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Evaluation of Perceived Service Quality of School Bus Route C Based on SERVQUAL Dimensions Using the Importance–Performance Analysis (IPA) Approach

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Abstract

School bus services are an integral part of public transportation that supports students' mobility and improves access to education. This study aims to evaluate users' perceptions of the service quality of School Bus Route C in Sragen Regency based on the SERVQUAL dimensions and to identify service attributes requiring priority improvement using the Importance–Performance Analysis (IPA) approach. A quantitative descriptive survey was conducted involving 100 student respondents selected through accidental sampling. Data were collected using structured questionnaires and analyzed using the SERVQUAL method to measure the gap between users' perceptions and expectations, followed by IPA to determine service improvement priorities. The results indicate that all service quality dimensions have negative gap values, suggesting that service performance has not fully met users' expectations. Attributes related to comfort, supporting facilities, and staff responsiveness were identified as priorities for improvement, while reliability and safety should be maintained because their performance meets users' expectations. These findings provide practical guidance for local governments to improve school bus service quality through more effective and user-oriented public transportation management.

Keywords : school bus, service quality, SERVQUAL, Importance–Performance Analysis (IPA), public transportation

Introduction

Public transportation is an essential public service that plays a strategic role in ensuring equitable access to basic services, including education. In the educational sector, the availability of safe, reliable, comfortable, and accessible transportation is a key factor in supporting students' mobility and promoting equal access to education (Badriah & Pramularso, 2020). School bus services facilitate students' daily travel while contributing to safer school transportation, reducing dependence on private vehicles, and supporting more sustainable urban mobility (Stanley & Stanley, 2021). Therefore, the provision of school bus services represents not only the availability of transportation facilities but also the government's responsibility to deliver high-quality public services.

Service quality is a critical factor in determining the effectiveness of school bus services. Safe, comfortable, punctual, and accessible services, supported by positive interactions between service personnel and users, contribute to favorable perceptions of service quality. These perceptions are influenced by several key aspects, including scheduling and route planning, vehicle safety and condition, bus stop facilities and pedestrian accessibility, as well as service efficiency, effectiveness, and equity (Agyeman & Cheng, 2020). Therefore, service quality should be evaluated from users' experiences and perceptions to accurately reflect actual service performance and provide evidence for policies aimed at improving public service quality.

Previous studies have identified safety, security, comfort, reliability, and accessibility as the primary determinants of users' perceptions of public transport service quality and satisfaction. High-quality services also encourage the continued use of public transportation by strengthening users' confidence and willingness to rely on the service. Consequently, evaluating service quality is an important instrument for governments to identify service attributes that should be maintained and those requiring improvement, thereby supporting the development of more effective, responsive, and user-oriented public service policies (Sogbe et al., 2025).

In line with the importance of providing high-quality public transportation, the Government of Sragen Regency introduced a school bus service as part of its public transportation program to improve students' travel safety, enhance access to schools, and reduce the use of private vehicles among students. This policy was initiated in response to the high proportion of students commuting by motorcycle, which increases the risk of traffic accidents and highlights the need for safer and more reliable transportation alternatives. Since its launch in 2023, the school bus service has operated several routes designed to accommodate students' mobility needs. However, the service still faces several challenges, including limited fleet availability and budget constraints, resulting in incomplete service coverage across Sragen Regency. Nevertheless, the program is expected to improve student safety, reduce traffic congestion, and encourage a shift from private vehicles to public transportation (Government of Sragen Regency, 2023).

To illustrate the utilization of the service, data on the use of the Sragen Regency School Bus service from January to June 2024 are presented in table 1.

Table 1. Number of School Bus Users in Sragen Regency, January–June 2024

Bulan (2024)	A	B	C	D	Total	Percent Total	Trend (%)
January	827	637	713	493	2670	19.94%	-
February	979	843	884	685	3391	25.32%	27.00%
March	887	609	785	551	2832	21.15%	- 16.48%
April	452	403	425	340	1620	12.10%	- 42.80%
May	566	381	523	354	1824	13.62%	12.59%
June	300	212	327	217	1056	7.88%	- 42.11%

Source: Processed data from the Department of Transportation of Sragen Regency, 2024

