Education Quality Improvement of PKBM (an Indonesian Community Learning Center) in West Java with EduQUAL Based on Accreditation During COVID-19 Pandemic

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Abstract

Indonesia's 2019 Human Development Index (HDI) hasn't met the targets set in the 2019 State Revenue and Expenditure Budget. Education is one of the things that can be improved to increase HDI. One of the non-formal educational institutions in Indonesia is the Pusat Kegiatan Belajar Masyarakat (PKBM). West Java Province with the highest number of PKBM in Indonesia doesn't have any A-accredited PKBM, describing the lack of education quality there. In addition, the COVID-19 pandemic has made a stark difference to the education system which must be implemented online. The purpose of this study is to analyze the education quality of PKBM in West Java along with the factors that must be improved and how to improve them. The survey method was carried out by using EduQUAL dimensions. Importance Performance Analysis (IPA) was used to classify the priority of each indicator from the survey results. The indicators collected in Quadrant A were further analyzed using Quality Function Deployment (QFD). The quality factors that must be improved: Availability of documents on the type and amount of learning equipment, Availability of documents for the existence of study room and office infrastructure, Availability of syllabus documents for each program, and Availability of RPP documents. IPA and QFD produced 3 technical responses to improve the quality of PKBM education in West Java ordered by its priorities: Activating discussion forums among PKBM institutions, Improving the procurement of PKBM infrastructures, and Providing training on making RPP on a regular basis for PKBM teachers.

Keywords
Education Quality, PKBM, QFD, IPA, and EduQUAL.

1. Introduction
The way the population of a country can access development outcomes in obtaining education, health, and income is illustrated in the Human Development Index (HDI). HDI in Indonesia in 2019; ie 0.718; only ranked fifth in Southeast Asia. Indonesia lost to Malaysia, Brunei Darussalam, Thailand, and Singapore (UNDP 2020). In addition, the HDI figure has not met the target set by the government in the 2019 State Revenue and Expenditure Budget; ie 0.720 (CNN Indonesia 2021).

Education is one of the things that can be improved to increase the HDI value. In Indonesia, education is carried out through three channels: formal, non-formal, and informal (Kemdikbud 2003). Non-formal education is an alternative for Indonesian people who are experiencing economic difficulties (Yossiana 2018). Based on data from the Ministry of Education and Culture in 2020 there are 3.47% of Indonesian people take the non-formal route for their education (kemdikbud 2020). One of the non-formal institutions in Indonesia is the Pusat Kegiatan Belajar Masyarakat (PKBM), which is community-based and is required to constantly innovate in order to produce community empowerment programs with a transformative character (Rizka & Tamba 2015). PKBM is an educational institution founded, by, and for the community.

In order to maintain the quality of education in PKBM, since 2010 accreditation has been carried out by the Badan Akreditasi Nasional Pendidikan Nonformal (BAN PNF). In 2014, BAN PNF changed its name to the Badan Akreditasi Nasional Pendidikan Anak Usia Dini dan Pendidikan Nonformal (BAN PAUD & PNF). After being reviewed by BAN PAUD & PNF, from the highest quality level to the lowest, each PKBM was given the predicate of A, B, C, to

Not Accredited (NA). Based on the results of the 2019 accreditation, only 2.8% of PKBMs were accredited A throughout Indonesia and at the provincial level, West Java with the highest number of PKBMs in Indonesia did not have a single PKBM accredited A. This illustrates the education quality of PKBM, especially in West Java. which is still not good (BAN PAUD & PNF 2019).

The impact of the COVID-19 pandemic, which has affected various sectors including the education sector in Indonesia, has made a striking difference in teaching and learning activities that must be carried out online. The results of the study show that online learning is not as expected, and network problems related to signal and internet packets occur (Al-Subaihi 2003). In addition, parents are faced with the challenge of taking on the role of teacher at home for their children. Only three out of ten parents are able to adapt to the teacher's role and can create comfort when teaching their children at home (Oktaria & Putra 2020).

1.1 Objectives
The aims of this study are to identify and analyze the factors of PKBM education quality in West Java that must be improved and provide suggestions for improving the education quality of PKBM in West Java using the EduQUAL, Importance Performance Analysis (IPA), and Quality Function Deployment (QFD) methods.

2. Literature Review
Quality is an overall description and characteristics of a product or service that shows its ability to satisfy the expected needs. In the context of education, the notion of quality includes educational inputs, processes, and outputs (Arcaro, 2005). Quality educational processes and outcomes are interrelated. So that a good process is not misguided, the quality in terms of output must be formulated in advance by the school along with the targets to be achieved every certain period of time (Rusman 2009).

