

**Development of Diagnostic Assessment in  
Islamic Religious Education Learning in Junior High Schools in Bandung District**  
**Pengembangan Asesmen Diagnostik pada Pembelajaran Pendidikan Agama Islam di  
SMP Kabupaten Bandung**

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**Abstract**

*From the preliminary research data obtained, about 74% had never made diagnostic assessment instruments, and 13% indicated they had made them. Therefore, teachers need tools to understand students' learning needs and abilities. The purpose of this study is to help teachers by developing diagnostic assessment instruments for PAI learning in junior high schools. This research method uses the research and development method (Research And Development) with the ADDIE model in making instrument questions through five stages developed by Dick and Carry. Data was collected by testing 383 students from 4 junior high schools in Bandung Regency. This data collection tool uses Google Forms. Data analysis in this study used descriptive statistics and item analysis by looking at Validity, Reliability. This shows that it is reliable and valid. The results of the difficulty level analysis show that the instrument has an easy difficulty level of 2.50%, medium 77.50% and difficult 20.00%. The results of the analysis of the differential power 38 items have "Differential Power" around 0.036 (Low), and 42 items have "Differential Power" around 0.394 (High). This can distinguish students who are good and less good*

**Keywords:** *Development, Diagnostic Assessment, Islamic Religious Education.*

**Abstract**

Hasil riset awal Dari data yang diperoleh, sekitar 74% belum pernah membuat instrumen asesmen diagnostik dan 13% mengindikasikan bahwa pernah pembuatan instrumen asesmen diagnostik. Maka dengan hal itu guru-guru memerlukan alat bantu untuk memahami kebutuhan belajar dan kemampuan siswa. Tujuan penelitian ini untuk membantu guru dengan mengembangkan instrumen asesmen diagnostik pada pembelajaran PAI di SMP. Metode penelitian ini menggunakan metode penelitian dan pengembangan (Research And Development) dengan model ADDIE dalam pembuatan soal instrumen melalui lima tahapan yang dikembangkan oleh Dick dan Carry. Pengumpulan data dilakukan dengan uji coba kepada 383 siswa dari 4 sekolah SMP Kabupaten Bandung. Pengumpulan data ini menggunakan google form sebagai alat bantu pengumpulan data. Analisis data dalam penelitian ini menggunakan statistik deskriptif dan analisis butir dengan melihat Validitas, Reliabilitas, Hal ini menunjukkan bahwa mempunyai reliabilitas dan validitas yang baik. Hasil analisis tingkat kesukaran menunjukkan bahwa instrumen memiliki tingkat kesukaran mudah 2,50%, sedang 77,50% dan sukar 20,00%. Hasil analisis daya beda 38 butir soal memiliki "Daya Beda" sekitar 0.036 (Rendah) dan 42 butir memiliki "Daya Beda" sekitar 0.394 (Tinggi) dengan ini bisa membedakan siswa yang kemampuan baik dan kurang baik.

**Keywords:** Development, Diagnostic Assessment, Islamic Religious Education.

## 1. Introduction

Improving the quality of education in Indonesia influences the current changes in curriculum and learning. This explains that education in Indonesia consists of improvements for the better and positively impacts students. (Mastuti, Abdillah & Rumodar, 2022).. With that, the improvement created through the education curriculum is an important point in implementing education that continues to grow. Curriculum and learning changes made to improve the quality of education in Indonesia aim to improve the quality of learning.

The curriculum is the main element for organizing educational activities. Indonesia is still developing and revising the curriculum repeatedly to make educational activities fit the social dynamism of the country. (Hidayat, Asyafah & Indonesia, 2019).. The development of an increasingly advanced and changing era is the cause of the need for curriculum changes (Ritonga, 2016). Indonesia's curriculum has changed over the decades. This is due to many factors, such as changing social needs, new perspectives on the teaching and learning process, political issues, and industrial and technological developments (Ekawati, 2018). Responding to curriculum issues, in another case, it was stated that the emergence of independent learning, which became the development of the education system in Indonesia, was dynamic. Almost every newly appointed education minister is more likely to reform the curriculum and introduce new policy ideas in the education system, while this trend is still stagnant (Shihab, 2017).

The independent curriculum creates active and creative learning. The shift from online learning to limited face-to-face learning requires innovation in learning to generate student engagement and learning outcomes. One method of student-centered learning is differentiated learning. Differentiated learning is a form of effort in a series of learning that considers the needs of students in terms of motivation, learning profile, interests and talents (Aprima & Sari, 2022). Differentiated learning aims to create an inclusive learning environment where all students feel supported and valued in their efforts to learn and develop. This can improve students' motivation, confidence and overall learning outcomes.

