



An Analysis of Library Service Quality Using the Importance-Performance Analysis (IPA) Method

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ABSTRACT

Purpose - This study aims to analyze the quality of library services at SMAN 9 Tana Toraja based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

Methodology - This research employs a descriptive quantitative approach, utilizing the Importance-Performance Analysis (IPA) model. The study population consisted of 525 students who regularly use the library at SMAN 9 Tana Toraja, with a sample of 228 students determined using the Slovin formula. Data was collected through questionnaires distributed via Google Forms and analyzed using a Cartesian diagram to map performance against importance.

Findings - The overall suitability level of library services was 83.086%, categorized as "fairly appropriate". The IPA matrix revealed that the empathy dimension is a top priority for improvement (Quadrant A). The reliability and assurance dimensions performed well and should be maintained (Quadrant B). Meanwhile, the tangible and responsiveness dimensions were identified as low priorities (Quadrant C). No attributes were found to be excessive (Quadrant D).

Contribution - This research provides a theoretical foundation for evaluating library service quality in educational settings. It offers concrete, data-driven recommendations for SMAN 9 Tana Toraja to enhance its library services, thereby supporting student literacy and the overall educational process.

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INTRODUCTION

A library is a place used to store information in both printed and electronic form (Eskha, 2018). According to Syaifullah (2024), libraries are institutions that provide services. Meanwhile, according to Yunita (2022), a library is an organization that provides services related to the information its users need. Libraries can support student literacy. According to Wulandari (2021), reading literacy is a crucial factor in fostering reading interest, while technology and library infrastructure support the media in motivating readers. Meanwhile, according

to Damanik (2023), school libraries serve as learning resources that support the achievement of educational goals in senior high schools and are an integral part of school institutions, alongside other learning resources. School libraries must be effectively managed to provide quality service to their members, staff, and leaders in searching for references (Puspitasari, 2016).

In the world of education, a library is a place for lifelong learning (Mahmudatul, 2017). One of the facilities that can support the learning process in schools is the library (Yuliana, 2021). The school library is a vital facility for students who want to access information and knowledge, as well as a means of fostering students' interest in visiting and reading (Iztihana & Arfa, 2020). In general, a library serves as a place where various activities, including the collection, management, and dissemination of information in different media, are conducted (Nursangadah, 2019). With effective library management, it is hoped that the school library's objectives can be achieved, namely to enhance the knowledge, skills, values, and attitudes of students and teachers (Sasongko & Juarsa, 2017). The library accreditation and certification process is used to strive for improvement in library quality (Komarudin, 2016). Research on user satisfaction can be conducted by obtaining responses from users through questionnaires distributed to them, thereby providing an overall picture of user satisfaction (Irianti, 2017).

The American Society of Quality Control states, "quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs" (Priansa, 2017). Service quality will be evident in specific dimensions such as Tangible, Reliability, Responsiveness, Assurance, and Empathy (Rifa'i, 2020). The basic concepts and service strategies are important factors in excellent service (Frimayasa, 2017). The primary objective of excellent service is to deliver services that meet and satisfy customers or the community, while also prioritizing customer service (Ulinavia, 2019). According to Wiyani (2020), the primary purpose of delivering excellent service is to satisfy consumers, ensuring their needs are met.

According to Elnadi (2018), library services are one of the key areas that libraries need to focus on, as a library can be judged by the services provided by librarians to library users. Library services are activities that directly bring users and librarians together, allowing users to assess the library's performance (Himmah & Azisi, 2019). Library services provide information and facilities to library users, enabling them to optimally obtain the information they need from various media (Rahmah, 2018).

The definition of library services is continually evolving in response to the community's changing needs and growing understanding of information (Nisa, 2023). One of the primary elements for assessing the quality of a library is evident in the quality of its services (Suharti, 2020). User services are activities related to library information services that can be utilized by users (Nadhifah, 2020). Library services are said to be of high quality if they can meet the information needs of their users (Risparyanto, 2022).