Parasuraman et al. in 1985 suggested five dimensions of service quality by applying the gap theory called Service Quality (SERVQUAL) (Tjiptono 2014). The five dimensions are (Tjiptono 2014): Tangible, Reliability, Responsiveness, Assurance, and Empathy. Assessment of service quality with the SERVQUAL model includes calculating the differences between the values given by customers for each pair of statements related to perceptions and expectations. The SERVQUAL score for each pair of statements for each customer can be calculated by the formula: SERVQUAL score = Perceived score – a company's service quality expectation score on the five points proposed by Parasuraman et al. (1985) (Tjiptono 2014), it can be calculated for all customers by calculating their average SERVQUAL score on the statements that reflect each dimension of service quality.

Parasuraman et al. (1991) improved SERVQUAL to become a better diagnostic instrument for identifying gaps and strengths of organizational service quality. The gap can be seen in Figure 1. Gap 1 is the difference between customer expectations and management's perception, Gap 2 is the difference between management's perception of customer expectations and service quality standards, Gap 3 is the gap between service quality specifications and service delivery, Gap 4 is a discrepancy between service delivery and external communication, Gap 5 is the difference between customer perceptions and expectations (Alsaffar 2020). In this study, the concept of Gap 2 is used: the gap between quality specifications (accreditation standards) and management perceptions (PKBM managers).

Mahapatra & Khan (2007), considered that the conventional methods used by various survey institutions to assess universities were insufficient considering that the survey was based on a limited number of factors such as infrastructure, management style, number of students recruited by student recruitment agencies, and others (Kumaran & Anbazhagan 2011). Mahapatra & Khan 2007 proposed a methodology to determine the factors that influence quality improvement in education through a neural network approach. They proposed a measuring tool called EduQUAL. The EduQUAL dimensions were validated by factor analysis followed by Varimax rotation (Kumaran & Anbazhagan 2011). The five dimensions of EduQUAL are (Mahapatra & Khan 2007): Learning outcomes – ability to provide the promised service accurately; Responsiveness – willingness to help customers, and provide the right service quickly; Physical facilities – physical facilities, equipment, employees, and communication tools; Personality development – overall student personality development, knowledge enhancement; and Academic – expert faculty, personal attention to customers.

The Importance Performance Analysis (IPA) method translates the concept of what customers want which is measured as a relationship with what companies that produce quality products should do, both concretely and abstractly. IPA

can classify the priority gap between consumer expectations and company performance (Supranto 2006). IPA was proposed by Martilla & James (1997) (Algifari 2016). The interpretation of the performance of services and products is displayed in a graph that has four quadrants: A, B, C, and D:

1. Quadrant A
is an area that contains factors that are considered important by respondents but have not met expectations. The variables included in this quadrant must be improved by means of continuous improvement so that the difference in the performance of the variables in this quadrant can increase. This research will focus on improving the quality of the attributes collected in this Quadrant;

2. Quadrant B
It is an area that contains factors that are considered important by respondents and are in line with expectations so that the level of satisfaction is relatively high. The variables included in this quadrant must be maintained because all of these variables are superior in the eyes of the respondents;

3. Quadrant C
It is an area that contains factors that are considered less important by respondents with not very good performance. The increase in the variables contained in this quadrant can be reconsidered because it has a very small effect on the benefits felt by the respondents;

4. Quadrant D
It is an area that contains factors that are considered less important by respondents and are felt to be too excessive. The variables contained in this quadrant can be reduced for company efficiency.
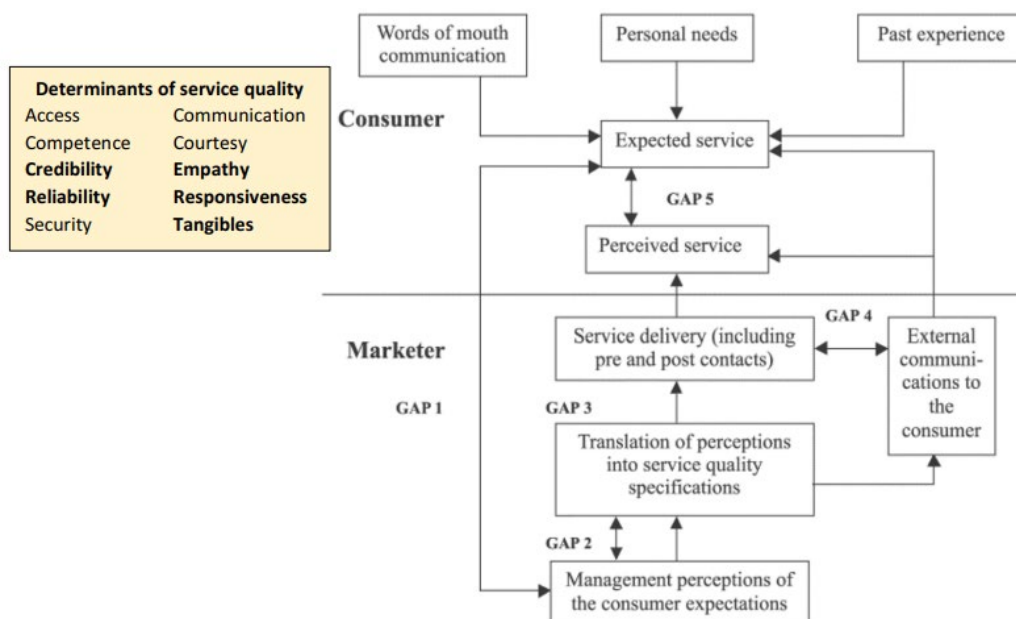

