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Evaluation of Service Quality Gaps in Pos Express Services Using the SERVQUAL Method

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Abstract−This study aims to analyze the service quality of Pos Express in South Sumatra by applying the SERVQUAL method to identify gaps between customer expectations and perceptions. A quantitative approach was employed by distributing structured questionnaires to 120 respondents selected through purposive sampling. The measurement instrument was developed based on five SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The results indicate that customer expectations were consistently higher than perceived service performance across all dimensions. The largest negative gap values were found in the responsiveness (-0.73) and reliability (-0.72) dimensions, indicating weaknesses in service response time, complaint handling, delivery punctuality, and information accuracy. Meanwhile, the empathy dimension recorded the smallest gap (-0.29), suggesting relatively positive interpersonal interactions between staff and customers. To support data processing and analysis, a web-based evaluation system was developed to automate SERVQUAL calculations and reporting. The system facilitated efficient data management and improved the accuracy of service quality analysis. Overall, the findings highlight the need for service improvement, particularly in enhancing operational reliability and responsiveness. This study provides empirical evidence to support service quality management and decision-making in regional postal services.

Keywords: GAP Analysis; Customer Satisfaction; Postal Service Quality; SERVQUAL; Service Quality Evaluation

1. INTRODUCTION

The rapid growth of information technology and digital commerce has significantly transformed the logistics and postal service industry in Indonesia. The increasing demand for fast, reliable, and efficient delivery services has intensified competition among service providers [1], both state-owned enterprises and private companies. In this highly competitive environment, service quality has become a crucial factor in determining customer satisfaction, loyalty, and organizational sustainability [2]. Customers are no longer concerned solely with delivery speed, but also with service reliability, responsiveness, communication, and overall service experience [3]. In the context of regional service providers, maintaining consistent service quality remains a major challenge, particularly in areas with limited infrastructure and operational resources. This condition requires systematic evaluation mechanisms to ensure that service performance aligns with customer expectations.

In recent years, the development of e-commerce platforms and online transactions has further increased customer expectations toward postal and logistics services. Consumers expect service providers to offer transparent information, accurate delivery schedules, responsive customer service, and convenient service facilities [4]. Failure to meet these expectations may result in dissatisfaction, negative word-of-mouth [5], and customer migration to competitors [6]. Therefore, evaluating and improving service quality has become a strategic priority for postal service organizations. Several studies have emphasized that continuous monitoring and data-driven evaluation are necessary to respond effectively to dynamic customer demands in the logistics sector. Without systematic assessment tools, service providers may experience difficulties in identifying performance gaps and improvement priorities.

In South Sumatra Province, postal services play an important role in supporting regional economic activities, especially in non-metropolitan areas such as Sekayu. As one of the administrative and economic centers in the region, Sekayu serves as a hub for business transactions, government correspondence, and personal deliveries. However, regional post offices often face operational challenges, including limited infrastructure, geographical constraints, and human resource limitations [7]. These conditions may affect service performance and customer perceptions [8], particularly in premium delivery services such as Pos Express [9]. Based on preliminary observations and informal interviews conducted with service users and staff at the Sekayu Post Office, several operational issues were identified, including inconsistent delivery schedules, limited access to shipment information, and delayed responses to customer complaints. These issues indicate that service performance may not yet meet customer expectations consistently.

Pos Express is positioned as a fast and reliable delivery service designed to meet urgent customer needs. It promises short delivery times and higher service standards compared to regular postal services. Despite its premium positioning, several customer complaints related to delivery delays, inadequate communication, and slow complaint handling have been reported in regional service units, including in Sekayu. These issues indicate a potential discrepancy between customer expectations and actual service performance. Understanding this gap is essential for improving service quality and maintaining customer trust.

