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Enhancing the accreditation of Indonesian private universities through the integration of EduQual and accreditation standards of the BAN-PT

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ABSTRACT

Higher education institutions in Indonesia are currently facing significant challenges in maintaining public trust, requiring them to uphold autonomy, transparency, accountability, and continuously meet standards for quality assurance and improvement. This research aims to identify and address the unmet quality aspects in education to elevate the accreditation of private universities from C/Good to B/Very Good or even A/Excellent. By integrating the EduQual model with certification requirements from the Board of National Accreditation for Higher Education (*Badan Akreditasi Nasional Perguruan Tinggi*, BAN-PT), the research is supported by comprehensive studies of university accreditation reports, questionnaires, focus group discussions (FGD), and expert judgment through interviews and consultations. The data analysis employs gap analysis, importance-performance analysis, and quality function deployment. The study identified twenty-one priority improvement points to enhance accreditation, with six key improvements prioritized from the ninety indicators examined based on customer needs analysis. In the accreditation of private universities, the unmet aspects of education quality lie in the dimension of physical facilities, particularly human resources, as well as in the dimension of personal development, especially in the criteria for research and community service. The study recommends prioritizing investments in human resource development and strengthening research and community service initiatives, as these are critical areas where private universities fall short in meeting accreditation standards and fulfilling educational quality expectations.

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INTRODUCTION

Indonesian universities currently encounter substantial challenges. Higher education institutions are mandated to achieve autonomy, transparency, accountability, quality assurance, and continuous quality improvement to maintain public trust (Mursidi, 2022). The dynamic nature of education necessitates that both state and private universities in Indonesia adapt continuously. Enhancing educational quality demands that universities foster creativity and innovation to promote a climate of change, thereby improving the quality of students and educational services. Consequently, active monitoring, evaluation of service quality, and a commitment to ongoing improvement are essential (Kurnia et al., 2019).

The current educated workforce in Indonesia, which remains below 20 percent, indicates that the quality of human resources (HR) in the country lags far behind compared to nations that have successfully capitalized on their demographic dividend. From the perspective of HR qualifications, Indonesia must urgently accelerate the improvement of educational quality, particularly in higher education, which is now required to work three times faster to compete and harness the potential of its demographic bonus, as countries like South Korea and Singapore have done (World

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Bank, 2020). The adaptation of higher education institutions in Indonesia during the COVID-19 pandemic demonstrates an extraordinary potential for innovation, creativity, and adaptability to change. With around 4,600 higher education institutions, Indonesia possesses a giant force that, if optimally encouraged, can be the key to creating sustainable innovation necessary to achieve high-income nation status in the era of the fourth Industrial Revolution (Industry 4.0). Innovation from the higher education sector is a prerequisite for the survival and advancement of the nation in facing global dynamics.

Digital transformation in the global higher education industry plays a crucial role in shaping the future roadmap for sustainable education management strategies. These significant changes impact the vision of universities, encouraging them to turn these challenges into competitive advantages by designing and developing models that integrate and regulate these essential changes in their strategies. This can be achieved through the implementation of evolutionary learning mechanisms and digital transformation strategies (Hashim et al., 2022). Comprehensive reforms and appropriate strategies will strengthen the competitiveness of Indonesian higher education institutions on the global stage (Harun et al., 2020). On the other hand, Postiglione (2013) explored how universities in Hong Kong successfully transitioned into leading research institutions through cross-border collaboration and brain circulation. These models can be applied as relevant cosmopolitan frameworks for developing countries.

According to Handini et al. (2020), Indonesia's universities are categorized by the form of education and supervisory groups, and they are distributed across various provinces, each with differing area sizes and population densities. As of the latest data, Indonesia hosts 4,593 tertiary institutions, comprising 2.66% state universities, 66.27% private universities, 4.07% institutions under other ministries/agencies, and 27% religious universities, with private universities being the most numerous (Cahyadi et al., 2021). Private universities (*Perguruan Tinggi Swasta*, PTS) in Indonesia are categorized into several types: universities, institutes, high schools, academies, community colleges, and polytechnics. Among the 3,044 private universities in Indonesia, universities rank third, comprising 19% of the total. In comparison, high schools and academies hold the first and second positions, with 45% and 25%, respectively (Ronald & Emmerich, 2022). However, in 2020, private universities enrolled 729,895 students, representing 68% of the total student population, the highest compared to high schools and academies (Fletcher Jr & Tan, 2021). Stern and Smith (2016) analyzed the structure and distribution of private higher education institutions in Indonesia, as well as the dominance of these institutions in student enrollment. Their findings indicated significant variability in the quality of education among private higher education institutions, which was largely influenced by institutional management. Despite facing quality-related challenges, graduates from private universities were often more competitive in the job market. Strong demand, an emphasis on religious education, and effective competitive strategies were the driving factors behind the high enrollment numbers in private higher education institutions (Muttaqin et al., 2020).

Consequently, private universities must sustain and enhance public trust by adhering to and continuously improving the educational service quality standards set by the National Accreditation Board for Higher Education (*Badan Akreditasi Nasional Perguruan Tinggi*, BAN-PT) (Gumanti et al., 2023). BAN-PT is the official agency in Indonesia responsible for assessing and determining the accreditation status of higher education institutions. This accreditation aims to ensure the quality of education through the evaluation of academic standards, facilities, and performance, as well as to encourage continuous quality improvement in higher education institutions. BAN-PT's accreditation focuses on nine criteria, including vision, mission, goals, strategy; civil service, governance, and cooperation; students; human resources; finance, facilities, and infrastructure; education; research; community service; and *Tridharma*'s outcomes and achievements (Sudianto & Simon, 2020). *Tridharma* refers to the three pillars of higher education in Indonesia: education, research, and community service. This framework emphasizes the university's role in producing knowledgeable graduates, advancing scientific research, and contributing to societal development, ensuring that institutions play a significant part in national progress and public welfare. Accreditation plays

a vital role in enhancing the quality of education in private higher education institutions. Despite various challenges such as limited resources, low understanding and involvement from faculty, and the complexities of document preparation, successful accreditation can improve educational quality, public trust, and university competitiveness (Alkhateeb & Romanowski, 2021). To enhance accreditation in Indonesia, higher education institutions must focus on cultural changes related to quality, build internal quality assurance systems, and prepare the accreditation process thoroughly. Additionally, collaboration with stakeholders and improving international reputation are also important (Primadewi et al., 2020).