Figure 1. SERVQUAL Gap Model
Source: Parasuraman et al. (1991); (Alsaffar 2020)

Quality Function Deployment (QFD) is a technique for assessing customer needs and relating those needs to product features. QFD relates all product or service attributes to customer needs and ensures that the product or service meets customer expectations (Wijaya 2011). The following is the sequence of stages of QFD analysis:
1. Identify customer requirements;
2. Gather information about the technical response to be used;
3. Determine the correlation between customer needs and technical response through the QFD team's FGD;
4. Perform calculations and rankings on each indicator;

5. Propose improvements to each indicator.

3. Methods
3.1. Study Procedure and Measures

This research belongs to the type of mixed methods research, which is a combination of qualitative and quantitative research. The research design used is an exploratory descriptive research design. This study builds a proposal for improving the education quality of PKBM in West Java. The type of data used in this research is primary data. The dimension of PKBM education quality refers to the EduQUAL dimension (Mahapatra & Khan 2007) and the indicators refer to the 2021 PKBM accreditation instrument so it is necessary to integrate the EduQUAL dimensions with the 2021 PKBM accreditation instrument which is justified by the PKBM manager who has worked for ten years more from the practitioner side and also justified by the lecturer from the academic side. These items are presented in Table 1.

Table 1. Variable, Dimension, and Research Indicators

Variable	Dimension			
	EduQUAL (Mahapatra & Khan, 2007)	BAN-PNF (BAN-PNF, 2021)		
		Dimension	Sub Dimension	Indicator
PKBM Education Quality Improvement	A. Learning Outcome (L)	Graduate Competence Standards (SKL)	Graduate Competence	Availability of SKL documents from each programs held by PKBM (L1)
			Graduate Profile	Availability of graduate profile documents according to indicators recognized by the government (L2)
	B. Personality Development (P)	Content standard	Curriculum Content	Availability of PKBM curriculum content documents (P1) which includes: - competency - curriculum structure - annual program - semester program - periodic program - lesson timetable - extracurricular activity guide
			Education Calendar	Availability of education calendar documents for each program held by PKBM (P2) which includes: - start of learning program - effective days - holidays - program support activities
		Assessment Standard	Assessment Guidance Document	Availability of Assessment Guidance documents for all types of assessments for all types of educational programs held by PKBM (P3)
			Assessment Implementation	Availability of assessment documents used by PKBM include periodic assessments and final program assessments (P4)
			Registered and Completed Learning Student	Availability of student data for each program in PKBM who are registered and have completed

Variable	Dimension			
	EduQUAL (Mahapatra & Khan, 2007)	BAN-PNF (BAN-PNF, 2021)		
		Dimension	Sub Dimension	Indicator
			Data	learning/passed the final exam/competency test. For example: The number of A/Ula package program students who registered and graduated in the current year, the previous year, and the previous two years (P5)
	C. Academics (A)	Process Standards	Syllabus	Availability of Learning Implementation Plan (RPP) documents for each program held by PKBM (A1) which includes: - subjects - learning materials - methods
			Learning Implementation Plan (RPP)	Availability of RPP documents for each program held by PKBM (A2) which includes: - learning objectives - the steps of learning activities which facilitate creative, productive and innovative students, and - learning assessment on each program implemented
			Learning Supervision	Availability of appropriate learning supervision documents held by PKBM (A3) which includes: - materials and learning - student attendance, and - teacher attendance
		Standards of tutors and Education Personnel	Tutors academic number and qualifications documents	Availability of Tutors academic number and qualifications documents for each program held by PKBM. For example A/Ula package program taught by tutors with the qualifications of Doctor/Master/Bachelor/ Diploma/High School (A4)
			Tutors & Education Personnel Qualification Documents	Availability of qualification documents for Tutors and Education Personnel (PTK) in PKBM which includes: name, last education, assignment to the program, PTK type, training attended (years) (A5)
			Tutors and Education Personnel Work Experience documents	Availability of work experience documents for Tutors and Education Personnel in PKBM which includes name, year of appointment, and work experience (A6)