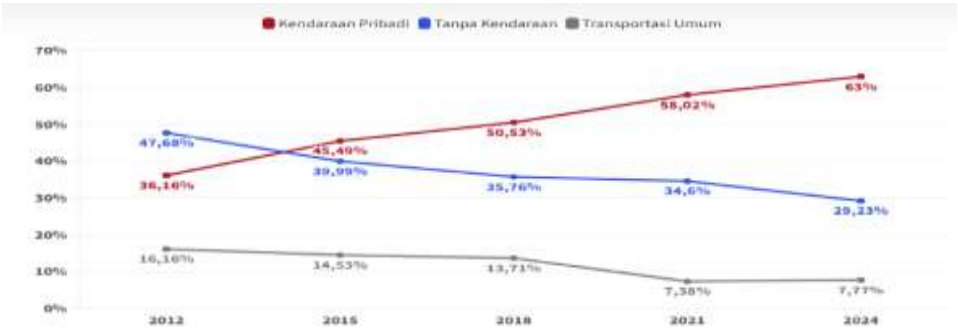
Based on table 1, the utilization of the Sragen Regency School Bus service during the January–June 2024 period exhibited a fluctuating pattern. Service utilization reached its highest level in February, with 3,391 trips, accounting for 25.32% of the total trips recorded over the six-month period. This was followed by a decline to 2,832 trips in March. Service utilization decreased further to 1,620 trips in April, experienced a slight increase to 1,824 trips in May, and declined again to 1,056 trips in June.

The fluctuating pattern indicates that the utilization of the Sragen Regency School Bus service remains dynamic. However, changes in service utilization should not be directly interpreted as indicators of declining service quality, as they may be influenced by various factors beyond the scope of this study. Therefore, this study does not seek to examine the causes of fluctuations in service utilization. Instead, it focuses on evaluating users' perceptions of school bus service quality based on the SERVQUAL dimensions and identifying service attributes that require priority improvement using the Importance–Performance Analysis (IPA) approach.

This study focuses on School Bus Route C (Kedawung–SMAN 1 Sragen). The route was purposively selected because it operated continuously throughout the observation period and serves students traveling to educational areas in Sragen Regency. These operational characteristics make Route C an appropriate unit of analysis for evaluating users' perceptions of school bus service quality.

This condition is also consistent with the broader pattern of students' transportation choices in Indonesia. Data indicate that, in 2024, approximately 63% of students preferred using private vehicles, whereas only about 7% used public transportation (Yonatan, 2025). These figures suggest that public transportation, including school bus services, has not yet become the primary mode of transportation for most students.

Figure 1. ***Transportation Choices of Indonesian Students (2012–2024)***



Source: goodstats.id, 2025

Students' choice of transportation mode is influenced by various factors, including accessibility, travel time, travel flexibility, comfort, and the influence of social and family environments (Salazar-serna et al., 2023). Convenience and perceived practicality also play an important role in shaping students' transportation preferences (Cece et al., 2025). On the other hand, the widespread use of private vehicles among students contributes to a higher risk of road traffic accidents within the school-age population. Therefore, school bus services provide a safer, more affordable, and better-controlled transportation alternative that supports students' mobility while enhancing travel safety to and from school (Agyeman et al., 2024).

The effectiveness of school bus services depends not only on fleet availability but also on service quality. Attributes such as punctuality, reliability, vehicle condition, comfort, safety, and route suitability shape users' perceptions of service quality (Hussin et al., 2024). Therefore, evaluating users' perceptions is essential for identifying service attributes that meet expectations and those requiring improvement.

Previous studies have assessed transportation service quality using different approaches. Ginting (2022) applied SERVQUAL and the Customer Satisfaction Index (CSI) to evaluate the Trans Metro Deli bus service. (R. Halim, 2021) found that service quality significantly influenced customer satisfaction in intercity bus services. (Herlynawati et al., 2024) employed the Importance–Performance Analysis (IPA) and Customer Satisfaction Index (CSI) methods to evaluate the service quality of the Trans Jatim Corridor II bus service.

Although these studies provide valuable insights, they mainly focus on customer satisfaction or commercial public transportation. Research evaluating government-operated school bus services as a public service remains limited, particularly studies that use service quality evaluation to establish priorities for service improvement.

To address this gap, this study evaluates the service quality of School Bus Route C in Sragen Regency using the SERVQUAL dimensions and the Importance–Performance Analysis (IPA) approach. The study identifies service attributes that meet users' expectations and those requiring priority improvement, providing evidence-based recommendations to support service quality enhancement and public transportation policy development.

Literature Review

Public Services

Public services comprise a series of activities organized by the government to fulfill citizens' needs for goods, services, and administrative assistance in accordance with applicable laws and regulations. Their implementation is expected not only to ensure public access to services but also to promote effectiveness, efficiency, transparency, and accountability in meeting users' needs (Wangsajaya et al., 2023).