According to Suratmi (2021), libraries have service elements, namely library service facilities, available library materials, library users, and service staff. According to Rochmah (2016), there are three types of library services: technical services, user services, and reference services. Service quality is a way of understanding the real picture of existing service performance from the perspective of library users (Hossain, 2016). Libraries need to assess service quality because they play a crucial role on campus (Kim, 2017).

One method used to examine service quality is the importance-performance analysis method. With this method, respondents are asked to assess each service attribute in terms of satisfaction and importance levels. The average satisfaction and importance levels are then analyzed using the Importance-Performance Analysis Matrix (a Cartesian diagram). The Cartesian diagram consists of the x-axis for the satisfaction level analysis results and the y-axis for the importance level analysis results. IPA analysis employs two analytical calculations: suitability analysis and gap analysis. The calculation results are then analyzed using a Cartesian diagram quadrant analysis (Andre & Tileng, 2019). IPA is an analytical tool used to analyze the level of importance and performance. It aims to identify which attributes have low performance and require improvement (Suroto, Nindiani, & Purba, 2017).

Despite their importance, many school libraries are not managed professionally and often fail to reach their full potential, sometimes being treated as mere storage spaces. This issue is evident at SMAN 9 Tana

Toraja, which faces significant challenges related to literacy. This condition aligns with national-level findings. National data from the 2022 Programme for International Student Assessment (PISA) rank Indonesia 71st out of 81 countries in reading literacy, indicating a significant challenge. This is reflected at the school level, where the 2023 education report showed that student literacy skills were only moderate, with an achievement score of 68.89.

Specific problems within the SMAN 9 Tana Toraja library exacerbate this issue. First, there is an insufficient quantity of books to meet the needs of the 512 students, with some books having to be shared. Second, the library is underutilized as a learning space, with low student borrowing rates; only 32% of students borrowed books during the fall semester of the 2024-2025 academic year. As stated by Martoatmojo Karmidi (1998), circulation activities are often considered the spearhead of library services because this section is the one most frequently used by users or related to users. Finally, the library is understaffed, with only one librarian possessing a formal library science background to serve 17 student groups—a ratio that is not ideal and leads to service delays. This combination of low literacy rates and specific operational deficiencies in the library necessitates a thorough investigation.

This study aims to analyze the quality of library services at SMAN 9 Tana Toraja, providing a clear path for improvement. The novel aspect of this work lies in its application of the Importance-Performance Analysis (IPA) model, a systematic framework for evaluating service quality. This study aims to answer the question: How is the quality of library services at SMAN 9 Tana Toraja based on the IPA model? This research will measure the gap between student expectations (importance) and their actual experiences (performance) across five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

By plotting these attributes on an IPA matrix, this study will identify which services are performing well and should be maintained, and which are underperforming and require immediate attention. This approach builds upon existing research that has utilized analytical models, such as IPA and LibQual+, to assess library services in other educational contexts. Similarly, research on user satisfaction with academic library services in Nigeria highlights the importance of service quality tailored to student needs. The research focuses on user satisfaction based on a simple survey and has not yet integrated the more comprehensive SERVQUAL or LibQUAL+™ methods.

The application of the IPA model in the context of secondary schools in Indonesia, particularly in areas such as Tana Toraja, remains relatively low. Most studies employing the IPA approach generally focus on the service sector, tourism, and higher education, while its application in secondary schools remains very limited. This condition is even more apparent when highlighting research related to the quality of school library services, which should be a crucial part of supporting students' literacy process. The lack of research in this field highlights a gap between the need for library service development and the availability of studies that can serve as references. The contribution of this manuscript is to provide data-driven, concrete recommendations tailored to the specific needs of SMAN 9 Tana Toraja, with the ultimate goal of enhancing its library services to support the educational process better and improve student literacy.