Variable	Dimension			
	EduQUAL (Mahapatra & Khan, 2007)	BAN-PNF (BAN-PNF, 2021)		
		Dimension	Sub Dimension	Indicator
		Management Standards	The Head of PKBM Profile Document	Availability of The Head of PKBM Profile Documents containing full name & title, place of birth, latest education, leadership experience, and achievements (A7)
			Managerial training/courses that have been attended by the head of PKBM	Availability of training/managerial courses that have been attended by the head of PKBM: Name of training, type of training attended, training organizer, number of hours of training, month/year of training (A8)
	D. Physical Facilities (F)	Standard of Facilities and Infrastructure	Availability of Learning Tools	Availability of documents on the type and number of learning equipment in PKBM which contains: types of facilities, amount, and information (F1)
			Use of learning media	Availability of online learning media (URL) which showing websites, social media, YouTube, or others that held PKBM (F2)
			Room Infrastructure	Availability of documents for the existence of PKBM office and study room infrastructure: type/length/width/number of rooms/room area (F3)
			Facility Ownership	Availability of land and building ownership or use data used by PKBM: own/institutional property; grant; another party's (F4)
	E. Responsiveness (D)	Management Standards	Vision, Mission, and Goals	Availability of PKBM vision, mission, goals, strategic plans, and annual program (D1)
			Partnership	Availability of partnership documents that have been implemented by PKBM which contains: name of partner institution, address, form of cooperation, and period of cooperation (D2)
			Implementation	Availability of documents for the number of classes and students held by PKBM. For example: A/Ula Package Program number of study groups/classes and students (D3)
		Financing Standard		Availability of receipts and expenditure documents according to financial accounting principles (D4)

Variable	Dimension			
	EduQUAL (Mahapatra & Khan, 2007)	BAN-PNF (BAN-PNF, 2021)		
		Dimension	Sub Dimension	Indicator

The data used to develop proposals for improving the quality of PKBM services in West Java is primary data obtained from measurements. The data collection technique used in this research is a survey. Primary data in the form of Voice of Customers from PKBM managers accredited B in West Java were collected using a questionnaire distributed via google form to each PKBM. Respondents answered the questionnaire with a weight using a Likert scale that has been adjusted to a weight of 1 – 5.

3.2. Sample
In this study, probability sampling is used, namely simple random sampling. The population in this study is PKBM accredited B in West Java as many as 108 units. From the population, the size of the sample used is determined by the Slovin formula:

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

where
n: sample size
N: population size
e: the level of error in reaching the tolerable member of the sample (in this sample used 10%). According to Al-Subaihi (2003), sampling error is called precision to show the accuracy of statistical estimates. In human studies, the level of precision used is approximately 3, 5, 7, or 10% (Al-Subaihi 2003).

From the Slovin formula, the number of samples is 51.9 or rounded up to 52 samples. Table 2 and 3 gives the distribution of the respondents.

Table 2. Respondent distribution according to their occupation

Occupation	Quantity	%
Head	38	73.08
Deputy Head	1	1.92
Treasurer	6	11.54
Operator	5	9.62
Manager (non spesific)	2	3.85
Total	52	100

Table 3. Respondent distribution according to PKBM Origin

Area	Quantity	%
Bandung district	4	7.69
West Bandung district	5	9.62
Bekasi district	1	1.92
Bogor district	7	13.46
Ciamis district	1	1.92
Cianjur district	2	3.85
Garut district	1	1.92
Indramayu district	3	5.77
Karawang district	2	3.85
Kuningan district	1	1.92

Area	Quantity	%
Majalengka district	1	1.92
Pangandaran district	1	1.92
Purwakarta district	1	1.92
Sukabumi district	3	5.77
Sumedang district	1	1.92
Tasikmalaya district	3	5.77
Bandung city	6	11.54
Banjar city	1	1.92
Bekasi city	2	3.85
Bogor city	1	1.92
Cimahi city	2	3.85
Depok city	3	5.77
Total	52	100

4. Data Collection

4.1. Validity and Reliability Test
Before the questionnaires were distributed to research respondents, the validity and reliability of the draft questionnaire were tested using thirty respondents. A validity test is conducted to measure whether an instrument is valid or not. A questionnaire is declared valid if the questions on the questionnaire can reveal something that will be measured by the questionnaire. While the reliability test was carried out to see whether the questionnaire instrument was suitable for use. The reliability test is a test of the consistency of the respondents in answering the questionnaire questions.

4.2. Gap Analysis
Gap analysis is a comparison between the perceived performance of the expected performance. Perception is an interpretation of the description of the service that is actually provided. Determination of the gap is calculated by looking at the difference in value between the actual service quality and the expected service quality (Parasuraman et al. 1988).

$$Q = P - E \qquad\qquad\qquad (2)$$

Where
Q: Level of gap (gap)
P: Current perceived quality value
E: Expected quality value

If the difference is positive, it can be concluded that the respondents are satisfied. Conversely, if the value is negative, it means that the respondent is not satisfied or in other words, there is room for improvement there.

