|                                | Within the last week                         | 233              | 78%               |
| <b>Last Access Time</b>        | Within the last month                        | 7                | 2%                |
|                                | Within the last 3 months                     | 54               | 18%               |
|                                | > 3 months ago                               | 4                | 1%                |
| <b>Scholarship Type</b>        | Affirmative Scholarship – Putra-Putri Papua  | 162              | 54%               |
|                                | Affirmative Scholarship – Affirmation Region | 132              | 44%               |
|                                | Affirmative Scholarship – Underprivileged    | 4                | 1%                |

Based on Table 2, the respondents were predominantly female, with 164 individuals (55%), while male respondents accounted for 134 individuals (45%). This indicates that female participation in the affirmative scholarship program and utilization of the MAGNET website is relatively higher than that of males. In terms of age, the majority of respondents were in the 25–30 age group, totaling 122 individuals (41%), followed by those aged 31–35 (73 individuals, 24%), 36–40 (53 individuals, 18%), over 40 (45 individuals, 15%), and only 5 individuals (2%) under the age of 25. This distribution suggests that affirmative scholarship recipients are generally within the productive age range, either currently pursuing or having recently completed higher education.

Based on provincial origin, respondents were drawn from six provinces in the Papua region. The largest proportions came from West Papua (103 respondents) and Papua (87 respondents), while other provinces such as Southwest Papua (35 respondents), Central Papua (33 respondents), South Papua (32 respondents), and Highland Papua (8 respondents) had smaller representations. This distribution indicates that access to scholarship information and the use of the MAGNET website remain concentrated in areas with relatively better infrastructure.

In terms of status, the majority of respondents were alumni who had completed their studies (68%), while 32% were current awardees still pursuing their studies. This distinction is important, as their experiences in accessing the MAGNET website may differ between those actively seeking information during their studies and those no longer administratively engaged with the scholarship program. Regarding access behavior, 282 respondents (95%) reported accessing the MAGNET website only once, while 14 respondents (5%) accessed it two to three times, and fewer than 1% accessed it more than four times. This suggests that the MAGNET website primarily functions as a one-stop information source rather than a platform that encourages repeated visits. However, in terms of recency of access, the majority of respondents (233 individuals, 78%) had accessed the website within the past week. This indicates that although the frequency of access is low, the recency is relatively high, suggesting that users tend to access the website when they need specific information on a periodic basis.

Finally, based on scholarship category, most respondents were from the Affirmative Scholarship – Putra-Putri Papua scheme (162 individuals, 54%), followed by the Affirmative Scholarship – Affirmation Region (132 individuals, 44%), and only 4 individuals (1%) from the Underprivileged scheme. This distribution aligns with the focus of the study on affirmative scholarship recipients from Papua and indicates that the program is predominantly accessed by indigenous Papuan beneficiaries compared to other affirmation categories.

Overall, the respondent characteristics illustrate that MAGNET website users are predominantly female, within the productive age group, mostly current awardees, with occasional but recent access patterns, and primarily originating from Papua and West Papua regions.

#### Measurement Model Evaluation (Outer Model)

In the first stage of convergent validity testing, one indicator did not meet the minimum threshold requirement, namely SIQ2, with a loading factor value of 0,362. Therefore, this indicator was removed from the model, and the analysis was re-estimated in the second stage. Table 3 presents the final results of the measurement model evaluation after the elimination of the SIQ2 indicator.

**Table 3. Measurement Model Results**

| Variable                    | Code | Loading | AVE   | CA    | CR (pa) | CR (pc) | Remark   |
|-----------------------------|------|---------|-------|-------|---------|---------|----------|
| Information Quality         | IQ1  | 0,711   | 0,708 | 0,794 | 0,846   | 0,878   | Reliable |
|                             | IQ2  | 0,892   |       |       |         |         |          |
|                             | IQ3  | 0,906   |       |       |         |         |          |
| Service Interaction Quality | SIQ1 | 0,881   | 0,797 | 0,746 | 0,751   | 0,887   | Reliable |
|                             | SIQ3 | 0,904   |       |       |         |         |          |
|                             | UQ1  | 0,768   |       |       |         |         |          |
| Usability Quality           | UQ2  | 0,906   | 0,670 | 0,777 | 0,947   | 0,858   | Reliable |
|                             | UQ3  | 0,774   |       |       |         |         |          |
|                             | US1  | 0,705   |       |       |         |         |          |
| User Satisfaction           | US2  | 0,932   | 0,718 | 0,803 | 0,862   | 0,883   | Reliable |
|                             | US3  | 0,887   |       |       |         |         |          |

