

Sentiment Analysis of Students Toward Academic Services at Universitas Kristen Wira Wacana Sumba Using the SERVQUAL Method

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Abstract

Academic service quality is an important factor influencing student satisfaction in higher education institutions. Regular evaluation is needed to assess whether the services provided meet student expectations. This study aims to analyze the quality of academic support services at Universitas Kristen Wira Wacana Sumba using the Service Quality (SERVQUAL) method combined with sentiment analysis. The SERVQUAL method measures the gap between student perceptions and expectations based on five dimensions of service quality: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. Sentiment analysis is applied to students' open-ended comments to identify positive, neutral, and negative opinions. This study employed a descriptive quantitative approach with purposive sampling involving 30 active students. The results show that all SERVQUAL dimensions have negative gap values with an average of -0.37, indicating that the services have not fully met students' expectations. The responsiveness dimension shows the largest gap (-0.57), followed by reliability (-0.54), making them the main priorities for improvement. Sentiment analysis results indicate that 70% of students expressed positive opinions, 20% expressed neutral opinions, and 10% expressed negative opinions. The integration of SERVQUAL and sentiment analysis provides a comprehensive evaluation by combining quantitative measurements of service quality with qualitative insights into students' perceptions.

Keywords: Academic Services, SERVQUAL, Service Quality Gap, Sentiment Analysis, Student Satisfaction

1. Introduction

Higher education institutions are responsible for delivering quality educational services to produce competent and competitive graduates. A key factor determining the success of higher education delivery is the quality of academic services provided to students. Academic services encompass a range of activities such as academic administration, the provision of academic information, document processing, and academic advising, as well as other support services that directly impact the student learning process. High-quality service not only enhances student satisfaction but also contributes to student loyalty, the institution's image, and the continuous improvement of the institution's quality. In an era of increasingly fierce competition among higher education institutions, improving academic service quality has become an imperative. As the primary users of these services, students expect fast, accurate, responsive, and transparent support that effectively meets their academic needs. Failure to meet these expectations leads to dissatisfaction, which can negatively influence students' perceptions of the institution's quality. Consequently, periodic evaluations of academic service quality are essential to inform strategies for service improvement[1],[2].

As a growing higher education institution in the East Nusa Tenggara region, Universitas Kristen Wira Wacana Sumba faces increasing demands for rapid, accurate, and high-quality academic services alongside its expanding student body. In practice, the university frequently receives diverse feedback from students, ranging from praise and suggestions for improvement to complaints. Without structured processing and analysis of this feedback, the university struggles to identify the strengths and weaknesses of its existing services, resulting in improvement efforts that lack precision and measurability[3],[4].

One method widely used to measure service quality is Service Quality (SERVQUAL), introduced by Parasuraman, Zeithaml, and Berry. The SERVQUAL method measures service quality by comparing user perceptions of the service received with expectations of the desired service. Measurements are based on five dimensions of service quality: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The resulting gap value serves as an indicator of the level of service quality and can be used to determine service improvement priorities. The resulting gap values can be used to identify service dimensions that have met expectations as well as those requiring further improvement[5]. Various previous studies indicate that SERVQUAL is capable of effectively identifying the quality of academic services. Research by Minardi[6] demonstrates that the implementation of SERVQUAL can measure student satisfaction levels regarding academic services at UNISNU Jepara, resulting in a classification of services as satisfactory. A study by Sofiyannurriyanti[7] reveals that all SERVQUAL dimensions received service quality scores below the ideal level, indicating a need for improvement across every service

dimension. Meanwhile, Research by Ardana[8] shows that all academic service dimensions still exhibit negative gaps, with several service attributes identified as top priorities for improvement.

Therefore, a complementary approach, namely sentiment analysis, is required. Sentiment analysis is a technique used to classify user opinions into positive, negative, or neutral categories based on provided text. In the context of academic services, sentiment analysis can be utilized to understand students' perceptions of service quality and to identify specific service aspects that garner the most praise or complaints. Thus, the results of sentiment analysis can provide deeper qualitative information regarding which aspects require improvement and enhancement [9],[10]. This study aims to evaluate the quality of academic services at Wira Wacana Sumba Christian University by combining the SERVQUAL method and sentiment analysis. This combination of methods yields a comprehensive evaluation: SERVQUAL gap scores quantitatively indicate the magnitude of existing issues, while sentiment analysis qualitatively explains the underlying reasons and student assessments.