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To address these challenges, an objective and structured evaluation method is required to measure service performance accurately and to support managerial decision-making processes. Service quality evaluation has been widely studied using various models and measurement instruments. One of the most commonly used approaches is the SERVQUAL method, which measures service quality based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy [10]. Pangestu et al. [11] found that reliability and responsiveness were the main determinants of customer satisfaction in postal services. Yanto et al. [12] reported that service responsiveness and system reliability significantly influenced user perceptions in digital postal applications. Damayanti [13] emphasized the importance of service accuracy and employee competence in enhancing customer loyalty. Theresia [14] and Kusuma et al. [15] highlighted the role of user experience and service system design in improving service quality in information systems.

Although these studies demonstrate the effectiveness of SERVQUAL in evaluating service quality, most of them rely on periodic manual surveys and offline data processing, which limit real-time monitoring and continuous evaluation. Although previous studies have provided valuable insights into service quality evaluation, most of them focused on metropolitan areas, digital platforms, or large-scale service organizations. Limited attention has been given to regional post offices operating in non-urban contexts, particularly in South Sumatra. Furthermore, empirical studies examining Pos Express services using a comprehensive SERVQUAL approach in regional settings remain scarce. The unique characteristics of regional customers, infrastructure limitations, and operational constraints have not been sufficiently explored in existing research.

Moreover, few studies have integrated SERVQUAL analysis with an information system to support systematic data management and continuous service performance monitoring in regional postal services. This research gap indicates the need for a more contextualized analysis of postal service quality in regional areas. Understanding how customers in non-metropolitan regions perceive service quality can provide valuable insights for service improvement and policy formulation. Moreover, evaluating service performance at the regional level is important to ensure service equity and consistent quality standards across different service locations. By integrating SERVQUAL analysis with a web-based evaluation system, this study seeks to provide a more comprehensive and sustainable approach to service quality assessment at the regional level.

Therefore, this study aims to evaluate the quality of Pos Express services at the Sekayu Post Office in South Sumatra using the SERVQUAL method. Specifically, this research analyzes the gap between customer expectations and perceptions across the five service dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The results of this study are expected to provide practical recommendations for improving service quality, enhancing customer satisfaction, and strengthening organizational competitiveness. In addition, this research contributes by proposing an integrated evaluation framework that supports continuous monitoring and evidence-based decision-making in regional postal services.

2. RESEARCH METHODOLOGY

This study employed a quantitative descriptive research approach to evaluate the quality of Pos Express services at the Sekayu Post Office, South Sumatra. The SERVQUAL method was applied to measure the gap between customer expectations and perceptions of service performance. This approach enables systematic evaluation of service quality based on customer assessments and provides empirical evidence for service improvement. The research object of this study was the Pos Express service unit at the Sekayu Post Office, which provides premium document and package delivery services for individual and business customers in South Sumatra. The unit was selected due to its strategic role in supporting regional logistics activities and its high volume of service transactions.

2.1 Research Stages

The overall research framework and methodology flow are illustrated in Figure 1. Based on Figure 1, this research was conducted through the following main stages:

a) Problem identification, conducted through preliminary observations and interviews with postal service officers and customers to identify service quality issues, such as delivery delays, limited service information, and inconsistent customer handling procedures.
b) Literature review, focusing on studies related to service quality evaluation, SERVQUAL implementation, and service evaluation systems, in order to identify research gaps and determine appropriate analytical approaches.
c) Instrument development, in which a structured questionnaire was designed based on the five SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Two instruments were developed, namely expectation and perception questionnaires.
d) Data collection, carried out by distributing questionnaires to Pos Express customers in South Sumatra using purposive sampling to ensure adequate service experience.
e) Data processing and system support, where a web-based system was used to facilitate data input, SERVQUAL calculation, analysis, and reporting.

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f) Testing and evaluation, conducted using Black-box Testing and User Acceptance Testing (UAT) to ensure system functionality and usability [16], as well as to validate analytical outputs.

This integrated process ensured that service quality evaluation was conducted systematically and consistently.