METHODOLOGY

Research Design

This study employed a descriptive quantitative research design using the Importance-Performance Analysis (IPA) model. The IPA model is considered appropriate for the objectives of this study because it enables the systematic mapping of the gap between expectations and library service performance, allowing the results to not only show the level of user satisfaction but also provide a more measurable direction for service improvement priorities. The purpose of this design was to measure the quality of library services at SMAN 9 Tana Toraja by quantitatively assessing student perceptions of service performance (reality) against their expectations (importance)

Participant

The population for this study consisted of 525 students at SMAN 9 Tana Toraja who are library users and visit at least 5 times a month. From this population, a sample of 228 students was selected from grades X, XI, and XII, with 76 samples representing each grade level. The sample size was calculated using the Slovin formula with a specified error tolerance of 5%. Participants were chosen because they had firsthand experience with the library's services, ensuring the data collected was relevant and informed.

Data Collection

Data was collected between January and March 2025, a period of active teaching and learning, ensuring intensive library activity. The primary data collection method was a questionnaire administered to the 228 student respondents. The questionnaire was distributed digitally using Google Forms, with the researcher providing brief instructions to each class group before they completed the survey. The questionnaire was completed independently, without interference from other parties, including teachers, to ensure that the answers accurately reflected the conditions experienced.

Instrument

The research instrument was a structured questionnaire designed to measure user perceptions of library service quality. The questionnaire was constructed based on the five dimensions of service quality: tangible (physical evidence), reliability (dependability), responsiveness (willingness to help), assurance (trust and confidence), and empathy (individualized attention). These dimensions were broken down into specific indicators, which then formed the basis for the questionnaire items. Prior to its use, the instrument underwent validation for content and empirical validity, as well as a reliability test using Cronbach's Alpha to ensure consistency.

The questionnaire was developed based on a research instrument grid containing five dimensions, each of which was broken down into several indicators. Each indicator was then developed into a statement item. The instrument was first validated, both in terms of content validity by experts and empirical validity using the SPSS application. The validity test was conducted on 30 students from various grade levels as test respondents. The test results showed that 29 questionnaire items were valid and reliable.

Furthermore, a reliability test was conducted to assess the consistency of the instrument using the Cronbach's Alpha method through SPSS. A statement item is considered reliable if the Cronbach's Alpha value is greater than 0.60. The questionnaire reliability test results obtained values of 0.942 for the performance aspect and 0.941 for the importance aspect.

Data Analysis

The collected data were analyzed using descriptive analysis through the Importance-Performance Analysis (IPA) model. The selection of the IPA model in this study was based on its ability to present informative yet straightforward quadrant visualizations, thereby facilitating easier identification of priorities for library service improvements and more accurate strategic decisions. This technique involved two main steps. First, a suitability analysis was conducted to compare the average score of the perceived performance (reality) with the average score of the perceived importance (expectations) for each service attribute. The suitability level (TKi) was determined using the formula:

$$TKi = Y_i / X_i \times 100\%$$

where X_i is the performance score and Y_i is the importance score.

According to Martilla & James (Sitti Hajar, 2023), the level of suitability is determined based on the percentage obtained. Details of the categories can be seen in the following table:

Table 1. Service Suitability Level Category

| Category | Level of Compliance |
|-----------------|---------------------|
| Not appropriate | 0 % – 44 % |
| Less suitable | 45 % – 64 % |
| Quite suitable | 65 % – 84 % |
| Appropriate | 85 % - 100 % |

Second, the average performance and importance scores for each attribute were plotted on a four-quadrant Cartesian diagram. This visual mapping allowed for the categorization of each service attribute into one of four quadrants, each with a different strategic implication:

1. Quadrant A (Concentrate Here)
High importance, low performance. Attributes requiring top priority for improvement.
2. Quadrant B (Keep Up The Good Work)
High importance, high performance. Strengths that should be maintained.
3. Quadrant C (Low Priority)
Low importance, low performance. Attributes that do not require immediate attention.
4. Quadrant D (Possibly Overkill)
Low importance, high performance. Attributes where resources might be reallocated.