4.3. Importance Performance Analysis (IPA)
The IPA method translates the concept of what customers want which is measured as a relationship with what companies that produce quality products should do, both concretely and abstractly. IPA can classify the priority gap between consumer expectations and company performance (Supranto 2006). IPA was proposed by Martilla & James (1997) (Algifari 2016). The interpretation of the performance of services and products is displayed in a graph that has four quadrants: A, B, C, and D. This research will focus on improving the quality of the attributes collected in Quadrant A.

4.4. Quality Function Deployment (QFD)
Quality Function Deployment (QFD) is a technique for assessing customer needs and relating those needs to product features. QFD relates all product or service attributes to customer needs and ensures that the product or service meets customer expectations (Wijaya 2011). The variables collected in quadrant A of the IPA analysis were then processed and further analyzed by the QFD method. The following is the sequence of stages of QFD analysis:

1. Identify customer requirements – using BAN PNF 2021 accreditation indicators;
2. Gather information about the technical response to be used;
3. Determine the correlation between customer needs and technical response through the QFD team's FGD;
4. Perform calculations and rankings on each indicator;
5. Propose improvements to each indicator.

5. Results and Discussion

5.1 Numerical Results

The initial data collection in this study was carried out using a questionnaire via google form which was distributed to 52 PKBM accredited B spread throughout the province of West Java. Validity and reliability tests were carried out to test the questionnaire which was the instrument of this research on thirty respondents. According to Nunnaly (1994), the reliability test is said to be reliable if Cronbach's alpha value is > 0.7 (Ghozali, 2016). As shown in Table 4, the value of Cronbach's alpha from the respondent's perception data is 0.9563 and the respondent's expectation is 0.9706 so it can be concluded that this questionnaire is reliable. For the validity test, all p-values for the perception and expectation items are less than 0.05 so it can be concluded that all of them are valid as shown in Tables 5 and 6.

Table 4. Questionnaire Reliability Test

	Cronbach's alpha	Remark
Perception	0,9563	reliable
Expectation	0,9706	reliable

Table 5. Expectation Validity Test

Item	P_{value}	Remark
H1	0,014	Valid
H2	0,000	Valid
H3	0,000	Valid
H4	0,001	Valid
H5	0,000	Valid
H6	0,000	Valid
H7	0,000	Valid
H8	0,000	Valid
H9	0,000	Valid
H10	0,000	Valid
H11	0,004	Valid
H12	0,000	Valid
H13	0,023	Valid
H14	0,037	Valid
H15	0,001	Valid
H16	0,000	Valid
H17	0,000	Valid
H18	0,004	Valid
H19	0,000	Valid
H20	0,000	Valid
H21	0,000	Valid
H22	0,000	Valid
H23	0,001	Valid

Table 6. Perception Validity Test

Item	P_{value}	Remark
P1	0,000	Valid
P2	0,000	Valid
P3	0,000	Valid

Item	P_{value}	Remark
P4	0,001	Valid
P5	0,000	Valid
P6	0,000	Valid
P7	0,000	Valid
P8	0,014	Valid
P9	0,000	Valid
P10	0,000	Valid
P11	0,000	Valid
P12	0,000	Valid
P13	0,000	Valid
P14	0,033	Valid
P15	0,000	Valid
P16	0,001	Valid
P17	0,000	Valid
P18	0,000	Valid
P19	0,001	Valid
P20	0,000	Valid
P21	0,000	Valid
P22	0,000	Valid
P23	0,001	Valid

The answers to the questionnaires that have been received are analyzed by analyzing the gap between expectations and perceptions of EduQUAL with the results of the analysis shown in Table 7. The value of every single EduQUAL score is calculated by subtracting the average perception score from the average expectation score. Quality (Q) is calculated by dividing the average perception score by the average expectation score:

$$Quality\ (Q) = \frac{average\ perception\ score}{average\ expectation\ score} \tag{3}$$

It can be seen that the EduQUAL score is -0,48 with the level of quality of education (Q) is 0,89. This shows that the quality of education in PKBM has not met the target.

Table 7. gap and EduQUAL education quality dimension calculation result

EduQUAL dimensions	Average		Gap	Q
	Expectation	Perception		
Learning outcome (L)	4,63	3,96	-0,66	0,86
Responsiveness (D)	4,40	3,99	-0,41	0,91
Physical facilities (F)	4,38	3,68	-0,70	0,84
Personality development (P)	4,37	3,89	-0,48	0,89
Academics (A)	4,33	3,98	-0,35	0,92
Average	4,38	3,91	-0,48	0,89

Table 7 shows that the gap value and the lowest education quality are owned by the dimensions of physical facilities with a gap value of -0,70 and Q = 0,84. The second lowest dimension is learning outcomes followed by the dimensions of personality development, responsiveness, and academics. However, in the absence of a single dimension with a positive gap value, it means that there must be improvements in all dimensions. It is necessary to make a priority order for improving the quality of education for PKBM in West Java using the IPA method.