\*CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted

Based on the results presented in Table 3, all indicators demonstrate loading factor values  $\geq 0,70$ , namely IQ1 = 0,711; IQ2 = 0,892; IQ3 = 0,906; SIQ1 = 0,881; SIQ3 = 0,904; UQ1 = 0,768; UQ2 = 0,906; UQ3 = 0,774; US1 = 0,705; US2 = 0,932; and US3 = 0,887. These findings indicate that each indicator adequately represents the construct being measured. In addition, all constructs exhibit Average Variance Extracted (AVE) values above 0,50, confirming that convergent validity has been achieved. The Cronbach's Alpha and Composite Reliability values for all constructs also exceed the recommended threshold of 0,70, indicating that the research instrument demonstrates good reliability and consistency in measuring the study variables.

Furthermore, discriminant validity was assessed using the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT). Based on the Fornell-Larcker criterion, the square root of AVE for each construct (IQ = 0,841; SIQ = 0,893; UQ = 0,819; and US = 0,847) is greater than its correlations with other constructs. These results indicate that each construct possesses distinct

characteristics from the others. Moreover, all HTMT values are below the threshold of 0,90, with the highest value observed in the relationship between SIQ and US at 0,802. These findings suggest that each construct demonstrates adequate discriminant validity and is free from multicollinearity or construct overlap issues.

#### Structural Model Evaluation (Inner Model)

The structural model demonstrates adequate explanatory power, with an  $R^2$  value of 0,495 for the User Satisfaction variable, which falls into the moderate category. In addition, the  $Q^2$  predict value for User Satisfaction is 0,482, which is greater than zero, indicating that the model has good predictive relevance.

##### 1. Coefficient of Determination ( $R^2$ )

The coefficient of determination ( $R^2$ ) is used to measure the extent to which independent variables explain the variance of dependent variables in the research model. Furthermore, the adjusted  $R^2$  value provides a more accurate estimation by accounting for model complexity.

**Table 4.  $R^2$  And Adjusted  $R^2$  Results**

| Variable          | R-square | R-square adjusted |
|-------------------|----------|-------------------|
| User Satisfaction | 0,495    | 0,490             |

The results indicate that the  $R^2$  value for User Satisfaction is 0,495. This means that 49,5% of the variance in user satisfaction can be explained by the website quality dimensions, namely Usability Quality, Information Quality, and Service Interaction Quality. Therefore, the remaining 50,5% is influenced by other factors outside the research model.

This value falls within the moderate category, suggesting that the model has adequate explanatory capability. In addition, the relatively small difference between the  $R^2$  and adjusted  $R^2$  values indicates that the research model is stable and not biased by model complexity.

##### 2. Effect Size ( $f^2$ )

Effect size ( $f^2$ ) is used to evaluate the magnitude of the contribution of each independent variable to the dependent variable. The  $f^2$  values are categorized as small (0,02), medium (0,15), and large (0,35).

**Table 5.  $f^2$  Values Between Variables**

|                             | User Satisfaction |
|-----------------------------|-------------------|
| Information Quality         | 0,133             |
| Service Interaction Quality | 0,239             |
| Usability Quality           | 0,016             |

Based on the results, Information Quality has a small effect on the dependent variable, with an  $f^2$  value of 0,133, approaching the medium category. Service Interaction Quality demonstrates a medium effect on User Satisfaction, with an  $f^2$  value of 0,239. Meanwhile, Usability Quality shows only a very small effect, with an  $f^2$  value of 0,016. These findings indicate that, compared to the other dimensions, Service Interaction Quality provides the greatest contribution to enhancing user satisfaction. In contrast, Usability Quality contributes relatively little in explaining the variance in user satisfaction within the alumni networking website examined in this study.