Figure 1. Research Framework and Methodology Flow

2.2 Population and Sample

The population of this study comprised all customers who used Pos Express services at the Sekayu Post Office during January–March 2025 (N = 850, based on administrative records). The minimum sample size was estimated using Slovin's formula [17], using the following equation 1.

$$n = \frac{N}{1+Ne^2}\ 16 \quad (1)$$

By setting N=850 and targeting a practical margin of error e ≈ 0.085, the computed minimum sample size was n ≈ 120. Therefore, 120 respondents were included in the survey. The margin of error was selected by considering time constraints, respondent availability, and field accessibility in the regional context. Although this value limits statistical generalization, it remains adequate for exploratory service quality evaluation at the organizational level.

Respondents were selected using purposive sampling to ensure that participants had adequate service experience and could provide reliable evaluations 17, 18. The inclusion criteria were: (1) customers who had used Pos Express at least twice within the last six months, (2) aged 17 years or above, and (3) willing to participate. All distributed questionnaires were returned and valid for analysis, resulting in a 100% response rate.

2.3 SERVQUAL Measurement Model

The SERVQUAL method was applied to measure the gap between customer expectations and perceptions. The model evaluates service quality based on five dimensions, as shown in Figure 2.

Figure 2. SERVQUAL dimensions in postal service evaluation

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Each indicator was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Two types of questionnaires were used expectation questionnaire and perception questionnaire [18]. The SERVQUAL gap score was calculated using the following equation 2.

$$Gap_i = P_i - E_i \quad (2)$$

where Gap_i is service quality gap for indicator i, P_i is perception score, and E_i expectation score. Positive values indicate satisfactory service, while negative values indicate service deficiencies.

2.4 System Development Method

The information system in this study was developed as a supporting tool to facilitate data management and SERVQUAL analysis, rather than as the main research focus. The information system in this study was developed using an iterative development approach based on the Extreme Programming (XP) model. The XP method was selected due to its flexibility, adaptability to changing requirements, and strong emphasis on continuous user involvement throughout the development process [19]. This approach enables developers to obtain regular feedback from users and to continuously improve system functionality and usability. The development cycle consisted of four main phases, namely planning, design, coding, and testing, as illustrated in Figure 3.

Figure 3. Extreme Programming development cycle

a) Planning phase: Identification of functional and non-functional requirements through interviews and observation.
b) Design phase: Modeling system architecture using UML and use case diagrams (Figure 4).
c) Coding phase: Implementation using PHP (Laravel) [20] and MySQL [21] with MVC architecture [22] (Figure 5).
d) Testing phase: Functional and usability testing through iterative validation.

This approach ensured that the system supported the main objective of service quality evaluation effectively.

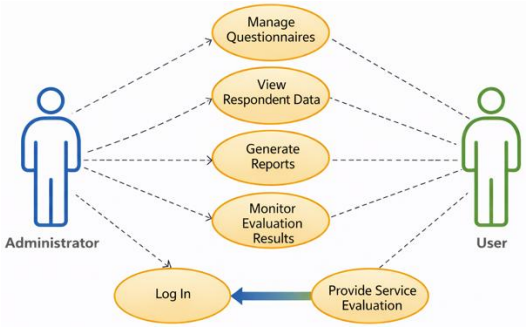

Figure 4. Use case diagram of the evaluation system

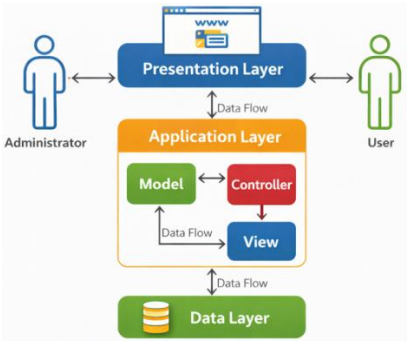

Figure 5. System architecture based on MVC pattern

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2.5 System Implementation Architecture

The developed system was designed using a three-tier architecture consisting of the presentation layer, application layer, and data layer. This architecture was implemented to ensure system modularity, scalability, and ease of maintenance.