Public transportation is one of the most essential forms of public service because it supports daily mobility and improves access to education, healthcare, and economic opportunities. Therefore, public transportation systems should provide services that are safe, reliable, and responsive to users' needs (G. D. H. Ginting, 2025).

Among public transportation services, school bus services are provided by local governments to enhance students' travel safety, reduce dependence on private vehicles, and improve equitable access to education. As a public service, the quality of school bus services

should be evaluated regularly to ensure that service delivery continues to meet users' expectations.

Public Service Quality

Public service quality is a key indicator of the effectiveness of public service delivery. It reflects the ability of service providers to deliver services that meet users' needs and expectations through effective, responsive, and user-oriented service processes (Sellang et al., 2022). According to Wangsajaya et al. (2023), public service quality is a dynamic concept encompassing service processes, human resources, supporting facilities, and service systems that are capable of meeting or exceeding public expectations. Dahlan (2023) further emphasizes that service quality is reflected in the provider's ability to deliver services consistently, accurately, and in accordance with users' needs, thereby improving users' overall service experience.

Based on these perspectives, public service quality can be defined as the ability of service providers to deliver effective, reliable, responsive, and user-oriented services. Consequently, evaluating service quality is essential for supporting the continuous improvement of public service performance.

SERVQUAL Method

The SERVQUAL model, originally developed by Parasuraman, Zeithaml, and Berry (1985), measures service quality by comparing users' expectations with their perceptions of the services received. Service quality is assessed through the gap between expected service and perceived service across five dimensions: reliability, responsiveness, assurance, empathy, and tangibles (Harjadi & Fitriani, 2024). A negative gap indicates that service performance falls below users' expectations, while a positive gap indicates that performance exceeds expectations. SERVQUAL remains one of the most widely used approaches for evaluating service quality because it provides a systematic framework for identifying service gaps and areas requiring improvement. The SERVQUAL score is calculated as:

SERVQUAL Score = Perception Score – Expectation Score

The SERVQUAL instrument and the data it generates can also be utilized for various other purposes, such as comparing customer expectations and perceptions over time; comparing a company’s SERVQUAL scores with competitors; identifying and analyzing customer segments with different quality perceptions; and assessing quality perceptions from internal customers (Harjadi & Fitriani, 2024)

Desai (2023) states that as the most widely used approach, SERVQUAL compares customer expectations before receiving a service with their perceptions after the service is delivered. This model was developed through systematic research since 1983 and resulted in the official SERVQUAL instrument in 1988. Initially, around 100 indicators were identified from the literature and then analyzed using factor analysis, which produced ten initial dimensions of service quality:

1. Competence: The ability of staff in terms of knowledge and skills to deliver services.
2. Courtesy: Friendliness, respect, and neat appearance of service personnel.
3. Credibility: Trust and honesty perceived by customers from the service provider.
4. Security: Protection from physical, financial risks, and confidentiality of information.
5. Access: Ease of contacting and reaching the service provider.

6. Communication: The ability to explain services in an understandable manner and to listen to customers.
7. Understanding the customer: Efforts to recognize and meet individual customer needs.
8. Tangibles: The appearance of facilities, equipment, personnel, and communication materials.
9. Reliability: The ability to provide services accurately and consistently as promised.
10. Responsiveness: The willingness and promptness of employees to help and provide quick service.

Importance Performance Analysis Method

Importance Performance Analysis (IPA) was first introduced by John A. Martilla and John C. James (James, 1997). Respondents are asked to rank various elements of a service offering based on the degree of importance of each attribute. In addition, respondents are also asked to rate how well the service performs on each attribute.

According to Philip Kotler in Mudjanarko et al. (2020) importance–performance analysis can be used to rank various elements of a service bundle and identify the necessary actions. In this method, it is necessary to measure the level of conformity to determine how satisfied customers are with the company's performance, and how well service providers understand what customers expect from the services they deliver. The IPA (Importance Performance Analysis) method is designed to measure consumer perceptions and prioritize service quality improvements, also known as quadrant analysis (Brandt : 2000 dalam Mudjanarko et al., 2020). Statistical measures such as mean scores are used to determine the importance and performance levels of each attribute. These values are then plotted into a two-dimensional Importance–Performance Matrix, classifying attributes into four quadrants based on their priority for improvement:

Table 2. Importance–Performance Quadrants

Quadrant I (A) **Main Priority**	Quadrant II (B) **Performance Priority**
Quadrant III (C) **Low Priority**	Quadrant IV (D) **Overdone**

Source: (Brandt : 2000 in Mudjanarko et al., 2020)

According to Brandt (2000) in Mudjanarko et al. (2020), the Importance–Performance Analysis (IPA) matrix is divided into four quadrants. Quadrant I (*Improve Performance*) consists of attributes with high importance but low performance, indicating that these attributes require priority improvement. Quadrant II (*Maintain Performance*) includes attributes with high importance and high performance, which are considered key factors influencing customer satisfaction and should be maintained. Quadrant III (*Low Priority*) represents attributes with low importance and low performance, meaning that they require less attention in service improvement efforts. Meanwhile, Quadrant IV (*Overdone*) contains attributes with low importance but high performance, suggesting that resources allocated to these attributes may be redirected to other areas with higher improvement priorities.

Public Transportation and School Bus Services

Public transportation is a form of public service provided by the government to meet citizens' mobility needs, as mandated by Law No. 25 of 2009 on Public Services. It plays a vital

role in improving accessibility, supporting daily activities, and promoting social and economic development. Therefore, providing safe, reliable, and affordable public transportation is a key government responsibility (G. D. H. Ginting, 2025).

School bus services represent a specialized form of public transportation designed to enhance students' travel safety while reducing dependence on private vehicles. Changes in transportation systems and travel behavior have influenced students' travel patterns, contributing to shifts in school bus usage alongside the growing reliance on private transportation (Agyeman & Cheng, 2020).

The effectiveness of school bus services depends not only on fleet availability but also on service quality. Safety, security, comfort, reliability, accessibility, and first- and last-mile connectivity are key factors influencing users' decisions to use bus transportation (Sogbe et al., 2025). Therefore, service quality evaluation is essential for identifying service attributes that meet users' expectations and those requiring improvement, thereby providing evidence to support continuous service enhancement (Herlynawati et al., 2024).

Method

This study employed a quantitative approach with a descriptive survey method to evaluate the service quality of the School Bus Route C in Sragen Regency based on users' perceptions. Service quality was measured using the SERVQUAL method, consisting of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Importance–Performance Analysis (IPA) was subsequently applied to compare service importance and performance and to determine improvement priorities.

The study population included all users of the School Bus Route C service, with 100 respondents selected through accidental sampling. Primary data were collected through questionnaires, while secondary data were obtained from the Sragen Regency Transportation Agency documents and relevant literature. Data analysis involved descriptive analysis, SERVQUAL gap analysis between user perceptions and expectations, and IPA mapping into four quadrants to identify priority improvements, maintained attributes, low-priority attributes, and overperformed attributes

Results and Discussion

Respondent Demographics

This study involved 100 respondents with various characteristics, including gender, age, education level, duration of bus usage, and usage intensity, as shown in the following table.

Table 3. Respondent Demographics

Characteristics	Total	Percentage
Gender		
Female	56	56%
Male	44	44%
Age		
< 15 year	31	31%
16–17 year	37	37%
> 17 year	32	32%
Education		
Junior High School/equivalent	31	31%

Senior High School/equivalent	69	69%
Duration of Bus Usage		
< 1 year	38	38%
1 – < 2 year	62	62%
Usage Intensity		
Occasional	48	48%
Daily	52	52%

Source: Processed primary data, 2025

Based on the table, the majority of respondents are female (56%), with most aged 16–17 years (37%). Most respondents are senior high school students or equivalent (69%), indicating that the primary users of school bus services come from the upper secondary education level. In terms of usage experience, most respondents have used the bus for 1 to less than 2 years (62%), and they show relatively high usage intensity, as indicated by 52% of respondents using the bus daily. This suggests that respondents have sufficient experience to evaluate the quality of school bus services.

User Perceptions of School Bus Service Quality on Route C in Sragen Regency Based on SERVQUAL Dimensions

Service Quality Dimension: Reliability

User perceptions of the quality of school bus services in the reliability dimension can be seen in the following table:

Table 4. Average User Perception on the Reliability Dimension

Item	Average Expectation	Average Performance	Conformity Level (%)
1	4,24	3,95	93,1
2	4,23	3,87	91,4
3	4,17	4,00	96,0
4	4,17	4,08	97,8
5	4,23	3,95	93,3
6	4,24	3,97	93,6
Average	4,213	3,974	94,22

Source: Processed by the researcher, 2025

The reliability dimension recorded a relatively high conformity level (94.22%), indicating that users generally perceived the School Bus Route C service as reliable in terms of schedule consistency, operational continuity, vehicle condition, and accessibility. However, the average performance score (3.974) remained lower than the average expectation score (4.213), resulting in a negative SERVQUAL gap (-0.239). This finding suggests that, although the reliability dimension received relatively favorable evaluations, the service has not yet fully met users' expectations, indicating the need for continuous improvements in maintaining reliable service delivery.