5.2 Graphical Results

The IPA results in Figure 2 showed that there were four items collected in quadrant A in the upper left corner (the focus of completion) as shown in Table 8. Then the importance of each item was determined. This importance level score is determined on a scale of 1 ~ 5 where a score of 5 indicates the highest priority.
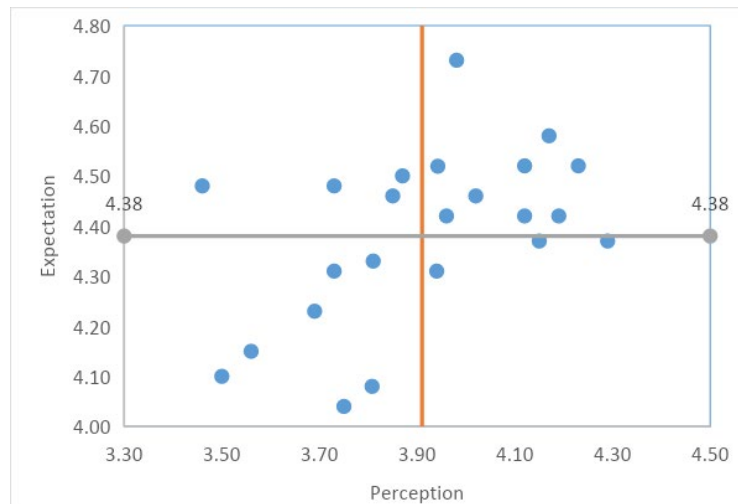
Figure 2. IPA result

Table 8. Customer importance level

Code	Attribute	Expectation	Perception	Gap	Importance level
F1	Availability of documents on the type and amount of learning equipment	4,48	3,46	-1,02	5
F3	Availability of documents for the existence of study room and office infrastructure	4,48	3,73	-0,75	5
A1	Availability of syllabus documents for each program	4,50	3,87	-0,63	5
A2	Availability of RPP documents	4,46	3,85	-0,61	5

Entering the QFD analysis, a planning matrix is formed which contains the performance of the plan to improve the quality of education in PKBM and the current quality performance of PKBM education desired by the FGD team with a scale of 1 ~ 5. After all the data has been processed, the planning matrix can be seen in Table 9.

Table 9. Planning Matrix

Code	Attribute	Current Performance	Performance improvement Planning	Improvement Factor	Overall weight	% Total weight	
F1	Availability of documents on the type and amount of learning equipment	3	5	1,4	7,0	28	
F3	Availability of documents for the existence of study room and office infrastructure	4	5	1,2	6,0	24	
A1	Availability of syllabus documents for each program	4	5	1,2	6,0	24	
A2	Availability of RPP documents	4	5	1,2	6,0	24	

Technical response (technical response) is compiled after obtaining the importance value of the user's importance and relative weight. Technical responses are prepared through FGDs with PKBM managers and PKBM accreditation assessors. The results of the preparation of the technical response are shown in Table 10.

Table 10. Technical Response

No	Code	Technical Response
1	TR-01	Providing training on making RPP on a regular basis for PKBM teachers
2	TR-02	Activating discussion forums among PKBM institutions
3	TR-03	Improving the procurement of PKBM infrastructures

Furthermore, an analysis of the relationship between the needs of PKBM managers (What) and the technical response (How) obtained through the FGD was carried out. The FGD results are displayed in the middle of the QFD with symbols of weak (Δ), moderate (O), and strong (⊙) relationships. What is symbolized by the serial number of the PKBM manager's needs in Table 9 while How's is symbolized by the serial number of the technical response according to Table 10. After that, an analysis of the relationship between technical responses is also carried out which is symbolized by certain symbols as the relationship of what and how on the roof of the QFD. This analysis can be seen in the complete QFD matrix in Figure 3.

In the final stage, the technical response priority is determined including determining the technical response target in the design matrix which is done by multiplying each technical response relationship score (0/1/3/9) against the related overall weight in the planning matrix, then adding up the columns. As written in Table 10, activating discussion forums between PKBM institutions with % total priority = 37,7% is the most important technical response.