The presentation layer serves as a web-based user interface that enables administrators and customers to interact with the system through web browsers. Customers use this interface to input service evaluation data, while administrators manage questionnaires, respondent data, and reports. The application layer contains the core business logic, including user authentication, SERVQUAL calculation, data processing, and report generation. The data layer functions as the storage component using a MySQL database to manage respondent information, questionnaire items, and analysis results. The interaction between these components is illustrated in Figure 6. This architecture was designed to ensure data consistency and support continuous service quality monitoring.

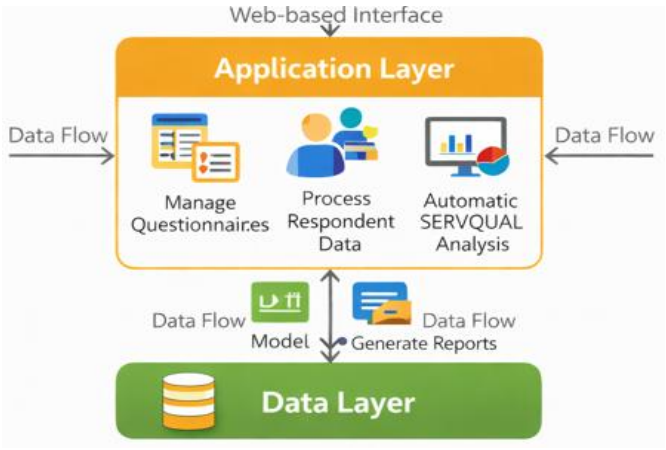

Figure 6. Web-based service evaluation system architecture

2.6 Testing Methods

System testing was conducted using Black-box Testing and User Acceptance Testing (UAT). Black-box testing focused on validating major functions, including authentication, questionnaire input, data processing, SERVQUAL calculation, and report generation. UAT involved postal staff and users to assess usability, interface clarity, and system relevance. The testing results confirmed that the system functioned as intended and produced reliable analytical outputs for service quality evaluation.

2.7 Data Analysis Technique

Collected data were processed automatically using the developed system. Expectation and perception scores were tabulated and averaged for each indicator and dimension. SERVQUAL gap values were calculated to identify discrepancies between expected and actual performance. Negative values indicated service deficiencies, while positive values reflected satisfactory conditions.

Furthermore, average gap scores were ranked to determine priority improvement areas. This ranking supported managerial decision-making and service enhancement strategies. The analysis results were presented in graphical and tabular formats to facilitate interpretation and provide clear managerial insights.

3. RESULT AND DISCUSSION

This section presents the results of the service quality evaluation using the SERVQUAL method and discusses the findings based on empirical data obtained from Pos Express service users in South Sumatra. The analysis primarily focuses on the SERVQUAL gap between customer expectations and perceptions, which reflects the level of service performance experienced by customers.

3.1 Respondent Characteristics

A total of 120 respondents participated in this study. All respondents were selected using purposive sampling and had experience using Pos Express services at least twice within the last six months. This criterion ensured that respondents possessed sufficient knowledge and familiarity with service procedures and performance.

Based on demographic analysis, most respondents were within the productive age range and consisted of private employees, entrepreneurs, students, and government staff. The majority of respondents used Pos Express services for document delivery and business-related shipments. These characteristics indicate that the respondents represent active users who rely on postal services for personal and professional purposes. The distribution of respondent characteristics is presented in Table 1.