FINDINGS

The research data were obtained by distributing questionnaires to 228 students of SMAN 9 Tana Toraja who were selected as respondents. The selection of respondents was carried out to obtain a representative picture of students' perceptions of school library services. The questionnaire instrument was compiled based on five main dimensions of service quality, namely tangible, responsiveness, reliability, assurance, and empathy. Each dimension was broken down into several indicators that reflect the aspects of service that students perceive and expect to receive.

Next, the data collected from the questionnaire were analyzed using the Importance Performance Analysis (IPA) method. This analysis was used to determine the extent of conformity between the level of importance attributed to library services and their perceived performance by students. Through the IPA method, it was possible to identify service attributes that needed to be maintained and aspects that still needed improvement. Based on the measurement of the weight of each dimension of library service quality at SMAN 9 Tana Toraja, the level of service quality suitability is shown in Table 2 below.

Table 2. Level of Conformity based on Service Dimensions

| Dimensions | % Conformity Level | Description |
|----------------|--------------------|----------------|
| Tangible | 78,47 % | Quite Suitable |
| Responsiveness | 80,64% | Quite Suitable |
| Reliability | 89,62% | suitable |
| Assurance | 82,33% | Quite Suitable |
| Empathy | 78,65% | Quite Suitable |

The data in the table show that the level of suitability of the service quality at the SMAN 9 Tana Toraja library varies across different dimensions. Four dimensions, namely tangible, responsiveness, assurance, and empathy, fall into the reasonably suitable category, with a range of 65%–84%, while only the reliability dimension is in the suitable category, with a range of 85%–100%.

Overall, the level of service quality suitability at SMAN 9 Tana Toraja is calculated from the total weight of the reality and expectation aspects, as shown in the following table.

Table 3. Level of Compatibility Between Reality and Expectations

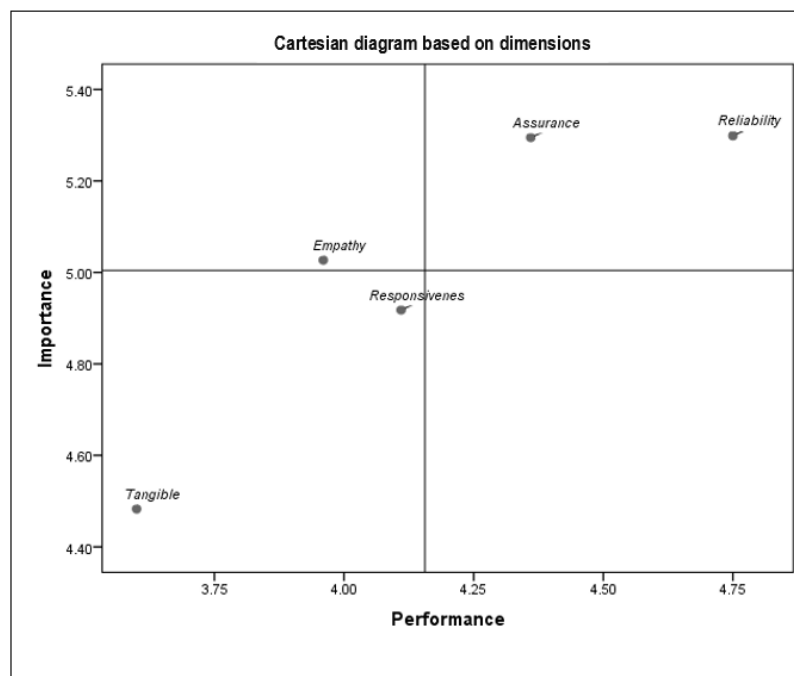
| Service Quality | Weight | % Suitability Level |
|-----------------|--------|-----------------------------|
| Performance | 27.377 | 83,086% (Quite Appropriate) |
| Importance | 32.950 | |

Overall, the level of conformity between the quality of service experienced and expected by students at SMAN 9 Tana Toraja reached 83.086%. This result falls within the range of 65%–84%, which is considered reasonably satisfactory.

