

# Analysis of Academic Information System Website Service Quality at PGRI Palembang University Using The Webqual 4.0 Method

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## Abstract

The rapid development of information technology has made the website an integral component of educational institutions, particularly in providing services to the academic community, including lecturers, students, and educational staff. The quality of internet-based academic information system (AIS) services must be evaluated to ascertain the level of user satisfaction. Currently, the PGRI AIS is prioritized in academic information processes, especially for students; therefore, an analysis of service quality—specifically user satisfaction—is essential for its improvement. This research measured the quality of the AIS website at PGRI Palembang University using the Webqual 4.0 method. Data were collected by distributing questionnaires via Google Form. WebQual is an instrument designed to assess a website's quality from the perspective of the end-user. Multiple Linear Regression Analysis was employed to test the relationship between the WebQual 4.0 variables and User Satisfaction. The findings are expected to provide innovation for the development of the AIS at PGRI Palembang University.

## Keywords

Democratic attitudes,  
democratic teachers,  
education, teaching

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## Introduction

The deployment of an Academic Information System (AIS) is a strategic initiative designed to enhance competitive advantage, streamline institutional workflows, and improve the effectiveness of administrative and academic services in higher education. PGRI Palembang University has implemented a web-based AIS accessible at <https://sisfo.univpgri-palembang.ac.id/>, enabling students to perform essential academic activities. Through this platform, students can log in using their Student Identification Number (NIM) to access study results, complete course registration (KRS), check cumulative academic performance (IPK), process tuition fee payments (SPP), and print exam cards. Such functionalities illustrate how the AIS supports institutional digital transformation. However, continuous system development requires systematic evaluation to ensure sustained performance and alignment with organizational management needs.

One of the recurring issues reported by users is the slow website response time during periods of high traffic, particularly when large numbers of students access the AIS simultaneously. This performance bottleneck underscores the importance of evaluating the system's service quality. A reliable assessment must reflect user satisfaction, as students are the primary end-users of the system. Evaluating online systems through the lens of user perception is consistent with the Service Quality (Servqual) model—an established framework used to assess the quality of services based on customer expectations and experiences. The foundation of Servqual lies in understanding the “voice of the customer,” acknowledging that perception is a key determinant of continued service use and system acceptance.

Servqual-based evaluation approaches emphasize that if user perceptions of service delivery fail to meet expectations, users are likely to discontinue usage or express dissatisfaction. This concept is particularly relevant in the context of digital academic services, where students expect fast, reliable, and user-friendly systems. Thus, assessing the AIS from the viewpoint of student perception becomes essential, as perceptions directly influence system acceptance, utilization, and loyalty. Recognizing this, the present study focuses on measuring the perceived service quality of the PGRI Palembang University AIS to determine the extent of its influence on student satisfaction.

To conduct this evaluation, the study adopts the WebQual 4.0 method, a widely recognized extension of the Servqual model specifically designed for assessing website and web-based system quality. WebQual 4.0 measures three primary dimensions of website quality: usability, information quality, and service interaction quality. These dimensions collectively represent the user experience, ensuring a comprehensive assessment that captures both functional and emotional responses to system use. The relevance of WebQual 4.0 lies in its ability to adapt service-quality principles to digital environments, making it suitable for evaluating academic information systems accessed via the web.

WebQual has undergone multiple iterations—beginning with WebQual 1.0 and evolving through versions 2.0 and 3.0—before arriving at version 4.0, which refined its conceptual structure and questionnaire items. These developments were influenced by empirical findings and theoretical advancements related to user experience and digital service quality. As an adaptation of Servqual (Zeithaml et al., 1990), WebQual incorporates its

conceptual strengths while emphasizing the specific needs of online systems. The combination of traditional service-quality theory with contemporary digital-evaluation metrics makes WebQual 4.0 particularly robust for assessing modern web-based platforms.

Given its comprehensive dimensions and strong theoretical foundation, WebQual 4.0 serves as an appropriate instrument for evaluating the AIS at PGRI Palembang University. Through this method, the study aims to determine whether the quality of the AIS significantly affects student satisfaction and to identify which dimensions most strongly contribute to perceived effectiveness. The results are expected to provide valuable insights for system developers and university administrators, enabling them to enhance system performance, improve service delivery, and support better decision-making in future AIS development.