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Table 1. Respondent Profile

No	Category	Description	Frequency	Percentage (%)
1	Age	< 20 years	18	15.0
		21–30 years	42	35.0
		31–40 years	36	30.0
		> 40 years	24	20.0
		Total	120	100
2	Occupation	Student	28	23.3
		Private Employee	34	28.3
		Entrepreneur	32	26.7
		Government Staff	26	21.7
		Total	120	100
3	Usage Frequency	2–3 times/month	46	38.3
		4–6 times/month	40	33.3
		> 6 times/month	34	28.4
		Total	120	100
4	Purpose of Use	Document Delivery	44	36.7
		Business Shipment	48	40.0
		Online Shopping Delivery	20	16.6
		Personal Package	8	6.7
		Total	120	100

Table 1 shows that most respondents were aged between 21 and 40 years, indicating that Pos Express services were predominantly used by individuals in the productive age group. In terms of occupation, private employees and entrepreneurs formed the largest groups, reflecting the importance of postal services in supporting business and professional activities.

Regarding usage frequency, the majority of respondents used the service at least two times per month, demonstrating relatively high service dependency. Furthermore, business shipment and document delivery were identified as the main purposes of service usage, highlighting the role of Pos Express in facilitating commercial and administrative transactions in regional areas.

3.2 Analysis of Expectation, Perception, and SERVQUAL Gap

Customer expectations and perceptions were analyzed to evaluate overall service quality performance. Expectation scores represent customer standards and desired service levels, while perception scores reflect actual service experiences obtained during service interactions.

The analysis results indicate that customer expectations toward Pos Express services were relatively high across all SERVQUAL dimensions, with average scores above 4.00 on a five-point Likert scale. The highest expectation scores were observed in the reliability and responsiveness dimensions, indicating that customers highly prioritize delivery punctuality, service accuracy, and responsiveness in handling inquiries and complaints. However, perception scores were generally lower than expectation scores in most dimensions. This suggests that current service performance has not fully met customer expectations. The comparison between average expectation and perception scores is presented in Table 2.

Table 2. Average Expectation and Perception Scores

No	Dimension	Expectation Score	Perception Score	Difference
1	Tangibles	4.32	3.78	-0.54
2	Reliability	4.61	3.89	-0.72
3	Responsiveness	4.58	3.85	-0.73
4	Assurance	4.41	3.92	-0.49
5	Empathy	4.26	3.97	-0.29
	Average	4.44	3.88	-0.56

Table 2 shows that all SERVQUAL dimensions produced negative gap values, indicating that service performance has not yet fully met customer expectations. The largest negative gaps were found in the responsiveness (-0.73) and reliability (-0.72) dimensions. These results indicate that customers perceive weaknesses in service response time, complaint handling, and delivery reliability.

The tangibles dimension also recorded a moderate negative gap (-0.54), suggesting that improvements in physical facilities and service environment may enhance customer perceptions. Meanwhile, the assurance (-0.49) and empathy (-0.29) dimensions showed relatively smaller gap values. The overall average gap value of -0.56 indicates that although Pos Express services are generally acceptable, there remains a noticeable discrepancy between expected and actual service performance. This finding highlights the need for continuous service quality improvement in several operational aspects.

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3.3 Ranking of Service Quality Dimensions

To determine priority areas for service quality improvement, the SERVQUAL dimensions were ranked based on their average gap values. Dimensions with larger negative gap scores were considered higher priorities, as they indicate greater discrepancies between customer expectations and actual service performance.

This ranking process aims to assist management in identifying critical service aspects that require immediate attention and resource allocation. By focusing on dimensions with the largest gaps, improvement strategies can be implemented more effectively and systematically. The ranking results of SERVQUAL dimensions are presented in Table 3.

Table 3. Ranking of SERVQUAL Dimensions

Rank	Dimension	Gap Value	Priority Level
1	Responsiveness	-0.73	Very High
2	Reliability	-0.72	High
3	Tangibles	-0.54	Moderate
4	Assurance	-0.49	Low
5	Empathy	-0.29	Very Low

Table 3 shows that the responsiveness dimension ranked first with the largest negative gap value (-0.73). This result indicates that service response time, complaint handling, and customer communication represent the most critical issues in Pos Express services.