As of 2020, Indonesia boasts 583 accredited private universities, with 7% rated A/Excellent, 57% B/Very Good, and 36% C/Good. Notably, West Java and Banten within Higher Education Service Institution (*Lembaga Layanan Pendidikan Tinggi*, LLDIKTI) Region 4, lead in the number of private universities with C/Good accreditation, totaling 39 campuses (Handini et al., 2020). LLDIKTI is an Indonesian government agency responsible for overseeing and improving higher education quality. LLDIKTI Region 4 specifically manages higher education institutions in West Java and Banten, providing guidance, accreditation, and resources to support academic and institutional development within this region. The reasons behind the high number of universities with C accreditation in the West Java and Banten regions include difficulties in decision-making and quality assurance without integrated data and systems. Universities, composed of thousands of individuals with diverse perspectives, must set aside personal egos to collaborate in driving progress. Data-driven management and accurate analysis ensure that every penny of campus funding has a maximum impact on improving the quality of education (Mayang, 2023; Wulandari, 2019).

This phenomenon underscores the importance of research aimed at evaluating and enhancing the quality of education in private universities with C/Good accreditation. One effective approach is the integration of the education quality (EduQual) framework, which aligns with BAN-PT accreditation standards to ensure continuous improvement in educational outcomes. The EduQual framework are designed to meet industry standards and support learners' progression in both academic and career pathways (Mahapatra & Khan, 2007). This research is highly urgent to provide strategic recommendations for enhancing educational quality and serve as a guideline for improving the institution's accreditation status. Previous studies, such as those conducted by Parscale et al. (2022), Ziefle et al. (2021), and Noya et al. (2023), have explored various strategies to improve the quality of education in private universities within the framework of BAN-PT accreditation. Parscale et al. (2022) focused on identifying the educational quality elements that need improvement to raise accreditation ratings from C to B or A. Ziefle et al. (2021) integrated the EduQual concept with BAN-PT accreditation standards, while Noya et al. (2023) combined gap analysis, importance-performance analysis (IPA), and quality function deployment (QFD) to establish improvement priorities. IPA is crucial for identifying strengths and weaknesses in services or products (Martilla & James, 1977). It helps prioritize improvements by mapping customer satisfaction against performance, enabling businesses to focus resources on areas that impact customer experience and success (Huan & Beaman, 2007; Martilla & James, 1977). QFD is a customer-focused approach used in product development and process management. It translates customer requirements into technical specifications, ensuring products meet expectations by prioritizing features, improving design, and enhancing overall quality through structured analysis (Akao, 2004). However, these studies have not fully addressed a comprehensive understanding of how the three methods—EduQual, IPA, and QFD—can be effectively combined to systematically address the issue of accreditation improvement. Most previous studies examined each method separately or in limited combinations, leaving a gap in providing an integrated framework that leverages all three to enhance educational quality in the context of BAN-PT accreditation.

The research questions to be answered in this study are as follows.

1. Which indicators have not yet met the EduQual context to ensure that the accreditation status of private universities with C/Good accreditation can improve?

2. What effective strategies can be implemented to enhance the quality of education at private universities with C/Good accreditation in order to meet the standards set by BAN-PT?

Although previous research has analyzed educational quality, this study offers a more comprehensive approach by integrating the three methods (EduQual, IPA, and QFD) into a unified framework. Previous studies tended to isolate or focus on one of these methods, thus providing a less complete view of how to combine the findings from different methods to achieve more effective accreditation improvement.

METHOD

Research Design

This study aims to identify and evaluate indicators within the context of EduQual to ensure the improvement of accreditation status for private universities with C/Good accreditation, and to formulate effective strategies for enhancing the quality of education in those universities to meet the standards set by BAN-PT. This research utilizes a concurrent mixed-method approach, which combines both quantitative and qualitative strategies to address different aspects of the research problem. The quantitative component follows a survey design to collect comprehensive data necessary for gap analysis, IPA, and QFD. This phase focuses on measuring perceptions and satisfaction levels of stakeholders regarding the quality of education in private universities. Concurrently, the qualitative component employs a case study design, aiming to explore best practices in educational quality improvement. Through in-depth interviews and document analysis, this phase provides detailed insights that complement the quantitative findings and inform the recommendations derived from the QFD process. By integrating these two approaches, the research ensures a holistic understanding of both the measurable aspects and the contextual, practice-based nuances of quality enhancement in higher education.

The EduQual method, a specialized service quality (ServQual) assessment tool, precisely measures the quality of educational services. Mahapatra and Khan (2007) have identified that the ServQual measurement instrument encompasses five dimensions tailored to educational service quality: learning outcomes, responsiveness, physical facilities, personality development, and academic aspects. Narimawati et al. (2023), Khakimov and Sharopov (2023), Putera and Ikatrinasari (2023), Bulut and Aydogan (2021), and Madani (2019) have previously investigated EduQual in various contexts. Additionally, Usman et al. (2023) examined the quality of educational services using the term "quality of online teaching and learning (QOLT)", while Kumar et al. (2022) focused on "quality assurance" in their studies. The integration of educational service quality with standard references takes two distinct forms: Kumar et al. (2022) aligned it with higher education accreditation, whereas Putera and Ikatrinasari (2023) adopted non-formal education accreditation. Additionally, Kumar et al. (2022) employed survey analysis and multi-dimensional scaling (MDS) as their analytical methods, while Putera and Ikatrinasari (2023) utilized gap analysis from ServQual, importance-performance analysis (IPA), and quality function deployment (QFD). Other studies also connect educational service quality to various research objects.