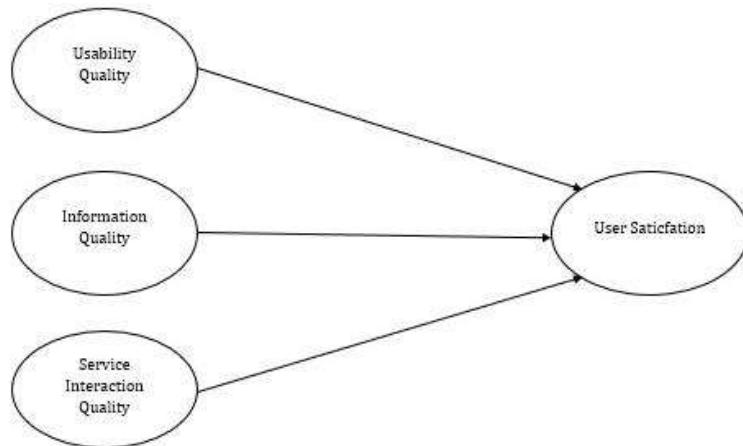


Figure 1. Webqual 4.0 Research Model

The dimensions of Webqual 4.0 are defined as follows:

1. Usability Quality: Refers to the quality related to the site's design, including aspects such as appearance, ease of use, navigation, and the overall image conveyed to the user.
2. Information Quality: Pertains to the quality of the content within the site, specifically whether the information is accurate, well-formatted, and relevant for the user's purpose.
3. Service Interaction Quality: Describes the quality of service interaction experienced by users as they engage deeply with the site, manifesting through factors such as trust, empathy, security of transactions and information, product delivery, personalization, and communication with the site owner.
3. User Satisfaction: Represents the user's perception of satisfaction regarding the website's service quality.

The findings of this research are expected to provide input for PGRI Palembang University to develop its website. Furthermore, the study is anticipated to contribute to the body of knowledge in information systems, particularly in the area of system evaluation.

## Methodology

This study was conducted from November 2020 at PGRI Palembang University, located at 9 Ulu, Seberang Ulu I District, Palembang City, South Sumatra. The objects of analysis include:

1. The Academic Information System Website of PGRI Palembang University (<https://sisfo.univpgri-palembang.ac.id/>).
2. Active PGRI Palembang University students using the AIS website, selected using simple random sampling.

The research employs a quantitative research design, as it involves posing questions to respondents who are users of the AIS.

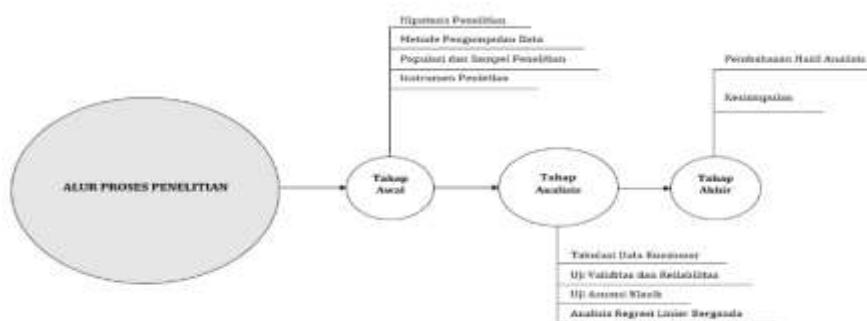


Figure 2. Research Process Flow

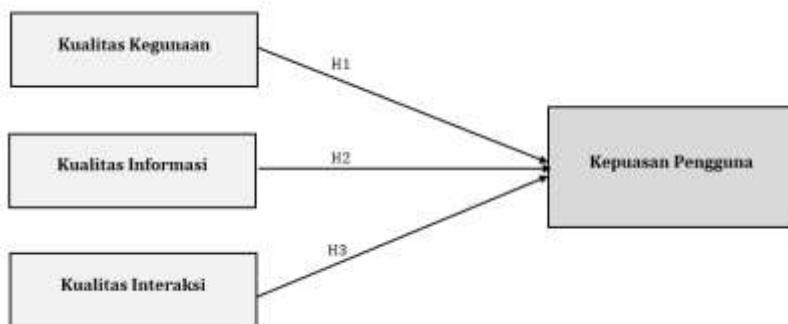


Figure 3. Research Hypothesis

The research hypotheses (Figure 3) are formulated as follows:

*H 1* : There is an effect of Usability Quality on User Satisfaction.