Current learning is based on an independent curriculum that requires differentiated learning. Teachers must meet the individual learning needs of each student. One of the prerequisites of differentiated learning is the conduct of diagnostic assessments that are conducted specifically to determine students' abilities, weaknesses, and strengths in learning. So, learning can be designed according to your student's skills and needs. According to Wahyuningsari et al. (2022), differentiated learning is learning that considers students' needs in learning activities. Teachers should pay attention to the unique characteristics of different students so that they are not treated the same as other students with different characteristics.

The survey results show that the way education is delivered has not changed much. Teachers apply a learning system that treats all children equally, regardless of their diverse abilities. A teacher seems to teach one student in a class, but it is estimated that there are 20-30 students in one class. However, their uniqueness, abilities, and diverse learning experiences make it difficult for students to feel bored and lose motivation to learn (Iskandar, 2021). Therefore, an understanding is needed for teachers to conduct an assessment in the form of a test in mapping students' abilities.

In reality, not all students can achieve maximum progress in their learning process. Students often face problems and difficulties and need help and support from the environment to overcome these difficulties and problems (Zaleha et al., 2017). Testing is needed to accurately identify student learning disabilities. Tests as an initial affirmation to determine which material is difficult for students. In the use of diagnostic tests, it should be noted that test results should not

be the only factor in determining student difficulties and appropriate learning strategies. Teachers also need to observe how students learn and interact with the material directly and consider other factors such as students' social and emotional backgrounds. This will help teachers to design more holistic and effective learning strategies for each student.

One form of assessment that can provide information about students' pain points, achievements, and basic skills is the use of diagnostic tests (Hidayati et al., 2013). Diagnostic tests are useful for teachers to find out students' difficulties in understanding the concepts taught (Putri, 2021). In this case, it shows the urgency of carrying out diagnostic tests to know students' varying abilities to understand the material through tests. In the world of education, diagnostics is a broad concept that involves identifying students' strengths and weaknesses. Diagnostic tests are one type of test used to find student weaknesses so that they can overcome these weaknesses appropriately (Arikunto, 2009). That way, diagnostic tests can solve the learning problems of students who have less understanding.

Because diagnostic tests are designed to identify student weaknesses, these results can be used as the basis for follow-up in the form of appropriate treatment according to student weaknesses (Susanti, 2014). In addition, this test can also monitor the development of student learning success because the scores obtained in this test are valid and reliable, so this test measures the percentage of student understanding (Leoni et al., 2020). The test results can be used as teacher evaluation material in learning, which is useful for seeing the progress of student learning.

However, the reality in the field regarding the implementation of tests for students has not been widely carried out, which shows that many educators do not properly carry out remedial learning. Thus, which is one way to determine students' ability, it is necessary to take a test first. If teachers want to effectively help students achieve the Minimum Criteria for Completeness (KKM) through targeted support programs, teachers must carry out a diagnosis of learning difficulties. The problem is that there are no guidelines or tools to help teachers diagnose learning disabilities in their students (Hadi et al., 2015). Therefore, a diagnostic test of student learning disabilities is needed, a test that can reveal the nature and location of student difficulties.

Many diagnostic tests have been developed, but many teachers do not implement them. In other words, teachers should apply diagnostic tests to improve learning so that later learning can adjust to the results of the diagnostic tests applied (L. U. Dewi, 2022). In this case, the researcher used a diagnostic test in the form of a multiple-choice instrument. This model instrument is able to provide feedback to students to find out their learning difficulties. This diagnostic test is also useful for students to know their weaknesses and strengths in understanding the concepts taught. By knowing their weaknesses, students can overcome these weaknesses in the future. Some of the previous studies seem to have been conducted in the fields of physics, science, and mathematics and focused on certain materials that were considered difficult for students to accept.

Looking at the exposure of the research results above, it is still rare to find research conducted in the field of PAI specifically for the development of diagnostic assessments. So from this, this development research will be more different from the previous research described above, most of which in the field of Islamic Education only focuses on certain materials and others only on the requirements for implementing diagnostic tests; that way, the research sees the urgency of the research to be carried out in the form of developing diagnostic assessments specifically used in Islamic Religious Education learning in junior high schools in Bandung Regency.