The comprehensive results from the previous research indicate that the EduQual approach effectively identifies key service quality items that support management decisions for continuous quality improvement in educational services. By integrating the EduQual approach with BAN-PT accreditation and using gap analysis methods from ServQual, IPA, and QFD, this research plan adopts a robust problem-solving strategy, ensuring comprehensive assessment and improvement of educational service quality.

Research Subject, Instruments, and Data Collection

In total, there are 39 private universities in LLDIKTI Region 4 covering West Java and Banten Provinces with C/Good accreditation. From these 39 private universities, 29 private universities were selected as research subjects. The number of subjects in this research was determined

based on the Yamane's formula (Yamane, 1967) which is commonly used to determine the minimum sample size (n) based on population size (N) and the maximum acceptable error limit (e), where in this research a maximum error limit of 10% was used (see Equation 1). From these 29 private universities, two to three lecturers and accreditation staff at each university were selected as respondents through non-probability judgmental sampling. Details of the number of universities in West Java and Banten Provinces and respondents who participated in this study are presented in Table 1 and Table 2. The subsequent stage involved distributing questionnaires to 29 selected private universities with C/Good accreditation in the LLDIKTI region 4 (Table 1). A total of 69 respondents (see Table 1 and Table 2) from these universities completed the questionnaires.

The development of the research instrument followed several stages. First, identifying EduQual dimensions using Mahapatra's theory resulted in five dimensions (Mahapatra & Khan, 2007). Next, identifying BAN-PT accreditation standards based on the applicable provisions, specifically the Minister of Education and Culture Regulation No. 5 of 2020 related to the Accreditation of Study Programs and Higher Education Institutions, resulting in nine dimensions. Integration between EduQual dimensions and BAN-PT accreditation dimensions was carried out through focus group discussions (FGD) involving internal and external experts from private universities, who evaluated the relevance and clarity of the dimensions, and the results are shown in Table 3. Each dimension was elaborated into specific indicators based on the detailed items outlined in the BAN-PT accreditation standards, to be used in developing questionnaires, resulting in a total of 90 statement items.

$$n = \frac{N}{1 + N\,(e^2)} = \frac{39}{1 + 39\,(0.1^2)} = \frac{39}{1.39} \approx 28.06 \quad (1)$$

Table 1. Details of the Number of Universities and Respondents in the Present Research

City/Regency (Province)	Number of Universities	Number of Respondents
Tangerang (Banten)	5	15
Serang (Banten)	4	10
Bandung West Java)	4	13
Tasikmalaya (West Java)	3	7
Bogor (West Java)	2	3
Sumedang (West Java)	2	2
Bekasi (West Java)	2	6
Cilegon (Banten)	1	2
Lebak (Banten)	1	2
Majalengka (West Java)	1	2
Sukabumi (West Java)	1	2
Subang (West Java)	1	2
Kuningan (West Java)	1	2
Depok (West Java)	1	1
Total	29	69

Table 2. Demographics of Respondents (N = 69)

Demographics	*n* (%)
Gender	
Male	30 (43.48)
Female	39 (56.52)
Jabatan fungsional (Academic ranks)	
Asisten Ahli (Assistant Professor - Lower)	26 (37.68)
Lektor (Assistant Professor - Upper)	25 (36.23)
Lektor Kepala (Associate Professor)	18 (26.09)
Years of service	
< 5 years	15 (21.74)
5 - 10 years	21 (30.43)
10 - 15 years	15 (21.74)
> 15 years	18 (26.09)

Table 3. Research Variable and Dimensions

Variable and Definition	Dimensions		Code
	EduQual	Accreditation Standards of the BAN-PT	
Education quality (EduQual) – a service quality measurement instrument explicitly developed for technical education systems that identify stakeholder needs in technical education and assist in designing education systems that can improve customer satisfaction and overall service quality (Mahapatra & Khan, 2007).	Learning outcomes	Vision, mission, goals, and strategy	1
		Academic programs	2
	Responsiveness	Civil service, governance, and cooperation	3
		Student services	4
	Physical facilities	Human resources	5
		Finance, facilities, and infrastructure	6
	Personality development	Research	7
		Community Service	8
	Academics	Outputs and achievements of the Tridharma	9

Data collection in this study involved primary data. The primary data were gathered through a questionnaire based on Table 3, consisting of 90 statement items. This questionnaire was distributed to 69 respondents, as shown in Table 2. The questionnaire design consists of 90 statement items referring to Table 3, prepared using the five EduQual dimensions, with responses measured on a Likert scale. The ninety statement items cover the expectation and perception (actual) variables whose compatibility with the dimensions has been guaranteed by experts through their judgment. The responses from 69 respondents have demonstrated that the questionnaire used in this research both as a whole and partially based on the dimensions are reliable (Taber, 2018). The reliability of the questionnaire is indicated by the Cronbach's alpha estimates which range from 0.7502 to 0.9386 with an average of 0.8363 for the expectation variable and range from 0.7051 to 0.917 with an average of 0.8266 for the perception (actual) variable (see Table 4). To assess and improve the quality of education at Indonesian private universities according to the BAN-PT accreditation standards, the questionnaire design must also consider the nine accreditation criteria set by the BAN-PT. The questionnaire aims to collect relevant data to evaluate the quality of education at private universities based on these criteria. The target respondents include lecturers, administrative staff, and university management. Another method of primary data collection was FGD involving three experts with at least ten years of experience in higher education accreditation at private universities. The three experts had 18, 15, and 10 years of experience, respectively. These experts acted as resource persons in determining the technical descriptors by integrating responses from customer requirements in the QFD analysis.