Service Quality Dimension: Assurance

User perceptions of school bus service quality in the assurance dimension, based on the average scores of expectations and actual performance for each statement item, can be seen in the following table:

Table 5. Average User Perception on the Assurance Dimension

Item	Average Expectation	Average Performance	Conformity Level (%)
1	4,13	3,97	96,1
2	4,16	4,00	96,1
3	4,21	4,09	98,3
4	4,28	3,96	92,5
Average	4,195	4,005	95,8

Source: Processed by the researcher, 2025

Overall, the assurance dimension recorded a relatively high conformity level (95.8%), indicating that users perceived the school bus service positively in terms of safety, trustworthiness, and staff competence. However, the average performance score (4.005) remained lower than the average expectation score (4.195), resulting in a negative SERVQUAL gap (-0.190). This finding suggests that although users evaluated the assurance dimension favorably, the service has not yet fully met their expectations. The relatively small gap indicates that improvements are still needed, particularly in maintaining students' confidence in the service and ensuring consistent safety assurance across all service attributes

Service Quality Dimension: Tangibles

User perceptions of school bus service quality in the tangible (physical facilities) dimension, based on the average scores of expectations and actual performance for each statement item, can be seen in the following table:

Table 6. Average User Perception on the Tangible Dimension

Item	Average Expectation	Average Performance	Conformity Level (%)
1	4,16	2,21	53,1
2	4,31	4,06	94,2
3	4,17	3,98	95,4
4	4,26	2,17	50,1
5	4,21	2,19	52
Average	4,22	2,92	68,96

Source: Processed by the researcher, 2025

The tangible dimension recorded the lowest conformity level (68.96%) among all SERVQUAL dimensions, indicating that users perceived substantial shortcomings in the physical aspects of the School Bus Route C service. The average performance score (2.92) was considerably lower than the average expectation score (4.22), resulting in the largest negative SERVQUAL gap (-1.30). This finding indicates that the physical facilities provided by the service have not yet met users' expectations. The largest gaps were observed for Item 1 (bus cleanliness), Item 4 (bus interior spaciousness), and Item 5 (supporting facilities such as air

circulation and handrails), suggesting that these attributes should be prioritized for improvement to enhance passengers' comfort and overall service quality.

Service Quality Dimension: Empathy

User perceptions of school bus service quality in the empathy dimension, based on average expectation and performance scores, are shown in the following table:

Table 7. Average User Perception on the Empathy Dimension

Item	Average Expectation	Average Performance	Conformity Level (%)
1	4,18	4,03	96,4
2	4,26	4,01	94,1
3	4,25	4,05	95,3
4	4,23	2,13	50,3
Average	4,23	3,55	84,03

Source: Processed by the researcher, 2025

The empathy dimension recorded a conformity level of 84.03%, indicating that users generally perceived positive service interactions in several aspects of the School Bus Route C service. However, the average performance score (3.55) remained lower than the average expectation score (4.23), resulting in a negative SERVQUAL gap (-0.68). Although three attributes received relatively high performance scores, Item 4 recorded a substantially lower performance score (2.13), indicating a considerable shortfall in meeting users' expectations. This finding suggests that the empathy dimension has not yet fully met users' expectations, particularly regarding staff friendliness and interpersonal interactions. Therefore, improving staff communication skills and service-oriented behavior should be considered a priority to strengthen users' perceptions of empathetic service.

Service Quality Dimension: Responsiveness

User perceptions of school bus service quality in the responsiveness dimension, based on the average scores of expectations and actual performance for each statement item, can be seen in the following table:

Table 8. Average User Perception on the Responsiveness Dimension

Item	Average Expectation (X)	Average Performance (Y)	Conformity Level (%)
1	4,14	4,02	97,1
2	4,26	4,14	97,1
3	4,11	3,94	95,8
4	4,12	3,99	96,8
5	4,05	4,11	101,4
Average	4,136	4,04	97,64

Source: Processed by the researcher, 2025

The responsiveness dimension recorded the highest conformity level (97.64%) among the five SERVQUAL dimensions, indicating that users perceived the responsiveness of the School Bus Route C service relatively positively. Nevertheless, the average performance score (4.040)

remained slightly lower than the average expectation score (4.136), resulting in a small negative SERVQUAL gap (-0.096). This finding suggests that, although the responsiveness dimension was evaluated more favorably than the other dimensions, the service has not yet fully met users' expectations. Notably, Item 5 achieved a conformity level above 100%, indicating that the service performance for this attribute exceeded users' expectations, whereas the remaining attributes still showed small negative gaps that provide opportunities for further service improvement.