##### 3. Predictive Relevance ( $Q^2$ )

Predictive relevance was evaluated using the PLS-Predict approach by examining the  $Q^2$  values. The results presented in Table 6 indicate that the  $Q^2$  value for User Satisfaction is 0,482. Since the value is greater than zero ( $Q^2 > 0$ ), the model can be considered to have good predictive capability.

**Table 6.  $Q^2$  Predict Results**

|                   | $Q^2$ predict | RMSE  | MAE   |
|-------------------|---------------|-------|-------|
| User Satisfaction | 0,482         | 0,726 | 0,551 |

More specifically, the  $Q^2$  value for User Satisfaction indicates strong predictive capability. This finding suggests that the research model is able to predict the dependent variable adequately based on the relationships among variables established in the structural model.

In addition, the prediction error values measured using Root Mean Square Error (RMSE) and Mean Absolute Error (MAE) fall within acceptable ranges. These findings indicate that the model demonstrates adequate predictive accuracy and can reliably explain the relationship between website quality dimensions and user satisfaction.

### Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping method with 5.000 resamples. The results of the direct effect testing are presented in Table 7.

**Table 7. Results Of Direct Effect Hypothesis Testing**

| H  | Relationship         | $\beta$ | t-value | p-value | $f^2$ | Result   |
|----|----------------------|---------|---------|---------|-------|----------|
| H1 | UQ $\rightarrow$ US  | 0,090   | 1,887   | 0,059   | 0,016 | Rejected |
| H2 | IQ $\rightarrow$ US  | 0,329   | 6,055   | 0,000   | 0,133 | Accepted |
| H3 | SIQ $\rightarrow$ US | 0,440   | 9,000   | 0,000   | 0,239 | Accepted |

\*  $p < 0.05$ ; H = Hypothesis;  $\beta$  = path coefficient; UQ = Usability Quality; IQ = Information Quality; SIQ = Service Interaction Quality; US = User Satisfaction

Based on the results, the first hypothesis (H1), which proposed that Usability Quality has a positive and significant effect on User Satisfaction, was rejected. The path coefficient ( $\beta$ ) value of 0,090 with a t-statistic of 1,887 and a p-value of 0,059, indicates that the relationship is not statistically significant because the p-value exceeds 0,05. In addition, the effect size ( $f^2$ ) value of 0,016 suggests that the influence of Usability Quality on User Satisfaction is very small. The second hypothesis (H2), which proposed that Information Quality has a positive and significant effect on User Satisfaction, was accepted. The path coefficient ( $\beta$ ) value of 0,329 with a t-statistic of 6,055 and a p-value below 0,001 indicates a statistically significant relationship. Furthermore, the effect size ( $f^2$ ) value of 0,133 suggests that Information Quality has a small-to-moderate contribution to User Satisfaction. The third hypothesis (H3), which proposed that Service Interaction Quality has a positive and significant effect on User Satisfaction, was also accepted. The path coefficient ( $\beta$ ) value of 0,440 with a t-statistic of 9,000 and a p-value below 0,001 demonstrates a strong significant relationship. In addition, the effect size ( $f^2$ ) value of 0,239 indicates a moderate contribution, confirming that Service Interaction Quality is the most dominant factor influencing User Satisfaction.

## DISCUSSION

The novelty of this study lies in three main aspects. First, this study examines the WebQual 4.0 model within a context that has received limited attention in previous research, namely an alumni scholarship networking platform, which possesses unique characteristics as a combination of social interaction, professional career development, and information access within a single ecosystem. Unlike previous studies that primarily focused on e-commerce platforms (Candiwan, 2021; Pathania & Rasool, 2017), e-learning systems (Jundillah et al., 2019; Sayaf, 2023), or government websites (Rokhman et al., 2024), this study extends the application of WebQual 4.0 to the domain of alumni community platforms. Second, this study involves respondents from Eastern Indonesia, particularly Papua, in order to address the geographical gap in the website quality literature (Handayani et al., 2020; Nurhadi et al., 2019; Rismayani, 2020). This is important because similar studies in Indonesia have often limited their research scope to populations residing on Java Island (Faqih et al., 2020; Purwandani & Syamsiah, 2021; Swadati, 2022; I. S. Utami et al., 2021). In fact, internet user dominance in Indonesia remains concentrated on Java Island at 58.08% (Rerung et al., 2020), indicating that the characteristics of user access and experiences in regions outside Java, such as Papua, have not been adequately represented in previous research (Nurhadi et al., 2019; Rerung et al., 2020; Rokhman et al., 2024). Third, the finding that usability quality does not significantly affect user satisfaction provides an important contribution to the development of WebQual 4.0 theory. This finding is consistent with previous studies on public services (Nugraha et al., 2020) and e-commerce platforms (Candiwan, 2021), which demonstrated that in certain contexts, users tend to overlook deficiencies in usability aspects and place greater emphasis on service interaction quality when evaluating their satisfaction (Nugraha et al., 2020). This novelty is important because it highlights that the influence of website quality is contextual; on certain platforms, usability is perceived as a low-impact variable on loyalty compared with information quality or service quality (Candiwan, 2021).