2. Research Method

This study employed a descriptive quantitative approach, integrating the Service Quality (SERVQUAL) method and sentiment analysis to evaluate the quality of academic services at Universitas Kristen Wira Wacana Sumba. The SERVQUAL method is used to measure the gap between students' expectations and perceptions regarding academic services, while sentiment analysis is conducted to identify student opinions expressed through open-ended responses. This combination of methods provides both quantitative and qualitative insights into the quality of these academic services. The study was conducted at Universitas Kristen Wira Wacana Sumba in East Nusa Tenggara, Indonesia. The study population consists of active students at Universitas Kristen Wira Wacana Sumba. The sample was selected using a purposive sampling technique based on established criteria: students who had received academic services and were willing to participate in the study. A total of 30 respondents participated in this research.

2.1. Data Collection

Primary data were collected using a structured questionnaire consisting of two sections. The first section measures students' expectations and perceptions regarding academic services using a five-point Likert Scale, ranging from 5 (Strongly Agree) to 1 (Strongly Disagree). The questionnaire items were developed based on the five SERVQUAL dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The second section contains open-ended questions allowing students to express their opinions, suggestions, and experiences regarding academic services. These textual responses were then analyzed using sentiment analysis to classify student opinions into positive, neutral, and negative categories.

Table 1: Likert Scale

Score	Response
5	Strongly Agree
4	Agree
3	Neutral
2	Disagree
1	Strongly Disagree

Table 2: Questionnaire Items SERVQUAL Dimensions

Dimensions	Expectation	Perception
Tangibles	Expect academic service facilities to be clean, tidy, and comfortable to use.	The currently available academic service facilities are clean, tidy, and comfortable to use.
Reliability	Expect academic services to be delivered promptly, accurately, and in accordance with procedures.	The academic services I receive are delivered promptly, accurately, and in accordance with procedures.
Responsiveness	Expect academic staff to respond quickly to students' needs.	Academic staff respond quickly to students' needs.
Assurance	Expect academic staff to possess the competence, knowledge, and a reassuring attitude when providing services.	Academic staff possess the competence, knowledge, and a reassuring attitude when providing services.
Empathy	Expect academic staff to provide fair attention and understand students' individual needs.	Academic staff provide fair attention and understand students' individual needs.

2.2. SERVQUAL Analysis

The SERVQUAL method evaluates service quality by comparing students expectations (E) with their perceptions (P) for each questionnaire item. The service quality gap was calculated using the following equation :

1. Average perception score (P)

$$P = \frac{\sum p}{n} \quad (1)$$

Where :

P = Total sum of perception scores given by all respondents.

n = Number of respondents

2. Average expectations score (E)

$$E = \frac{\sum E}{n} \quad (2)$$

Where :

E = Total sum of expectation scores given by all respondents

n = Number of respondents

3. Service Quality Gap (G)

$$G = P - E \quad (3)$$

Where:

G = The difference between perception and expectation

P = Perception value

E = Expectations value

Interpretation:

Gap < 0: Service quality has not met students expectations

Gap = 0: Service quality matches students expectations

Gap > 0: Service quality exceeds students expectations

a. Sentiment Analysis

This analysis is performed on the written responses with the following steps :

- 1) Compile all open-ended comments from respondents.
- 2) Classify responses into three categories: Positive, Neutral, and Negative
 - a) Positive : Expressing satisfaction, appreciation, or positive experiences regarding academic services.
 - b) Neutral : Representing objective opinions or suggestions without expressing clear positive or negative sentiment.
 - c) Negative : Representing dissatisfaction, complaints, or criticism regarding academic services.
- 3) Calculate the percentage for each category :

$$\text{Percentage} = \frac{\text{Number of respondent}}{\text{Total number of responses}} \times 100\% \quad (4)$$

b. Research Procedure

The research procedure consisted of the following stages:

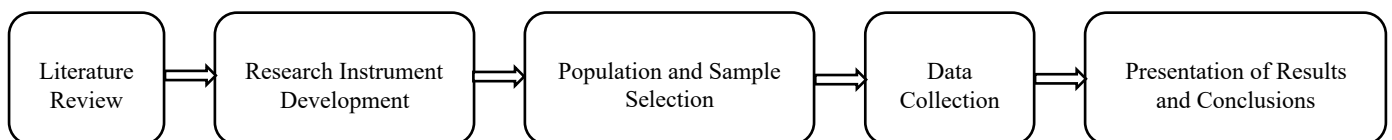


Fig.1: Research Flow

This research framework consists of several sequential stages designed to evaluate academic service quality by integrating the SERVQUAL method and sentiment analysis.