Level of Importance and Performance

The level of service importance was measured based on users' expectations regarding each service attribute of School Bus Route C. The average scores reflect the level of importance perceived by users for each dimension and attribute, as presented in the following table.

Table 9. Average Scores of Expected Service Dimensions for School Bus Route C

No	Dimension	Average
A. Reliability		
1	The school bus arrives on time according to the scheduled timetable	4.24
2	Ease of obtaining accurate and up-to-date information	4.23
3	Departure and arrival schedules are consistently maintained every day	4.17
4	The bus operates without disruptions or breakdowns affecting the trip	4.17
5	The bus is always in a condition that meets safety and comfort standards	4.23
6	Ease of accessing bus stops or departure points	4.24
B. Assurance		
7	Staff communicate in a way that is easy to understand	4.13
8	Staff clearly provide information about upcoming stops	4.16
9	The driver operates the bus carefully	4.21
10	Staff are capable of ensuring safety during the journey	4.28
C. Tangibles		
11	The school bus is always clean when in use	4.16
12	The school bus is in good and well-maintained condition	4.31
13	Passenger seats are comfortable to use	4.17
14	The bus interior is spacious	4.26
15	Supporting facilities such as air circulation and handrails function properly	4.21
D. Empathy		
16	Information provided by staff is easy to understand	4.18
17	Staff make efforts to ensure student comfort during the trip	4.26
18	Staff respond quickly to student complaints or requests	4.25
19	Staff provide friendly and courteous service to students	4.23
E. Responsiveness		
20	Staff respond promptly when students need assistance	4.14
21	Staff quickly provide information about schedule changes	4.26
22	Bus attendants are always ready to assist students in boarding and alighting safely	4.11
23	Bus management provides communication media (WhatsApp groups) for questions and complaints	4.12

No	Dimension	Average
24	The school bus management promptly informs users of schedule changes	4.05
Average		**4.19**

Source: Processed by the researcher, 2025

Based on Table 9, the overall average importance score was 4.19, indicating that all service attributes were perceived as important by users. The importance ratings ranged from 4.05 to 4.31, suggesting consistently high expectations across all SERVQUAL dimensions. The highest importance scores were associated with the condition of the school bus (Item 12; 4.31), staff's ability to ensure safety during the journey (Item 10; 4.28), bus interior spaciousness (Item 14; 4.26), staff efforts to ensure student comfort (Item 17; 4.26), and prompt information regarding schedule changes (Item 21; 4.26). These findings suggest that users place particular importance on physical facilities, operational safety, and service reliability when evaluating the quality of School Bus Route C.

Table 10. Average Scores of Service Performance Dimensions for School Bus Route C