## 2. Literature Review

Analysis of the Results of Learner Concentration in PAI Learning at SMP Plus Nusantara Kota Medan" analyzes the diagnostic assessment carried out at SMP Plus Nusantara Kota Medan in PAI learning, providing detailed answers regarding the concentration of students in following the ongoing learning process. The concentration of students is almost in accordance with expectations when viewed from the three aspects that have been stated, namely cognitive, affective, and psychomotor. This shows that students have been able to do what is expected by educators when participating in learning.

The development of diagnostic assessments in PAI learning may not have been done much, hence the lack of awareness or interest in conducting research in this area, especially if religious learning is considered a well-established thing or does not change much from time to time. However, it should be noted that the development of diagnostic assessments in PAI learning can also provide benefits that are as important as other subjects, such as assisting teachers in knowing the success of learning and providing feedback for improvement in learning. Therefore, the research wants to raise research on the development of diagnostic assessments in PAI learning.

Seeing that the existing PAI curriculum in Indonesia is still focused on religious learning and pays less attention to cognitive, affective, and psychomotor aspects of learning. So, PAI learning in junior high school still seems limited to instilling religious knowledge only. Then, with limited resources or educators who are competent in developing diagnostic assessment tests. Making a good diagnostic assessment test requires adequate time, energy, and resources, as well as expertise in making valid and reliable test instruments. However, it should be noted that the development of diagnostic *assessment tests* in PAI learning in junior high schools can greatly improve the quality of learning and students' understanding of PAI subjects. Therefore, the research wants to raise the development research that needs to be done to develop diagnostic *assessment tests* in PAI learning in junior high schools.

## 3. Research Methods

In this study, researchers used the development research method (*Research and Development*). This method makes it possible to develop new products, such as diagnostic assessment assessments in this case, through several stages, such as the needs analysis stage, design stage, trial stage, and evaluation stage (Sugiyono, 2011). In the development research method (*Research and Development*), there are several models; in this study, the model that is suitable for use is the development model that researchers use, referring to the ADDIE model development research model. This ADDIE model was developed by Dick and Carry. This model consists of five steps that connect with the ADDIE abbreviation, namely: (1) *analyze*, (2) *design*, (3) *development*, (4) *implementation*, and (5) *evaluation*. Therefore, this model can be used for various forms of product development, such as models, learning strategies, learning methods, and learning assessment instruments. The data analysis method that will be used in this study is a statistical calculation data analysis in this study, namely using the *Independent Sample t-test* method in the SPSS (*Statistical Package for Social Science*) program; the output of this study is in the form of statistical numbers in the form of both descriptive and inferential data (Zein et al., 2019). Analysis requires creative power and high intellectual abilities; researchers use validity and reliability test data analysis techniques. The instrument validity test is important in quantitative research to ensure that the instrument used is able to accurately measure the concept or variable under study (Febrinawati, 2018). With the formula:

$$r = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2)}}$$

**Figure 1.** Product Moment Correlation Formula

Description:

X = the Number of students who answered each item correctly.

Y = the Number of questions answered correctly by each student.

N = Number of subjects.

$$r_{11} = \frac{k}{k-1} \times \left\{ 1 - \frac{\sum S_i}{S_t} \right\}$$

**Figure 2.** Cronbach's Alpha Formula

Description:

R11 = Reliability Value

$\sum S_i$  = The sum of the variance of the scores of each item

$S_t$  = Total variance

K = Number of items

## 4. Results and Discussion

### 4.1. Research Results

Before conducting development research, researchers tried to conduct previous research by distributing a questionnaire through Google Forms to PAI teachers in Sub Rayon 8 MGMP PAI Bandung district with the following 7 questions. Based on the results of the study, it can be concluded that the majority of respondents (34 people or about 42%) just know what diagnostic assessment is. However, there were also some respondents (21 people or about 26%) who said that they already knew about diagnostic assessment. Then, as many as 49 people (around 61%) said that they did not understand the application of diagnostic assessment, while 20 people (around 25%) said that they already understood the application of diagnostic assessment. Furthermore, about 79% (or 55 respondents) said that they had never applied diagnostic assessment before PAI learning, while only 14 respondents (about 17%) had done so. In terms of training, most respondents (60 or about 75%) said that they had never attended seminars or training from the government on diagnostic assessment, while only 9 (about 11%) had attended such training. In terms of using diagnostic assessment to assess students in PAI learning, the majority of respondents (55 people or about 68%) said that they had never used such diagnostic assessment, while only 14 respondents (about 17%) had used it. Then, about 59 respondents (or about 74%) said that they had never made diagnostic assessment instruments for PAI Learning, while only 10 respondents (about 13%) had made them.