Table 4. Reliability Estimation of Questionnaire

Variable	Cronbach's alpha	Reliability Rating
1H (Dimension 1, Expectation)	0.9386	Excellent
2H (Dimension 2, Expectation)	0.9332	Excellent
3H (Dimension 3, Expectation)	0.8770	Good
4H (Dimension 4, Expectation)	0.7715	Good
5H (Dimension 5, Expectation)	0.8167	Good
6H (Dimension 6, Expectation)	0.7669	Good
7H (Dimension 7, Expectation)	0.7502	Good
8H (Dimension 8, Expectation)	0.9077	Excellent
9H (Dimension 9, Expectation)	0.8674	Good
1P (Dimension 1, Perception)	0.7545	Good
2P (Dimension 2, Perception)	0.8001	Good
3P (Dimension 3, Perception)	0.8128	Good
4P (Dimension 4, Perception)	0.7051	Good
5P (Dimension 5, Perception)	0.8782	Good
6P (Dimension 6, Perception)	0.9170	Excellent
7P (Dimension 7, Perception)	0.8647	Good
8P (Dimension 8, Perception)	0.8255	Good
9P (Dimension 9, Perception)	0.8811	Good

Data Analysis

Data analysis in this research integrated gap analysis methods from ServQual, IPA, and QFD to achieve more significant results. The ServQual gap analysis method compared perceived performance with expected performance, where perception depicted service quality. Evaluation of actual versus expected service quality identified the gap. Various methods, including models developed by Parasuraman et al. (1985), served as tools for ServQual evaluation (Figure 1). The data analysis for this model involved several steps: (1) assigning each attribute a score by integrating an ordinal scale with an interval or ratio scale, calculating the average score for each EduQual dimension by averaging the attribute scores; (2) determining the gap by comparing the actual score (stakeholders' assessment of current educational quality) with the expected score (the desired quality of education) based on the following formula: $Q = P - E$, where Q denotes quality of service (service quality), P denotes perception (actual), and E denotes expectation (hope); and (3) analyzing these gaps to pinpoint areas needing improvement and special attention. How the overall procedure of this research was conducted is presented in Figure 4.

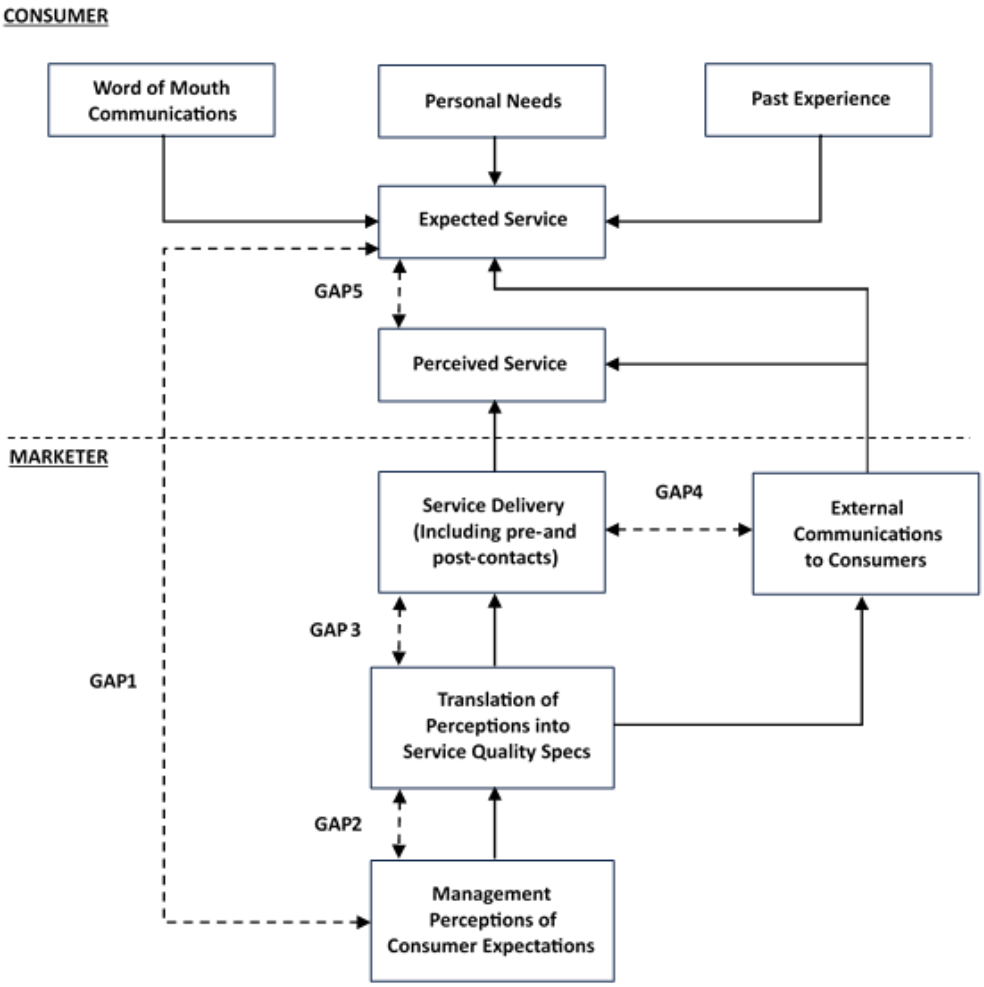


Figure 1. Service Quality (ServQual) Gap Model (Parasuraman et al., 1985, p. 44)

Importance-Performance Analysis (IPA)

The concept of importance-performance analysis (IPA) was first introduced by Martilla and James (1977). This concept helps organizations understand improvement priorities by comparing the importance of various attributes with their actual performance in meeting those attributes (Martilla & James, 1977). Developed as a strategic tool for company management, IPA combines measurements of expectations and interests. These two dimensions are then plotted, with the

importance value represented on the vertical axis and the performance value on the diagonal axis (Huan & Beaman, 2007; Martilla & James, 1977) (see Figure 2). The analysis of data using the IPA model involved several key steps. First, relevant educational features related to BAN-PT accreditation were identified. Each feature was then assessed using a Likert scale based on perceived quality. The average score for each feature was calculated. Next, these features were plotted on a two-dimensional matrix, with performance on the *x*-axis and importance on the *y*-axis. Finally, analysis and interpretation of the matrix involved dividing it into four quadrants to determine priority areas for improvement.