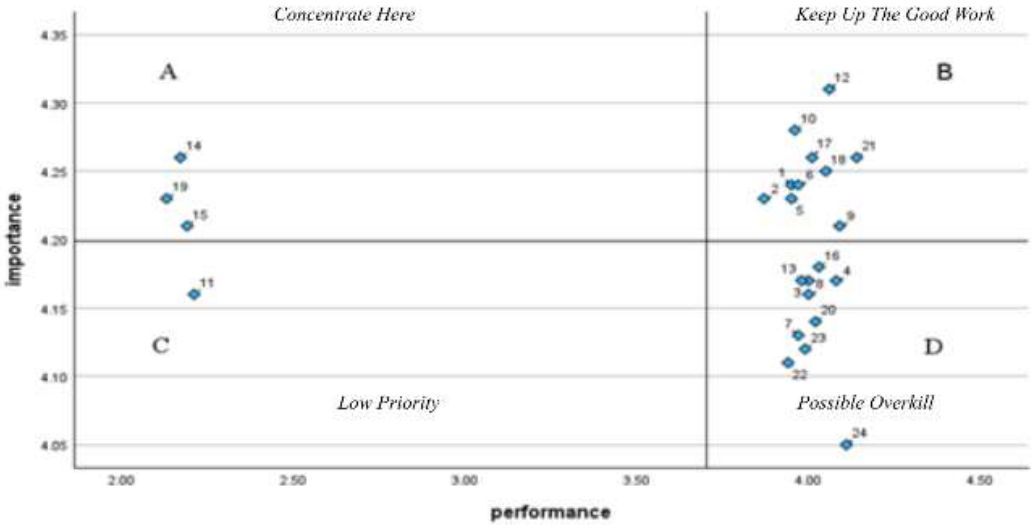
No	Dimension	Average
A. Reliability		
1	The school bus arrives on time according to the scheduled timetable	3.95
2	Ease of obtaining accurate and up-to-date information	3.87
3	Departure and arrival schedules are consistently maintained every day	4.00
4	The bus operates without disruptions or breakdowns affecting the trip	4.08
5	The bus is always in a condition that meets safety and comfort standards	3.95
6	Ease of accessing bus stops or departure points	3.97
B. Assurance		
7	Staff communicate in a way that is easy to understand	3.97
8	Staff clearly provide information about upcoming stops	4.00
9	The driver operates the bus carefully	4.09
10	Staff are capable of ensuring safety during the journey	3.96
C. Tangibles		
11	The school bus is always clean when in use	2.21
12	The school bus is in good and well-maintained condition	4.06
13	Passenger seats are comfortable to use	3.98
14	The bus interior is spacious	2.17
15	Supporting facilities such as air circulation and handrails function properly	2.19
D. Empathy		
16	Information provided by staff is easy to understand	4.03
17	Staff make efforts to ensure student comfort during the trip	4.01
18	Staff respond quickly to student complaints or requests	4.05
19	Staff provide friendly and courteous service to students	2.13
E. Responsiveness		
20	Staff respond promptly when students need assistance	4.02
21	Staff quickly provide information about schedule changes	4.14
22	Bus attendants are always ready to assist students in boarding and alighting safely	3.94

No	Dimension	Average
23	Bus management provides communication media (WhatsApp groups) for questions and complaints	3.99
24	The school bus management promptly informs users of schedule changes	4.11
	Total Average	**3.70**

Source: Processed by the researcher, 2025

Based on Table 10, the overall average performance score was 3.70, while the overall average importance score presented in Table 9 was 4.19. In the Importance–Performance Analysis (IPA), performance is represented on the horizontal axis (X-axis), whereas importance is represented on the vertical axis (Y-axis). Therefore, the intersection point used to construct the Cartesian diagram was (3.70; 4.19). These reference values were used to classify each service attribute into the four IPA quadrants according to its relative importance and performance.

Figure 1. Cartesian Diagram of Student Satisfaction for Bus Route C



Source: Processed by the researcher, 2025

Based on the results of the Importance–Performance Analysis (IPA), the service attributes of School Bus Route C were classified into four quadrants representing different managerial priorities. The IPA compares users' perceived performance with the relative importance of each service attribute to identify aspects requiring immediate improvement, continuous maintenance, or periodic evaluation. Since the quadrant boundaries are determined using the grand mean values, attributes classified as having relatively lower importance remain important in absolute terms because all importance scores exceeded 4.00.

Based on the IPA results, Quadrant A (Concentrate Here) consists of three attributes, namely bus interior spaciousness, supporting facilities such as air circulation and handrails, and staff friendliness toward students. These attributes received high importance scores but relatively low performance scores, indicating the largest gaps between users' expectations and perceived service quality. This finding suggests that physical comfort and interpersonal service remain the highest priorities for improvement. Ginting (2022) similarly found that tangible service attributes often generate the largest service quality gaps in public

transportation. Furthermore, Watthanaklang et al. (2024) emphasized that improvements in convenience, responsiveness, and safety enhance perceived accessibility and encourage greater use of public transportation.

Based on the IPA results, Quadrant B (Keep Up the Good Work) includes attributes related to punctuality, operational safety, vehicle condition, accessibility, complaint handling, and schedule information. These attributes demonstrated relatively high performance compared with other service attributes, although their performance scores remained slightly below users' expectations. Therefore, they should be maintained through continuous quality improvement rather than being interpreted as having fully met users' expectations. Agyeman (2020) identified scheduling reliability, operational safety, and service effectiveness as fundamental indicators of school bus service quality. Likewise, Halim (2021) highlighted that maintaining consistent service quality is essential for sustaining positive user perceptions and service satisfaction.