Analysis Based on Dimensions

This section presents the results of an analysis of the quality of services provided by the SMAN 9 Tana Toraja library, using the Importance-Performance Analysis (IPA) method. This analysis aims to determine the level of importance and performance of each service quality dimension as perceived by students. With this approach, researchers can identify service areas that require prioritization for improvement, as well as aspects that already meet user expectations. The IPA method also helps provide a comprehensive picture of the effectiveness of library services based on the perceptions of service users, allowing the results to serve as a basis for continuous improvement of service quality.

The data used in this analysis were obtained from questionnaires distributed to students and processed by calculating the average score for each dimension of service quality. These average scores were then mapped onto a Cartesian diagram, where the X-axis represents performance level and the Y-axis represents importance level. The mapping produced four quadrants that describe the priority categories for improvement and the strengths of the library service. The following is a Cartesian diagram based on the service quality dimensions of the SMAN 9 Tana Toraja library.

**Figure 1.** Cartesian diagram based on dimensions

Here is an explanation related to Figure 1. The Empathy dimension was located in this quadrant, indicating it is essential to students, but the library's performance is perceived as low. This dimension shows service quality dimensions that are highly valued in terms of expectations but low valued in reality. This quadrant is filled with the dimension of empathy, so this dimension must be a top priority for improvement.

Meanwhile, quadrant B is filled by the dimensions of reliability and assurance, demonstrating that the library is performing well in areas that students consider important. This dimension highlights the characteristics of high-quality service that meet expectations and also score highly in terms of actual service delivery. This quadrant encompasses two dimensions: reliability and assurance. In other words, the service provided meets the expectations of students and therefore needs to be maintained. Quadrant C is characterized by tangible and responsiveness dimensions that indicate high-value service quality at the expected level and also achieve high scores in actual service. This dimension is considered less important, as is the reality of the services provided. This means that the quality of services and student expectations are low. Specifically, Quadrant D is not filled with any dimensions, indicating that no services are considered excessive.

Based on the results of the Cartesian diagram analysis, it can be concluded that the Empathy dimension is the top priority for improvement, as it is important for students, but its performance is still low. Meanwhile, the Reliability and Assurance dimensions are already in line with expectations and therefore need to be maintained, while the Tangible and Responsiveness dimensions are considered less important and underperforming. No dimension falls into the excessive category, so improvements can be focused on increasing empathy in library services.

Analysis based on the attribute

In the previous section, the analysis was conducted at the level of service quality dimensions. In this section, the discussion is further deepened to the level of individual statements in the questionnaire. This in-depth analysis aims to provide a more detailed picture of students' perceptions of each aspect of library services. By breaking down the analysis to the item level, researchers can identify specific service attributes that perform well and those that still need special attention. This approach is crucial so that the evaluation results not only focus on general dimensions but also identify specific areas that directly impact user satisfaction.

The item-level analysis was conducted by calculating the average importance score and average performance score for each statement in the questionnaire. These average values were then mapped into four quadrants of a Cartesian diagram to identify the position of each service attribute. The results of this mapping help determine which attributes need to be improved, maintained, or considered less important by students. Thus, the results of this analysis provide a stronger basis for formulating strategies to improve library service quality at SMAN 9 Tana Toraja.