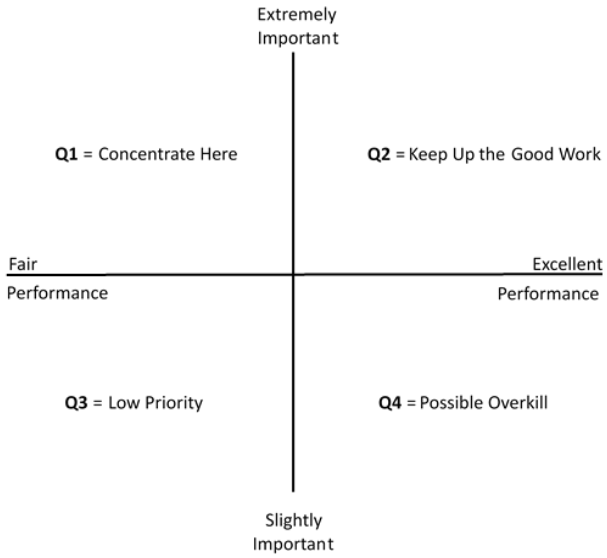


Figure 2. Map of Importance-Performance (Huan & Beaman, 2007, p. 316; Martilla & James, 1977, p. 78)

Quality Function Deployment (QFD)

The QFD model, developed by Yoji Akao, was a framework for linking stakeholder requirements with concrete product or service features/characteristics that met those requirements (Akao, 2004). QFD involved several steps: Stakeholder requirements for improving education quality and accreditation were identified. Data related to stakeholder needs and expectations were collected through FGD. A multidisciplinary QFD team with stakeholder groups involved in education quality improvement was formed. Stakeholder needs and expectations regarding education quality and accreditation were identified. A QFD matrix was developed to link stakeholder needs to necessary features or actions (Figure 3). Concrete actions were identified, and improvements in education quality were implemented according to BAN-PT accreditation requirements and stakeholder needs.

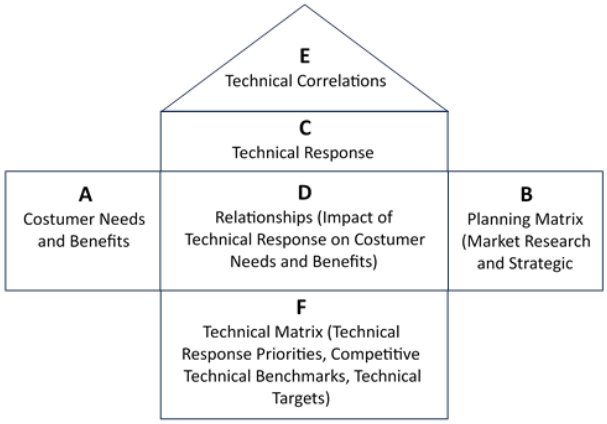


Figure 3. House of Quality (Akao, 2004, p. 26)