*H 2* : There is an effect of Information Quality on User Satisfaction.

*H 3* : There is an effect of Service Interaction Quality on User Satisfaction.

### ***Data collection methods***

Data collection utilized the following methods:

1. Interview: Structured interviews were conducted with parties relevant to the research, using a pre-prepared list of questions to gather data related to the current system.
2. Questionnaire (Survey): The questionnaire was distributed via a Google Form link due to the COVID-19 pandemic, which resulted in some lectures being conducted online. Some respondents who were on campus also participated.
3. Observation: Structured observation was performed by preparing a list of data requirements and data sources to directly examine the organizational profile and research object. The observation aimed to study the AIS organization's objectives, structure, and existing information system policies

The primary research instrument is the questionnaire<sup>57</sup>. The Likert scale was used for measurement<sup>58</sup>. Positive statements were scored 5, 4, 3, 2, and 1, while negative statements were scored 1, 2, 3, 4, and 5<sup>59</sup>. The answer options included strongly agree, agree, uncertain, disagree, and strongly disagree<sup>60</sup>. The total population of active students at PGRI Palembang University is 6,298<sup>61</sup>.

This data was obtained directly from the IT Division staff who manage the student data<sup>62</sup>. Simple random sampling was the sampling technique utilized<sup>63</sup>. This technique is straightforward, where samples are randomly selected, giving all population members an equal and known chance of being chosen as subjects, regardless of strata within the population<sup>64</sup>.

With a significance level  $\alpha = 5\% = 0.05$ ,  $n = 65$  and a population of 6,298 individuals<sup>66</sup>, the sample size (n) was calculated using the Slovin formula:

$$\begin{aligned} n &= N / (1 + Ne^2) \\ n &= 6298 / (1 + 6298 \times 0.052) \\ n &= 6298 / (1 + 6298 \times 0.0025) \\ n &= 6298 / 15,745 \\ n &= 6298 / 16,745 \\ n &= 376,11 \end{aligned}$$

The study included instrument testing: Validity Test, Reliability Test, and Classic Assumption Test. Validity and reliability tests are mandatory because if the instruments are not valid and reliable, the research results will similarly be invalid and unreliable. The classic assumption test is a prerequisite for performing multiple linear regression analysis.

## **Results**

The results and discussion section covers the general description of the PGRI Palembang University AIS website, validity and reliability tests, classic assumption tests, and multiple linear regression analysis. The PGRI Palembang University AIS website serves as an internet-based service to assist lecturers and educational staff in managing students' academic administrative tasks. Interview results with the IT Division revealed that the AIS website was

designed according to needs and has been implemented since 2010, currently serving over 10,000 users.

The validity test determined the r-table value to be 0.098. The results indicated that the calculated r-count for every variable was greater than the r-table value. This confirms that the variables for all indicators are valid and can be used in the research.

## Discussion

The reliability test showed that all variables obtained a Cronbach's Alpha score between  $0.80 < \alpha < 1.00$  which signifies perfect reliability.

The classic assumption test comprised the Normality Test and the Multicollinearity Test.

Normality Test: The purpose of the normality test is to determine whether the data distribution is normal. This test used the SPSS application to generate the P-P Plot of Regression Standardized Residual.