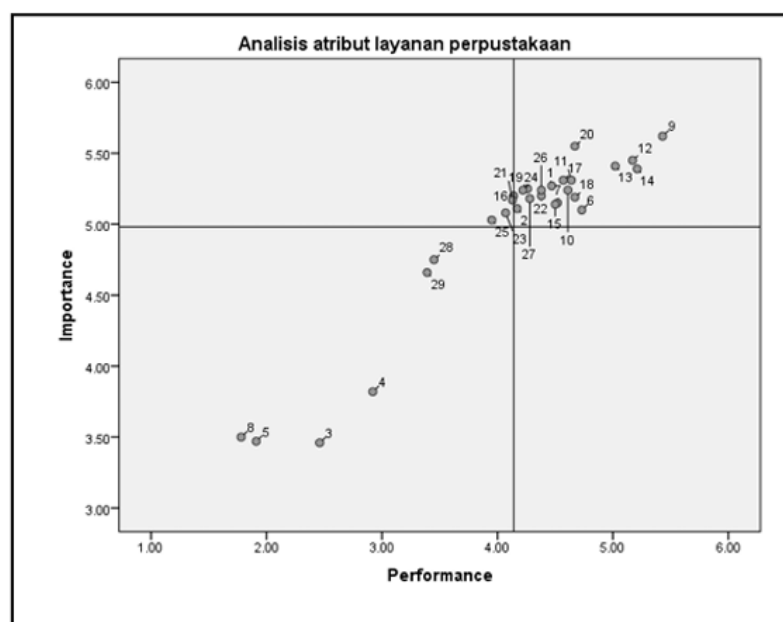


Figure 2. Cartesian diagram based on items

Mapping 29 service attributes reveals specific areas of strength and weakness. In Quadrant A (Concentrate Here), four attributes require immediate attention because they are considered important by students. However, their performance is still low, specifically in the areas of the availability of instructions to help users (P16), the availability of knowledgeable librarians to answer questions (P21), librarians who consistently respond to user questions (P23), and librarians who provide special attention to users (P25). Conversely, 19 attributes are in Quadrant B (Keep Up the Good Work), which confirms that service performance in these aspects is already high and greatly appreciated by students, such as up-to-date equipment (P1, P2), comfortable reading rooms (P20), well-organized book collections (P9, P12), and accurate borrowing records (P14). Meanwhile, six attributes fall into Quadrant C (Low Priority) related to online services, such as online information services (P3), online Q&A (P4), and online complaint systems (P28, P29), which are rated low in terms of both importance and performance. Interestingly, in line with the results of the dimensional analysis, no individual attributes were found in Quadrant D (Possible Overkill).

The results of mapping 29 service attributes indicate that the primary areas for improvement are four attributes in Quadrant A, specifically those related to the role of librarians and service instructions. Most attributes, comprising 19 items, are located in Quadrant B, so they need to be maintained because they align with students' expectations. Meanwhile, six attributes in Quadrant C are considered less important with low performance, and no attributes fall into the excessive category in Quadrant D.

DISCUSSION

This discussion examines the results obtained through Importance Performance Analysis (IPA). IPA is one of the most widely used tools for identifying and prioritizing areas that need improvement in the service delivery process (Arani & Moghadasi, 2024). It is also intended to determine service quality based on user perceptions. As explained by Yuhefizar (2024), importance-performance analysis (IPA) is a popular technique for determining customer satisfaction and prioritizing strategic provision based on assumptions.

The placement of Empathy in Quadrant A not only reflects technical weaknesses in service but is also closely related to the socio-cultural and structural conditions of schools in Tana Toraja. In the context of a school culture that still tends to emphasize hierarchy and formal relationships between teachers, staff, and students, personal and empathetic interactions often lack space. This may explain why students feel they receive less individual attention and a more impersonal approach from librarians. In addition, limited school budgets also have a direct impact on the number and quality of librarians available. With limited resources, schools prioritize basic operational needs over adding professional librarians, thereby increasing the workload of existing staff and reducing their opportunities to provide empathetic services. The combination of socio-cultural factors that limit informal interaction and financial constraints that limit the availability of librarians has led to a significant gap between students' expectations of empathetic service and the reality of library performance. Parasuraman's service quality theory states that if there are not enough librarians, responses to users will be slow, individual attention will decline, and trust in the service may decline. This is what caused items P23 (The library has librarians who always answer users' questions) and P25 (The library has librarians who pay special attention to users) to receive low ratings from students. Therefore, SMAN 9 Tana Toraja needs to increase the number of librarians for service effectiveness. Services that fall into the top priority category need to be improved as soon as possible. As noted in the study by Hung Wu et al. (2023), a high concentration is highly valued, but satisfaction is low, which organizations must prioritize improving. The same point was also made by Deng and Pierskalla (2018), who stated that attributes in the "concentrate here" quadrant will significantly and negatively predict overall satisfaction.