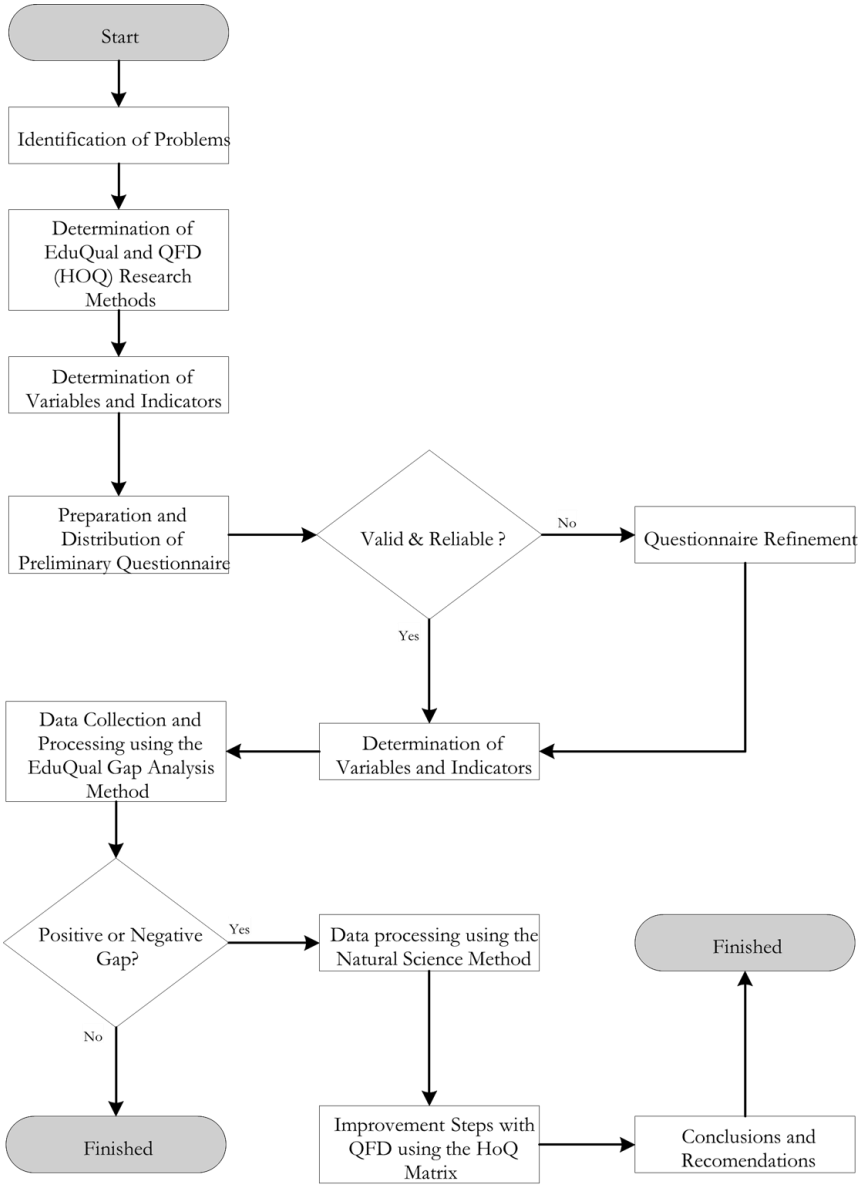


Figure 4. Data Analysis Flow Diagram

FINDINGS AND DISCUSSION

Findings

Criticality Index Calculation

Parasuraman et al. (1985) refined ServQual into a superior diagnostic tool for identifying gaps and strengths in organizational service quality. These gaps are depicted in Figure 1. Gap 1 represents the difference between customer expectations and management perceptions, Gap 2 reflects the difference between management perceptions of customer expectations and service quality standards, Gap 3 highlights the disparity between service quality specifications and service delivery, Gap 4 denotes the difference between service delivery and external communication, and Gap 5 signifies the difference between customer perceptions and expectations. This study is categorized under the Gap 5 analysis of the ServQual model. It examines the discrepancy between customer expectations of the services to be received and their perceptions of the services received. In the educational context, customers may include students, parents, or other stakeholders interested in the educational services provided by the university. By conducting a Gap 5 analysis, univer-

sities can enhance the quality of their services, ultimately positively influencing the BAN-PT accreditation assessment.

Table 5. The Gap Between Customer Perceptions (*P*) and Expectations (*E*)

Dimension	Average		Gap
	Customer Perception (*P*)	Customer Expectation (*E*)	
1	3.307	4.509	–1.201
2	3.087	4.094	–1.007
3	3.238	4.198	–0.960
4	3.467	4.233	–0.767
5	2.878	4.241	–1.362
6	2.988	4.294	–1.306
7	3.291	4.281	–0.990
8	3.307	4.209	–0.901
9	3.668	4.306	–0.638

Table 5 shows the results of the gap dimension calculation between perception and expectation. Each dimension's perception and expectation results are the average values from the questionnaire response indicators. The highest gap value, –1.362, is in the fifth dimension, which includes human resources. The lowest gap value, –0.638, is in the ninth dimension, consisting of the university's Tridharma outcomes and achievements. Before transitioning to QFD, importance-performance analysis (IPA) identifies factors influencing EduQual dimensions. Evaluating criticality involves assessing the gap between industry expectations and current perceptions of educational quality by comparing actual and expected scores. This difference, derived by subtracting average performance from average importance based on questionnaire results, reveals ninety indicators of gaps across nine EduQual variables. The IPA method then identifies priority improvement activities (Figure 5). In Figure 5, satisfaction and interests are utilized to create a Cartesian diagram that illustrates the position of data placement based on the IPA method. Figure 5 displays twenty-one of the ninety attributes located in quadrant A. The details of each attribute are presented in Table 6.

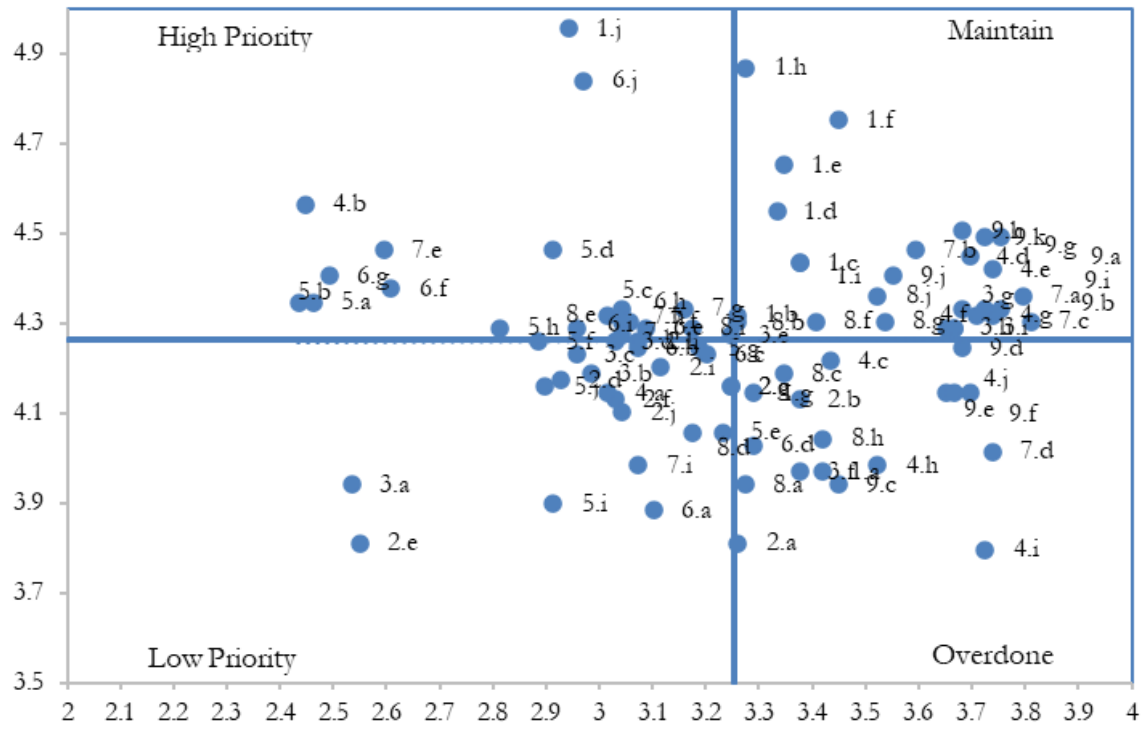


Figure 5. Results of Importance-Performance Analysis (IPA)