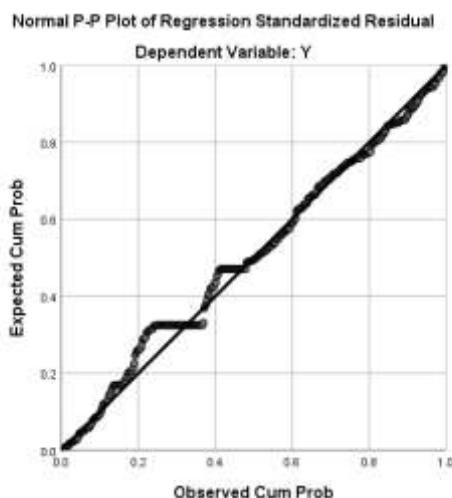


Figure 4. Results of the Normality Test of P-P Plot of Regression Standardized Residual Data

The results of the normality test indicate that the plotted points are aligned with and close to the diagonal line. This demonstrates that the regression residuals are normally distributed.

Model	Coefficients <sup>a</sup>						
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
1 (Constant)	1.379	.289		4.766	.000		
X1	.021	.008	.145	2.738	.006	.624	1.602
X2	.038	.006	.325	5.830	.000	.565	1.770
X3	.026	.005	.227	5.040	.000	.861	1.161

a. Dependent Variable: Y

Figure 5. Multicollinearity Test Results

Multicollinearity Test: The results of the multicollinearity test (Figure 5) show that : Variable X1 has a Tolerance value of 0.624 and a VIF of 1.602. Variable X2 has a Tolerance value of 0.565 and a VIF of 1.770. Variable X3 has a Tolerance value of 0.861 and a VIF of 1.161.

Model	ANOVA <sup>a</sup>					
	Sum of Squares	df	Mean Square	F		
1 Regression	14.784	3	4.928	58.092	.000 <sup>b</sup>	
Residual	33.593	396	.085			
Total	48.377	399				

a. Dependent Variable: Y  
 b. Predictors: (Constant), X3, X2, X1

Figure 6. ANOVA

This analysis includes the F-test. F-Test (Simultaneous Test): The ANOVA table (Figure 6) reveals an F-count value of 58.092 and a significance value of 0.00096. The F-table value was determined by looking at the F-table with a 5% significance level, degrees of freedom  $df_1 = k = 3$  (number of independent variables), and  $df_2 = n - k = 400 - 3 = 397$  (where n is the sample size). The F-table value is 2.627. Since the F-count (58.092) is greater than the F-table (2.627) and the significance value (0.000) is less than 0.05 100, the conclusion is that the Independent Variables (Usability Quality, Information Quality, and

Service Interaction Quality) simultaneously and significantly influence the Dependent Variable, User Satisfaction.

Model	Coefficients <sup>a</sup>					
	Unstandardized Coefficients		Standardized Coefficients Std. Beta	t	Sig.	
	B	Error				
1 (Constant)	1.379	.289		4.766	.000	
X1	.021	.008	.145	2.738	.006	
X2	.038	.006	.325	5.830	.000	
X3	.026	.005	.227	5.040	.000	

Figure 6. Partial Test Results (t-Test)

The t-test results indicate that for every variable, the t-count is greater than the t-table, and the significance value is less than 0.05. This leads to the conclusion that the Independent Variables (Usability Quality, Information Quality, and Service Interaction Quality) each have a positive influence on User Satisfaction (Y).

## Conclusion and Recommendations

Based on the research findings, the following conclusions are drawn regarding the influence of the independent variables on User Satisfaction: Usability Quality (H1): This variable had the lowest score with a t-count of 2.738 and a significance (sig.) of 0.006, and a mean value of 4.70. It has a positive influence on User Satisfaction. This means H1 (the hypothesis of influence) is accepted. (Note: The t-count of 4.766 mentioned in source appears to be an error, as 4.766 is the t-count for the Constant and the t-count for X1 (Usability Quality) is 2.738 in the Coefficients table. Information Quality (H2): This variable had the highest score with a t-count of 5.830 and a significance of 0.000, and a mean value of 4.72. It has a positive influence on User Satisfaction. This means H2 (the hypothesis of influence) is accepted. Service Interaction Quality (H3): This variable had a t-count of 5.040 and a significance of 0.000, and a mean value of 4.70. It also has a positive influence on User Satisfaction. This means H3 (the hypothesis of influence) is accepted. The research has successfully answered the question of whether the service quality of the AIS influences the satisfaction of PGRI Palembang University students through the Webqual 4.0 method.

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