The reliability dimension ranked second (-0.72), highlighting persistent problems related to delivery punctuality, shipment tracking accuracy, and service consistency. These weaknesses may affect customer trust and long-term service loyalty. Meanwhile, tangibles ranked third (-0.54), indicating moderate deficiencies in service facilities and physical infrastructure. Improvements in waiting areas, service counters, and information displays may enhance customer experience.

The assurance and empathy dimensions ranked fourth and fifth, respectively, with relatively small gap values. These findings suggest that employee competence, courtesy, and interpersonal service attitudes are generally perceived positively by customers. Therefore, service improvement strategies should primarily focus on enhancing responsiveness and reliability, while maintaining the positive aspects of empathy and assurance in customer interactions.

3.5 System-Based Evaluation Results

Although the primary focus of this study is the SERVQUAL analysis, a simple web-based system was utilized to support data processing and visualization of service quality results. Through the integrated dashboard, administrators can monitor respondent distributions, expectation and perception scores, SERVQUAL gap values, and dimension rankings. Figure 7 presents an example of the service quality evaluation dashboard.

Figure 7. Service quality evaluation dashboard

The system facilitates automated SERVQUAL calculations and reduces the risk of manual processing errors. In addition, graphical visualization allows service managers to interpret evaluation results more efficiently and identify priority improvement areas.

3.6 Discussion

The results of this study indicate a noticeable gap between customer expectations and perceptions of Pos Express services in South Sumatra. The dominance of negative SERVQUAL gap values across all dimensions suggests that current service performance has not yet fully met customer expectations.

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The largest gap was observed in the responsiveness dimension. This finding indicates that customers expect faster responses, clearer information, and more efficient complaint handling mechanisms. In postal and logistics services, responsiveness is essential because service interactions often involve time-sensitive delivery processes.

The reliability dimension also demonstrated a substantial negative gap. This result reflects issues related to delivery punctuality, shipment tracking accuracy, and service consistency. Since reliability represents the core value proposition of express delivery services, weaknesses in this dimension may directly affect customer satisfaction and trust. In contrast, the empathy dimension produced the smallest gap value, indicating that interpersonal interactions between staff and customers are generally perceived positively. Friendly attitudes, courteous communication, and personal attention remain strengths of Pos Express service delivery.

These findings suggest that operational improvements should primarily focus on strengthening delivery reliability and service responsiveness, while maintaining positive interpersonal service quality. Improving logistics coordination, enhancing information transparency, and strengthening complaint handling procedures may significantly reduce the observed service quality gaps. Overall, this study provides empirical evidence that SERVQUAL analysis can effectively identify priority service improvement areas in regional postal services. The results may serve as a reference for management in developing targeted strategies to enhance service performance and customer satisfaction.

4. CONCLUSION

This study evaluated the service quality of Pos Express at the Sekayu Post Office, South Sumatra, using the SERVQUAL method integrated with a web-based information system. The findings indicate that gaps exist between customer expectations and perceived service performance in several service dimensions. The largest negative gaps were identified in the reliability and responsiveness dimensions, indicating issues related to delivery punctuality, information accuracy, complaint handling, and response time. These results suggest that operational performance and service responsiveness remain key areas that require improvement. In contrast, the empathy dimension showed relatively smaller gap values, indicating that interpersonal interactions between service staff and customers are generally perceived positively. This aspect can serve as a supporting strength for improving overall service quality through enhanced staff training and service management. The implementation of a web-based SERVQUAL evaluation system contributes to more efficient data collection, automated analysis, and improved monitoring of service performance. This system can support managerial decision-making by providing clearer insights into service gaps and priority improvement areas. However, this study was limited to a single postal service location and a specific group of respondents, which may limit the generalizability of the findings. Future studies are recommended to include broader service locations and larger respondent samples, as well as incorporate qualitative approaches to gain deeper insights into customer experiences.

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