Quality Function Deployment (QFD) Results

The next step involves developing a QFD design using the house of quality (HoQ). Table 6 and Table 7 illustrate the mapping results from the HoQ matrix, where the relationship between customer requirements and technical descriptions is rated as 1, 3, or 9, representing weak, medium, and strong relationships, respectively. Based on Table 6, the seven improvement criteria include vision, mission, objectives, and strategy in private universities with one improvement point; governance, governance, and cooperation with one improvement point; student service with one improvement point; human resources with five improvement points; finance, facilities, and infrastructure with six improvement points; research with five improvement points; and community service with two improvement points. In addition to measuring the correlation between the voice of the customer and technical requirements, HoQ also measures the relationship between technical requirements, whether they have a strong positive relationship, positive relationship, no relationship, negative relationship, or even a strong negative relationship (Table 8). The results of the technical requirements produced four technical descriptors (Figure 6), including the formation of a special SPMI team, the creation of a selection system based on quality criteria, the conducting of training and development programs, the creation of a development and implementation team for infrastructure, implementing a Kanban system, and creating a research master plan (RIP) roadmap.

Table 6. Customer Requirements

Dimension	Code	Customer Requirements
1	1.j	Empowering students in designing and achieving strategic goals
3	3.e	Completeness of SPMI documents
4	4.b	Selection of quality new students
5	5.a	Availability of human resources
	5.b	Quality of lecturers
	5.c	Administrative support
	5.d	Contribution of laboratory staff, technicians, and technical staff in the laboratory
	5.h	Qualifications and experience of educational personnel
6	6.e	Need for educational facilities and infrastructure
	6.f	Providing names of infrastructure locations and building conditions
	6.g	Building/building rental agreement
	6.h	Create documentation attachments and plans of learning buildings/infrastructure
	6.i	Integration of space data with accreditation standards
	6.j	Financial plans and availability of educational infrastructure
7	7.e	Integration of research into community service activities
	7.f	Funding for research activities
	7.g	Availability of resources, facilities and funds
	7.h	Lecturer involvement in determining research policy
	7.j	Evaluation of research performance on the Vision and Mission of Higher Education
8	8.e	Impact of community service activities
	8.i	Increase community service

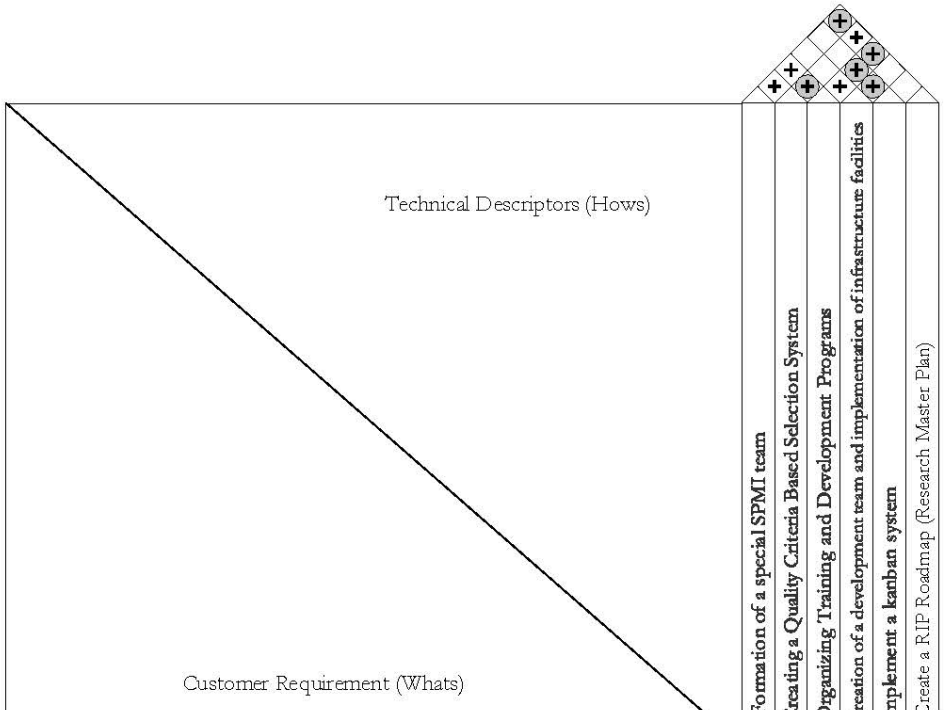
Table 7. Strength of the Relationship Between Customer and Technical Requirement

Symbol	Meaning	Score
●	Strong relationship	9
○	Medium relationship	3
△	Weak relationship	1
<blank>	No relationship	0

Figure 6 presents the percentage results in descending order: establishing a team for developing and implementing infrastructure facilities, scoring 40 (23%); forming a special SPMI team, scoring 35 (20%); conducting training and development programs, scoring 33 (19%); devising a research master plan (RIP) roadmap, scoring 31 (18%); creating a quality criteria-based selection system, scoring 22 (13%); and implementing a Kanban system, scoring 10 (6%).

Table 8. Strength of the Relationship Between Technical Requirements

Symbol	Meaning
⊕	Strong positive relationship
+	Positive relationship
<blank>	No connection
-	No relationship, negative relationship
⊖	Strong negative relationship