Table 10. Technical Response Priority

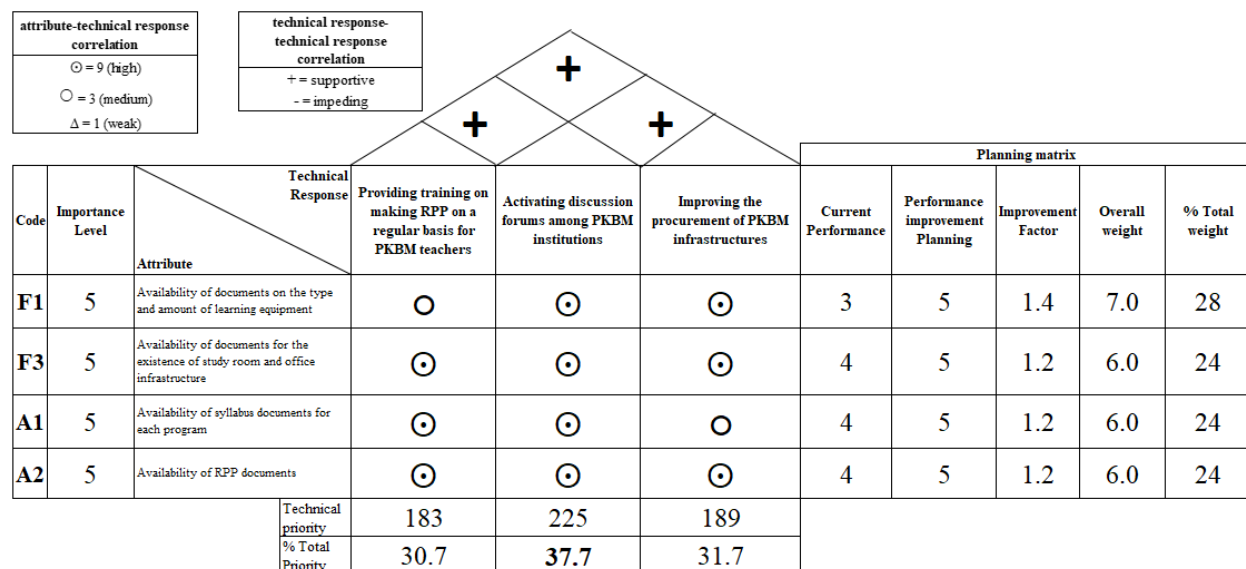| Code	Technical Response	Technical Priority	% Total Priority	Priority
TR-01	Providing training on making RPP on a regular basis for PKBM tutors	183	30,7	3
TR-02	Activating discussion forums among PKBM institutions	225	37,7	1
TR-03	Improving the procurement of PKBM infrastructures	189	31,7	2

Figure 3. QFD

5.3 Proposed Improvements

From the results of the EduQUAL gap analysis, the dimension of physical facilities is the dimension with the lowest quality, and among the attributes that are included in the dimensions of physical facilities is "Availability of documents, types, and a number of learning equipment in PKBM" (F1) which is the attribute with the lowest quality. followed by "Availability of documents for the existence of PKBM office and study room infrastructure: type/length/width/number of rooms/room area (F3). Both belong to the category of infrastructure facilities where the results are in line with the existing phenomenon where the availability of infrastructure to support teaching and learning activities is not evenly distributed in each PKBM.

Most PKBMs have not met the infrastructure standards of the BAN PAUD and PNF Accreditation Equipment, especially in terms of the availability and orderliness of their documentation in the basic education data (dapodik). Existing facilities and infrastructure do not meet the standards of infrastructure that already exist in the PAUD Accreditation Toolkit and PNF 2021 and Ministerial Regulation Number 49 of 2007. On the other hand, PKBM which has complete infrastructure facilities is also considered to be lacking in the accreditation aspect due to disorder in filling out documentation in dapodik. The results of the gap analysis for these two attributes are in line with the results of the IPA, namely that the attributes with the lowest gaps are included in quadrant A and will be a priority for improvement.

The dimension with the smallest gap is Academic. The interesting thing here is that after the IPA analysis, two attributes (A1 and A2) from this dimension are obtained which are included in quadrant A even though overall the Academic dimension has the smallest gap when compared to other dimensions. This is caused by the number of attributes contained in the Academic dimension at most when compared to the other four dimensions where each attribute has a varying number of gaps. Attributes A1 (Availability of syllabus documents for each program organized by PKBM) and A2 (Availability of RPP documents for each program held by PKBM) are the two attributes with the largest gap values in this dimension as well as the attributes with the third and fourth largest gap values, respectively. existing attributes of the five dimensions. The current reality is that there are still deficiencies in the availability of syllabus documents in terms of subjects, learning materials, and/or learning methods; while the shortcomings in the availability of RPP documents are in terms of learning objectives; the steps of learning activities that facilitate students to be creative, productive, and innovative; and/or assessment of learning in each program implemented.

As a response to meet the needs of the four attribute items that need to be improved in quality, three technical responses were obtained from the QFD analysis. By calculating the % total priority of each technical response, it can be seen which technical response should take precedence based on the number of % total priority. The technical response that becomes the main priority with a total priority percentage of 37.7% is to activate discussion forums between PKBM institutions involving the head of the institution and tutors. This is important to be optimized so that sharing in terms of compliance with accreditation standards can be maximized. The current condition is still not optimal because the discussion forum is less active and less maximized for discussion. In addition, there have been no comparative studies conducted routinely with PKBM outside the province of West Java. In fact, it would be very good if PKBM in West Java could adopt the practice of managing equality education from PKBM accredited A outside West Java. Thus, to be able to improve it, it is necessary to hold intensive discussions in discussion forums between PKBM institutions and conduct regular comparative studies with PKBM outside West Java, especially those that have been accredited A. The COVID-19 pandemic does not affect the activities of these discussion forums because the activities can still be carried out online.