Based on the results of the data analysis, the research model was found to have moderate explanatory power, with an  $R^2$  value of 0,495, indicating that 49,5% of the variance in user

satisfaction can be explained by the three dimensions of website quality (usability quality, information quality, and service interaction quality), while the remaining 50,5% is explained by factors outside the model. Of the three proposed hypotheses, two were accepted and one was rejected. The first hypothesis (H1), which stated that usability quality has a positive and significant effect on user satisfaction, was rejected, with a path coefficient ( $\beta$ ) of 0,090, a t-statistic of 1,887, a p-value of 0,059 ( $p > 0,05$ ), and a very small effect size ( $f^2$ ) of 0,016. The second hypothesis (H2), which stated that information quality has a positive and significant effect on user satisfaction, was accepted, with  $\beta = 0,329$ ,  $p < 0,001$ , and  $f^2 = 0,133$  (a small-to-moderate effect). The third hypothesis (H3), which stated that service interaction quality has a positive and significant effect on user satisfaction, was also accepted and emerged as the most dominant dimension, with  $\beta = 0,440$ ,  $p < 0,001$ , and  $f^2 = 0,239$  (a moderate effect).

The findings of this study reveal an interesting dynamic when contrasted with the existing website quality literature. The  $R^2$  value of 0,495, which indicates moderate explanatory power, falls within a range similar to the findings of Heru et al. (2023), who reported a value of 43,7% for the AIKU application, but is lower than the model reported by Handayani et al. (2020) for the COVID-19 website, which reached 66,7%. The dominance of service interaction quality (H3) as the most crucial dimension in shaping user satisfaction is highly consistent with the findings of Nugraha et al. (2020), who found that this dimension accounted for 54,2% of the influence, while the other dimensions were not significant. This finding is also supported by Wijaya et al. (2021), who confirmed that service quality significantly affects e-commerce user satisfaction. The finding regarding the positive effect of information quality (H2) reinforces the study by Mofokeng (2025), which stated that relevant and accurate information is a key factor in satisfying users within digital ecosystems. In contrast, the rejection of usability quality (H1) in this study differs from the findings of Hertyana et al. (2024), who identified usability as the most significant factor affecting user satisfaction. However, the nonsignificant effect of usability in this study is supported by the findings of Candiwan (2021), which concluded that ease of use is not always the primary predictor of satisfaction in certain platform contexts.

The consistent influence of information quality and service interaction quality on user satisfaction indicates that users prioritize accurate content and responsive service support as fundamental needs within digital information systems. However, variations in findings related to usability may be influenced by several contextual, methodological, and technological factors. Radliński (2020); Sfenrianto, Mutiara Pitauli (2018) noted the existence of high data variability in predicting user satisfaction, suggesting that stable models are difficult to achieve across different digital platforms and software projects. Methodological differences may also contribute to inconsistent findings, as Demir (2025) emphasized the importance of transparent PLS-SEM reporting procedures to minimize interpretation bias in technology-related research.

From a technological perspective, evolving user expectations have altered how website quality is perceived. Costa et al. (2024) argued that the integration of artificial intelligence (AI) technologies has gradually shifted user expectations beyond traditional usability aspects toward more adaptive and interactive digital experiences. Similarly, Rita (2023) observed that research trends over the past two decades indicate a transition from purely technical functionality toward emotional engagement and interaction quality as central determinants of user satisfaction. This supports the finding that service interaction quality may now play a more dominant role than usability in certain digital environments.