Conversely, strong performance in the Reliability and Trust dimensions (Quadrant B) indicates that the library's core operational functions, such as organizing its collection and providing a comfortable and reliable environment, are practical and highly appreciated by students. These strengths form a crucial foundation for a positive library experience and must be consistently maintained. Therefore, the SMAN 9 Tana Toraja library needs to maintain its services in these areas. This was conveyed by Djeri et al. (2018), which states that attributes positioned in Quadrant II suggest that managers are doing the right thing in the future and should

strive to preserve the quality of these attributes. The same applies to Simpson et al.'s (2020) research, which states that the matrix highlights the attributes that are working well and should be maintained.

The low-priority ranking of the Tangible and Responsiveness attributes related to online services (Quadrant C) can be explained by the Technology Acceptance Model (TAM). Students at SMAN 9 Tana Toraja consider face-to-face interactions to be more effective and valuable than online channels. Because they feel that online access is inconvenient or unnecessary, their expectations are low; therefore, the library's poor performance in this area does not significantly reduce their overall satisfaction. As stated by Jou and Day (2021), these attributes are relatively neglected. In the context of limited resources, improving these attributes is not urgent.

Finally, the absence of any attributes in Quadrant D (Possible Overkill) indicates that library resources are allocated efficiently. This aligns with Porter's theory of operational efficiency, which suggests that libraries do not expend effort on services that students do not value. This reflects a successful balance between performance and user expectations in resource management. In the study, Jyothi Mallya and Patwardhan (2018) identified a possible overkill scenario (Low Importance/High Performance), where the library places more importance on variables that students perceive as less important.

Although this study focuses on library service quality, it is essential to highlight its connection to the primary objective, which is to enhance student literacy. The Empathy dimension found in Quadrant A has the potential to contribute directly to literacy achievement. Knowledgeable librarians (P21) who can provide special attention (P25) not only make it easier for students to access information, but also encourage their motivation and confidence in reading and using learning resources. Empathetic interactions between librarians and students serve as an important form of social scaffolding, especially in secondary schools where reading habits and literacy skills are still being developed. If librarians act as responsive facilitators, students will be better assisted in finding reading materials that suit their ability levels and interests, thereby improving functional literacy. Conversely, a lack of empathy in service has the potential to make students feel neglected, under-guided, and ultimately suboptimal in developing literacy competencies. Thus, improving library services, especially in terms of empathy, not only meets service quality demands but is also strategically relevant to efforts to improve student literacy achievement at SMAN 9 Tana Toraja.

Based on the research conducted, librarians are expected to evaluate and improve services, especially those that have high expectations from students but whose performance is currently limited. An example is the installation of signboards that serve to provide convenience for library users. In addition, librarians' competencies need to be improved through reading literature, attending training and seminars, and maximizing the utilization of available librarians so that service quality can be optimized. It is also hoped that future researchers interested in similar topics will pay attention to the following matters: developing research instruments with indicators that are proportional to each dimension and indicator, so that the results obtained reflect the conditions in a balanced manner.

CONCLUSION

Based on the Analysis of the Importance of Library Service Performance at SMAN 9 Tana Toraja, it can be concluded that the quality of service in the tangible or physical evidence dimension is perceived by students as ordinary, with a relatively low level of importance. Similarly, the responsiveness dimension is also considered to have a low level of importance, despite its adequate performance. Meanwhile, the reliability dimension is performing well and needs to be maintained because its performance has met students' expectations. The same applies to the assurance dimension, which is considered to have successfully met user expectations, so its quality must also be maintained. However, the empathy dimension is the most crucial to improve immediately, as it is considered very important by students, but its performance has not met their expectations. Thus, it can be concluded that the overall quality of library services requires targeted improvements, with a special emphasis on attributes that have not yet met student expectations, while maintaining high performance in services that are already running well.

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