The technical response that became the second priority with a total priority percentage of 31.7% was to increase the procurement of infrastructure for PKBM. The existence of standards for the procurement of infrastructure is needed for equal education so that teaching and learning activities can be well supported. The current reality is based on the Regulation of the Minister of Education and Culture No. 9 of 2021 article 7 paragraph 1, Education Operational Assistance (BOP) for equivalence education specializes in students aged 7-21 years (Republik Indonesia, 2021). Whereas on average about 60% of students in PKBM are people aged <21 years, so maybe the government can review the policy of providing BOP so that PKBM infrastructure facilities can be maximized for all students in PKBM. As for the procurement of infrastructure that has been running during the COVID-19 pandemic, it is not hampered.

The technical response that became the last priority with the smallest % total priority number, which is 30.7%, was Providing training on making RPP on a regular basis for PKBM. For training on making lesson plans, currently, it has

been carried out per district once a year by the PKBM communication forum (FK-PKBM) in collaboration with the education authorities, but the current condition is still not effective because there is no specific teaching forum for certain subjects. RPP training is still mixed from one subject to another. For future improvements, it is necessary to create a teaching forum per subject for each district so that the training in making lesson plans is more targeted. During the COVID-19 pandemic, RPP training that had existed before the pandemic could still run well.

In general, it can be said that all existing technical responses are external. This may happen because all respondents who participated in this study were managed without involving other stakeholders. The drawbacks of the EduQUAL and QFD methods seem to be visible here. EduQUAL and QFD only use one type of population as the object of research so that the solution generated from the analysis feels less broad. The four customer requirements analyzed by QFD should be able to find an internal solution. Among them in general, because accreditation is closely related to documentation activities in basic education data (dapodik), each PKBM can improve craftsmanship and order in the input process at the dapodik in order to get maximum points during accreditation. Then specifically, to increase the availability of syllabus and lesson plans, it is possible to evaluate the quality of the syllabus and lesson plans that are already running, look for improvement opportunities, make improvements, and monitor so that the improvement process can be sustainable. These activities could be carried out independently by each PKBM.

There is no perfect research. Singh & Rawani (2019) only focused on one institution so their research could not be generalized (Singh & Rawani 2019). Dumitriu (2018), only focuses on students and does not involve all stakeholders in engineering study programs in their research (Dumitriu 2018). Herwanto et al. (2013), only focused on one type of customer, namely parents of students (Herwanto 2013). Whereas according to Praptaningsih (2010) in Herwanto (2013), school customers are divided into two: internal customers (teachers and administrative staff) and external customers (students, parents, alumni empowerers) (Herwanto 2013). The research of Devani & Kartikasari (2012) is limited in the scope of research because they only researched one institution, so the research results cannot be generalized (Devani & Kartikasari 2012). This research is also not free from shortcomings given the limited space, especially when the COVID-19 pandemic is still ongoing and the study period is limited. Researchers only focus on improving the quality of PKBM education in West Java which is accredited B by only involving PKBM managers without involving other stakeholders and not being able yet to benchmark with PKBM from other provinces. Thus this research shares its shortcomings with past research (Dumitriu 2018; Herwanto, 2013) in terms of the limitations of the stakeholders studied. However, when compared to other studies, this research is quite interesting because it involves institutional managers in many places in one province so that the result in this research could implement in all accredited B-PKBM in West Java, Indonesia.

6. Conclusion
The quality factors of PKBM education in West Java that must be improved consist of four items that are the main priority belonging to the two dimensions of EduQUAL, namely the Physical Facility Dimension (F) and the Academic Dimension (A). The dimensions of Physical Facilities (F) consist of the attributes of Availability of type and number of learning equipment in PKBM documents (F1), as well as Availability of the existence of PKBM office and study room infrastructure: type/length/width/number of rooms/room area documents (F3). The Academic dimension (A) consists of the Availability of syllabus documents for each program held by PKBM (A1), as well as the Availability of Learning Implementation Plan (RPP) documents for each program held by PKBM (A2). The proposal for improving the quality of PKBM education in West Java, especially for those accredited B, is with three corrective actions in order of priority: Activating discussion forums for heads of institutions and tutors so that they can share management practices in each PKBM institution, increase assistance in the procurement of facilities infrastructure for PKBM, as well as providing training on making RPP on a regular basis for PKBM teachers. For future research, it can be done on PKBM accredited C or not accredited (TT) and in a wider area scope. This research shows that in PKBM accredited B the average internal condition is good enough so that external improvements are more expected. It is possible that accredited C and TT-PKBM will show different results. In terms of methods, other EduQUAL gaps can be used, for example from the scope of the customer or even by tracing the use of improvement methods other than EduQUAL, IPA, and QFD.

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