Design and user-context factors also contribute to these differences. Dianat et al. (2019) emphasized that layout quality and system performance are stronger predictors of usability than demographic characteristics such as age or gender, while Chmielarz & Zborowski (2020) found that website effectiveness largely depends on the compatibility between evaluation methods and specific user profiles. Population characteristics may further influence user perceptions; Al & Hasan (2026) demonstrated that academic reputation exerts a greater influence than technical website performance in university-related contexts. In addition, Pathania & Rasool (2017) argued that customer preferences regarding WebQual dimensions may vary depending on the type of service and market competition.

Security and trust factors also emerge as important differentiators. Kumar et al. (2025) showed that e-commerce users often prioritize financial security over visual design elements, while Al-kfairy et al. (2024) demonstrated that trust frequently mediates the relationship between system quality and user satisfaction in digital ecosystems. Wilson (2021) further explained that

overly complex information without adequate service support may reduce system usability. Consistent with this perspective, Vatolkina et al. (2020) highlighted that information quality becomes substantially more critical in fully digital services compared with hybrid services involving offline interactions. Likewise, Kitsios et al. (2019) found that healthcare users may continue using websites despite dissatisfaction with usability due to urgent functional needs. Finally, Melani et al. (2025) demonstrated that the use of standardized usability instruments such as the System Usability Scale (SUS) may produce different outcomes compared with modified WebQual measurements, which may explain variations in findings across studies. Furthermore, Magatef et al. (2023) emphasized that electronic customer relationship management (E-CRM) exerts a stronger influence on loyalty and satisfaction than static website design features alone.

This study provides an important contribution to the information systems quality literature by addressing a geographical research gap that has long been dominated by populations from western Indonesia. By involving respondents from Papua, this study offers a new perspective on how user access characteristics and experiences in regions outside Java Island influence perceptions of website quality. The findings extend existing knowledge by demonstrating that, for populations in these regions, service interaction quality and information reliability are prioritized more highly than ease of navigation or system aesthetics. This challenges the common assumption within the conventional WebQual 4.0 model, which often positions usability as the dominant factor. Therefore, this study provides an empirical foundation for system developers to localize their strategies based on the specific needs of regional users (Mesra B Y, Sfenrianto, 2020). Academically, these findings suggest the need to refine the dimensions of WebQual 4.0 to make them more adaptive to the diversity of digital infrastructure across different regions. The practical implication for website administrators, particularly in regions with characteristics similar to Papua, is the need to prioritize direct interaction features such as live chat or responsive communication channels in order to build user trust. Local government policies should also focus on regularly updating informational content and improving the quality of digital services to ensure sustainable public satisfaction. For future research, it is recommended to employ a longitudinal research design to examine changes in user perceptions alongside the development of internet infrastructure. In addition, the inclusion of moderating variables such as trust or organizational culture may provide a deeper understanding of the factors outside the model that account for the remaining 50.5% of user satisfaction explained in this study (Sfenrianto, M Yasin, K Nainggolan, 2020).

## CONCLUSION

This study aims to answer the main research question: among usability, information quality, and service interaction quality, which dimension is the most dominant in shaping user satisfaction on the MAGNET alumni networking platform. Based on the analysis results, it can be concluded that service interaction quality is the most dominant dimension influencing user satisfaction. This is evidenced by the highest coefficient and effect size values compared to the other variables, as well as its statistically significant effect. These findings indicate that aspects such as service responsiveness, ease of communication, and the quality of interaction with administrators are the primary factors in shaping user experience and satisfaction. In addition, information quality is also found to have a positive and significant effect on user satisfaction. This suggests that accurate, relevant, and up-to-date information remains an important factor in supporting user satisfaction, although its contribution is not as strong as that of service interaction quality. In contrast, usability quality does not have a significant effect on user satisfaction. This indicates that ease of use and website design are no longer key determinants of satisfaction, but rather are perceived as basic requirements that are expected to be present. Therefore, it can be concluded that in the context of the XYZ alumni networking platform, user satisfaction is primarily driven by service interaction quality, followed by information quality, while usability plays a relatively minor role. These findings confirm that the impact of website quality dimensions is contextual, where user needs and platform characteristics determine the most influential factors in shaping user satisfaction.

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