		Ratio	Performance
1	1. Empowering students in designing and achieving strategic goals	0.68	59.36%
3	2. Completeness of SPMI documents	0.32	75.93%
4	3. Selection of quality new students	0.86	53.65%
5	4. Availability of human resources	0.76	56.67%
	5. Quality of lecturers	0.79	56.00%
	6. Administrative support	0.42	70.23%
	7. Contribution of laboratory staff, technicians and technical staff in thelaboratory	0.53	65.26%
	8. Qualifications and experience of educational personnel	0.53	65.54%
6	9. Need for educational facilities and infrastructure	0.39	71.96%
	10. Name the location of the infrastructure and condition of the building	0.68	59.60%
	11. Building/building rental agreement	0.77	56.58%
	12. Create documentation attachments and plans of learning buildings/infrastructure	0.43	69.80%
	13. Integration of space data with accreditation standards	0.42	70.47%
	14. Financial plans and availability of educational infrastructure	0.63	61.38%
7	15. Integration of research into community service activities	0.72	58.12%
	16. Funding for research activities	0.41	71.04%
	17. Availability of resources, facilities and funds	0.37	72.91%
	18. Involvement of lecturers in determining research policies	0.41	70.71%
	19. Evaluation of research performance on the Vision and Mission of Higher Education	0.40	71.19%
8	20. Impact of community service activities	0.45	68.92%
	21. Increase community service	0.35	73.99%
		35 22 33 40 10 31	
	Percentage	20 % 13 % 19 % 23 % 6 % 18 %	

Figure 6. House of Quality Matrix

Discussion

The research revealed that seven criteria for education quality (EduQual) at private university accreditation have not been fulfilled. These criteria include vision, mission, goals, and strategies at private universities; civil service, governance, and cooperation; students; human resources; finance, facilities, and infrastructure; research programs; and community service. The QFD analysis identified several priority educational quality points to enhance accreditation at private universities. Key initiatives include forming a development and infrastructure implementation team, scoring 40 (23%), establishing a special SPMI team, scoring 35 (20%), and conducting training and development programs, scoring 33 (19%). Additional measures involve creating a RIP roadmap with a score of 31 (18%), developing a quality criteria-based selection system with a score of 22 (13%), and implementing a Kanban system with a score of 10 (6%).

Comparing the results of this research with previous studies provides a more proportional and objective perspective. Setianah (2023) discovered parallels with the author's study, where the primary focus was on enhancing service quality in private higher education institutions in Banten through the integration of ServQual, IPA, and quality function deployment (QFD) methodologies. With a sample of 330 respondents, the research yielded three key findings from the QFD analysis. Conversely, this study concentrates on the LLDIKTI Region 4, encompassing both Banten and West Java, employing the EduQual, IPA, and QFD frameworks, and generated 21 findings from a total of 69 respondents. In the study by Asnawi and Setyaningsih (2020), researchers gathered 384 questionnaires from students across four major cities in Indonesia, ultimately validating 378 for explanatory analysis using SEM-PLS and *t*-tests, focusing on the Islamic higher education service quality (i-HESQUAL) framework that encompasses seven quality dimensions. In contrast, the current research produced 90 valid questionnaires after conducting validity and reliability tests, sourced from 39 private universities within the LLDIKTI Region 4 (covers Banten and West Java) employing the EduQual framework with nine quality dimensions. Furthermore, in Wibisono's (2018) research, a study was carried out at YASPORBI High School by combining two methods, ServQual and QFD, which identified 11 attributes for improvement out of 32 evaluated attributes and generated four technical responses from the house of quality (HoQ). Conversely, the present study took place at private universities, integrating the ServQual method with EduQual while also employing IPA and QFD methods. This approach led to the identification of 21 improvement attributes from a total of 90 examined attributes, resulting in six technical responses from the HoQ.

The research highlights significant gaps in fulfilling the key educational quality (EduQual) criteria for private university accreditation, suggesting a pressing need for reforms in both practices and policies. The unfulfilled criteria span essential areas such as institutional vision and mission, governance, student services, human resources, and research programs, all of which are crucial for the holistic development of private universities. These findings imply that without addressing these deficiencies, private universities may struggle to meet accreditation standards, which could, in turn, impact their reputation and long-term sustainability. The quality function deployment (QFD) analysis underscores the urgency of prioritizing specific initiatives to enhance accreditation outcomes. By forming specialized teams for development, governance, and quality management, and investing in targeted training programs, private universities can streamline their internal processes and improve overall educational quality. Additionally, the creation of a strategic roadmap for research (RIP) and the implementation of structured selection and operational systems like Kanban highlight a move towards more systematic and transparent management. These recommendations point to a broader shift in policy focus, emphasizing strategic planning, accountability, and continuous quality improvement, which could serve as a blueprint for future accreditation success across private universities. Such changes would not only improve accreditation scores but also foster a culture of excellence, benefiting students, faculty, and the broader community.

CONCLUSION

The research results lead to several conclusions, including: (1) The analysis of ninety indicators highlighting the gap between perceptions and expectations demonstrates a negative range from –2.116 to –0.072, indicating the necessity for improvement; (2) The importance-performance analysis (IPA) identifies twenty-one attributes as top priorities for enhancement; (3) The quality function deployment (QFD) analysis, processed into the house of quality (HOQ) matrix, identifies six key areas for improvement: establishing a development team and implementing infrastructure with a total score of 40 (23%), forming a dedicated SPMI team with a total score of 35 (20%), conducting training and development programs with a total score of 33 (19%), creating a research master plan (*rencana induk penelitian* (RIP) Roadmap) with a total score of 31 (18%), developing a quality criteria-based selection system with a total score of 22 (13%), and implementing a Kanban system with a total score of 10 (6%).

This research identifies several limitations in its implementation process. The analyses conducted using the EduQual, IPA, and QFD methods require further investigation to yield more optimal results. The focus is restricted to enhancing the quality of education in institutions accredited with a grade of C, without benchmarking against universities that hold an A accreditation. The study confines itself to improving the quality of education in the provinces of West Java and Banten, without extending the research to other regions. Future research should address the limitations identified in this study by refining the EduQual, IPA, and QFD methodologies to enhance accuracy and reliability of results. Expanding the scope to include benchmarking against universities with A/Excellent accreditation will offer a more comprehensive comparison, fostering greater insights into quality improvement strategies. Additionally, future studies should explore the application of these methods across institutions in different provinces beyond West Java and Banten, enabling a broader understanding of regional disparities and best practices in educational quality enhancement across Indonesia. This would help generalize findings and provide more robust recommendations.

DISCLOSURE STATEMENT

The authors declare that they have no conflict of interest to disclose.

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