- 1) Literature Review
Relevant theories, concepts, and prior research were gathered and reviewed to establish a theoretical foundation for the research and to support the conduct of the study.

- 2) **Research Instrument Development**
A questionnaire was designed containing statements to measure students' expectations and perceptions based on the five SERVQUAL dimensions, as well as open-ended questions to elicit student opinions and suggestions regarding academic services.
- 3) **Population and Sample Selection**
The target population was identified, and respondents were selected using a purposive sampling technique based on pre-established inclusion criteria.
- 4) **Data Collection**
The questionnaire was distributed to the selected respondents, and all responses were collected for further processing and analysis. The collected data were analyzed using two approaches:
 - a) SERVQUAL analysis, which measures the gap between students' expectations and perceptions across the five dimensions of service quality.
 - b) Sentiment analysis, which classifies student responses from open-ended questions into positive, neutral, or negative sentiments to identify their opinions regarding academic services.
- 5) **Presentation of Results and Conclusions**
The findings from both analyses are presented systematically. Based on the integrated results, conclusions are drawn, and recommendations are proposed to improve the quality of academic services.

4. Results and Discussion

a. Respondent Characteristics

A total of 30 active students from Universitas Kristen Wira Wacana Sumba participated in this study. The respondents represented various study programs and academic semesters, providing diverse perspectives on the quality of academic services. Based on the demographic data, the respondents consisted of 21 female students (70%) and 9 male students (30%). The participants also represented several study programs, including Informatics Engineering, Animal Husbandry, Fisheries, Management, Law, Mathematics Education, Agribusiness, Development Economics, and Biology. The diversity of respondents indicates that the findings represent students' perceptions from different academic backgrounds, thereby providing a comprehensive evaluation of academic service quality at the university.

b. SERVQUAL Analysis

The quality of academic services was evaluated by comparing students' perception scores with their expectation scores across the five SERVQUAL dimensions. The gap value for each dimension was calculated using the difference between perception and expectation scores.

Table 3: SERVQUAL Gap Analysis Results

Dimension	Expectation	Perception	Gap	Category
Tangibles	4.43	4.10	-0.33	Good
Reliability	4.47	3.93	-0.54	Good
Responsiveness	4.37	3.80	-0.57	Priority for Improvement
Assurance	4.30	4.10	-0.20	Good
Empathy	4.23	4.00	-0.23	Good

The results indicate that all SERVQUAL dimensions have negative gap values. This finding suggests that the academic services provided by Universitas Kristen Wira Wacana Sumba have not yet fully met students' expectations.

Among the five dimensions, the Reliability dimension recorded the second-largest negative gap value (-0.54). This result indicates that students perceive weaknesses regarding the consistency, accuracy, and reliability of the academic services. Delays in administrative processes and inconsistencies in service delivery were identified as key issues. The Responsiveness dimension recorded the largest negative gap value (-0.57). This result indicates that students expect faster responses from academic staff regarding the handling of administrative procedures, the provision of academic information, and responses to student inquiries. The negative gap value suggests a need to improve the responsiveness of academic staff to better meet student expectations. The Tangibles dimension recorded a gap value of -0.33, indicating that the physical facilities and supporting infrastructure generally met students' expectations, although several improvements are still necessary. These include enhancing waiting areas, improving academic service facilities, and providing more adequate supporting equipment. The Empathy dimension produced a gap value of -0.23, suggesting that students generally perceived academic staff as caring and willing to assist them. Nevertheless, respondents expected more personalized attention and better understanding of their individual academic needs. Overall, the average SERVQUAL gap was -0.37, indicating that the quality of academic services at Universitas Kristen Wira Wacana Sumba has not yet fully met students' expectations. However, this gap value is relatively small, suggesting that the academic services provided are reasonably good but still require improvement in specific areas particularly in the Reliability and Responsiveness dimensions, which exhibit the largest service quality gaps.