Based on the IPA results, Quadrant C (Low Priority) contains only the bus cleanliness attribute. Although this attribute falls below the grand mean for both importance and performance, its importance score remains above 4.00. Therefore, this classification should not be interpreted as indicating that cleanliness is unimportant, but rather as representing a relatively lower managerial priority compared with other attributes requiring more immediate attention. This interpretation is supported by Sogbe et al. (2025), who concluded that comfort, together with safety, reliability, and accessibility, remains one of the principal determinants of public transport service quality.

Based on the IPA results, Quadrant D (Possible Overkill) includes attributes related to schedule consistency, communication, boarding assistance, seat comfort, and information services. Although these attributes exhibited relatively high performance while their importance scores were slightly below the grand mean, they should not be interpreted as excessive service provision or inefficient resource allocation. Instead, these attributes represent essential public-service responsibilities that should continue to be maintained to ensure operational reliability and passenger safety. Herlynawati et al. (2024) explained that IPA should be interpreted as a tool for identifying relative managerial priorities rather than determining which services should receive fewer resources. Similarly, Watthanaklang et al. (2024) emphasized that maintaining service quality indicators is essential for improving accessibility and encouraging greater utilization of public transportation.

Overall, the IPA results indicate that improving school bus services requires balancing operational reliability with physical comfort and the quality of staff interaction. The relatively low performance of the tangible and empathy dimensions suggests that improvements should focus on bus facilities and staff service orientation while maintaining operational reliability and safety. These findings are consistent with Sogbe et al. (2025), who identified safety, comfort, reliability, and accessibility as the principal determinants of public transport service quality. From a public administration perspective, the findings further indicate that improving school bus services is not only intended to enhance users' perceptions but also to fulfil the government's responsibility to provide safe, accessible, equitable, and accountable transportation services in accordance with Law Number 25 of 2009 on Public Services

Overall, the IPA results indicate that improvement efforts should prioritize attributes in Quadrant A, while the performance of attributes in Quadrant B should be maintained. Attributes in Quadrants C and D should be managed based on their relative priorities.

Therefore, the IPA provides a practical basis for targeted and sustainable service quality improvement.

Table 11. Importance–Performance Analysis (IPA) Matrix and Priority Actions

Quadrant	Category	Service Attributes	Strategy / Priority Actions
Quadrant A (Main Priority)	High importance, low performance	Bus interior comfort	Add or improve ventilation/AC
		Air circulation	Improve bus interior facilities
		Handrails	Provide service excellence training for staff
		Staff friendliness	Conduct regular service quality monitoring
Quadrant B (Maintain Performance)	High importance, high performance	Schedule reliability	Maintain service consistency
		Travel safety	Standardize safety SOPs
		Student safety	Conduct routine evaluations to maintain quality
Quadrant C (Low Priority)	Low importance, low performance	Additional attributes perceived as less important	Gradual improvements as needed
			Not a primary focus
Quadrant D (Overdone)	Low importance, high performance	Attributes perceived as excessive by users	Optimize and improve resource efficiency
			Reallocate budget to Quadrant A

Source: Processed by the researcher, 2025

Conclusion

The Importance–Performance Analysis (IPA) indicates that the service quality of School Bus Route C in Sragen Regency was generally perceived positively by users. However, the SERVQUAL analysis revealed that the performance scores of all service quality dimensions remained slightly below users' expectation scores, indicating that service quality has not yet fully met users' expectations. Among the five SERVQUAL dimensions, **tangibles** exhibited the largest service quality gap, particularly regarding bus interior spaciousness, supporting facilities (air circulation and handrails), and staff friendliness, which were identified as the main priorities for improvement in Quadrant A. Meanwhile, attributes in Quadrant B should be maintained through continuous service monitoring, whereas attributes in Quadrants C and D should be managed according to their relative priorities while maintaining essential public-service standards. These findings provide practical guidance for local governments and transport operators in prioritizing service improvements to enhance the quality, accessibility, and sustainability of school bus services.

Limitation

This study has several limitations. First, the research was conducted only on School Bus Route C in Sragen Regency, which may limit the generalizability of the findings to other routes or regions with different operational characteristics. Second, the IPA analysis used expectation scores as a proxy for importance, which may not fully capture users' perceived importance of each service attribute. Future studies are therefore encouraged to measure importance directly

and to involve a broader range of respondents and operational settings. In addition, integrating qualitative methods, such as interviews or focus group discussions, may provide deeper insights into the factors underlying users' perceptions of school bus service quality.

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