c. Sentiment Analysis Results

Sentiment analysis was conducted to complement the SERVQUAL evaluation by examining students' opinions expressed in the open-ended questionnaire. Students' responses were classified into three categories: positive, neutral, and negative

Table 4: Sentiment Analysis Results

Sentiment Category	Number of Responses	Percentage
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Positive	21	70%
Neutral	6	20%
Negative	3	10%
Total	30	100%

The results reveal that 70% of students expressed positive sentiments toward academic services. Positive comments mainly appreciated the friendliness of academic staff, the availability of academic information, and the supportive learning environment. These findings indicate that many students were generally satisfied with the services provided by the university. Approximately 20% of the responses were classified as neutral. These comments primarily consisted of suggestions and constructive feedback rather than explicit expressions of satisfaction or dissatisfaction. Students recommended improving administrative procedures, enhancing communication, and increasing service efficiency. Meanwhile, 10% of the responses were categorized as negative. The negative comments mainly highlighted slow administrative processes, delayed responses to students' requests, and inconsistencies in service delivery. These concerns are consistent with the SERVQUAL findings, particularly the large negative gaps observed in the Reliability and Responsiveness dimensions. The consistency between the SERVQUAL results and sentiment analysis demonstrates that students' qualitative opinions support the quantitative findings. Therefore, integrating both approaches provides a more comprehensive evaluation of academic service quality.

5. Discussion

The SERVQUAL analysis indicates that all five service quality dimensions produced negative gap values, implying that students' expectations exceeded their perceptions of the academic services received. These findings suggest that academic service quality still requires improvement despite generally positive student perceptions. The responsiveness dimension shows a substantial negative gap, highlighting that consistency, accuracy, and reliability in academic services remain key challenges. Students expect administrative procedures to be completed accurately and within promised timeframes. Delays in processing academic documents and inconsistencies in service delivery contribute significantly to dissatisfaction. Similarly, the largest gap was found in the responsiveness dimension, underscoring the importance of prompt responses from academic staff. Students expect immediate assistance when facing academic or administrative issues. Improving communication channels, simplifying service procedures, and enhancing staff responsiveness are expected to boost student satisfaction. Although the dimensions of tangibles, assurance, and empathy yielded relatively smaller gap values, continuous improvement remains necessary. Adequate facility maintenance, enhanced staff competence, and strengthened interpersonal communication will contribute to superior service quality. Sentiment analysis complements SERVQUAL findings by providing qualitative evidence regarding student experiences. Although the majority of students expressed positive views, the presence of neutral and negative sentiments indicates that certain aspects of academic services still require attention. This demonstrates that quantitative gap analysis alone is insufficient for gaining a comprehensive understanding of student perceptions. Combining SERVQUAL with sentiment analysis enables universities to identify measurable service quality gaps while simultaneously understanding the underlying reasons behind student views. Overall, this study confirms that integrating SERVQUAL and sentiment analysis offers a comprehensive framework for evaluating academic service quality. These findings can serve as valuable input for university management in formulating evidence-based strategies to enhance academic services and student satisfaction.

6. Conclusion

This study demonstrated that integrating the Service Quality (SERVQUAL) method with sentiment analysis provides a comprehensive approach to evaluating academic service quality at Universitas Kristen Wira Wacana Sumba. The findings indicate that the services have not yet fully met students' expectations, particularly in the Reliability and Responsiveness dimensions, which should become the primary focus for improvement. Although most students expressed positive opinions toward the services, several responses highlighted the need to improve administrative efficiency, communication, and response speed. The integration of quantitative SERVQUAL analysis and qualitative sentiment analysis offers valuable insights that can support evidence-based decision-making and continuous improvement of academic service quality within the university.

The integration of SERVQUAL and sentiment analysis proved effective in providing a comprehensive evaluation of academic service quality. SERVQUAL quantitatively measures the gap between student expectations and perceptions, while sentiment analysis explains the reasons behind those opinions. Thus, combining these two approaches yields more holistic information for identifying service shortcomings and determining priorities for improvement. Based on these findings, Universitas Kristen Wira Wacana Sumba is advised to prioritize improvements in the dimensions of Reliability and Responsiveness by enhancing administrative efficiency, improving communication between academic staff and students, expediting service processes, and conducting continuous staff training. Future research should involve larger sample sizes, include students from various cohorts, and employ automated sentiment analysis techniques such as machine learning or natural language processing to obtain more objective and scalable results.

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