#### 4.1.1 Stages of the Process of Formulating PAI Diagnostic Assessment Instrument Questions

Analyzing data regarding core competencies, basic competencies, and learning materials. KI-3 emphasizes the importance of students understanding and applying knowledge concretely and having the desire to learn more about various aspects of science, technology, arts, and culture. The basic competencies of KI-3 are the basis for developing learning materials for making questions, referring to PAI materials.

The following materials are Islamic Religious Education (PAI) learning topics for grade 7 in the odd semester in junior high school, which are used by researchers as a reference in making diagnostic assessment questions:

- **Belief in Angels Based on Naqli Evidence**  
It covers the teachings and beliefs related to faith in angels in Islam, which are based on the postulates or verses of the Quran.
- **Conditions for praying jamak quasar**  
This material discusses the procedures and rules for performing prayers in plural (in congregation) and qasar (short) in certain situations, such as traveling.
- **The history of the Prophet Muhammad's struggle in the Medina period**  
This material reviews the events and struggles of the Prophet Muhammad PBUH after moving to Medina, including the establishment of Muslims there.
- **Empathy towards others, respect and obedience to parents and teachers.**  
This material emphasizes the importance of empathy towards others, as well as the obligation to respect and obey parents and teachers.
- **Praiseworthy behavior of al-Khulafa al-Rashidun**  
This material discusses the praiseworthy attitudes possessed by the Rashidin Caliphs (Abu Bakr, Umar, Uthman and Ali), who were the early leaders of the Muslims.
- **Conditions of Friday Prayer**  
This material explains the rules and procedures for performing the Friday prayer, one of the most important acts of worship in Islam.
- **Q.S. an-Nisá/4: 146, Q.S. al-Baqarah/2: 153, and Q.S. Áli Imrân/3: 134 and related Hadiths about being sincere, patient, and forgiving.**  
The material focuses on Quranic verses (Q.S. an-Nisá/4:146, Q.S. al-Baqarah/2:153, and Q.S. Áli Imrân/3:134) and traditions that emphasize the importance of traits such as sincerity, patience, and forgiveness.

The emphasis on these materials reflects the importance of understanding the aspects of Islam and ethics that are instilled in learning Islamic Religious Education at the junior high school level. These materials are designed to strengthen students' understanding of religious teachings and foster moral values and commendable attitudes in everyday life.

**Table 1.** Material specification table

Subject matter	Aspects Revealed			Total
	Knowledge or Understanding - L1 (30%)	Application - L2 (40%)	Reasoning - L3 (30%)	
Believing in Angels Based on Naqli Evidence (13%)	1,2,41,42	13,14,53,54	29,30,69,70	12

Conditions of Jamak Qasar Prayer (19%)	3,4,43,44	15,16,17,55,56,57	31,32,71,72	14
History of the Prophet: Medina Period (6%)	5,45	18,58	33,73	6
Respectful and Obedient to Parents and Teachers, Empathizing with Others (19%)	6,7,46,47	19,20,21,59,60,61	34,35,74,75	14
History: The Struggle of Al-Khulafa Al-Rashidin (6%)	8,48	22,62	36,76	6
Friday prayer requirements (19%)	9,10,49,50	23,24,25,63,64,65	37,38,77,78	14
Qur'anic Verses: About Ikhlas Patience and Forgiveness (19%)	11,12,51,52	26,27,28,66,67,68	39,40,79,80	14
Total (100%)	24	32	24	80

#### 4.1.2 Quality of Islamic Religious Education Diagnostic Assessment Instrument

Based on the data provided, 80 items were assessed. Each item was assessed by three different validators (S1, S2, and S3). Each validator gave a rating from 1 to 4 for each item. After the assessment of all validators, the average of the validators' assessment for each item was calculated. Furthermore, a reliability index (V) is calculated for each item.

##### 1. Validity results

The items were then categorized as "MEDIUM" or "HIGH" based on their reliability index values. Assessment data related to several criteria or items. Each item has an assessment from three different validators (S1, S2, and S3). Furthermore, the average and reliability index (V) for each item is calculated.

Items with a reliability index below 0.8 are categorized as "MEDIUM."

- Items with a reliability index of 0.8 or above are categorized as "HIGH."

In this dataset:

- There are 43 items categorized as "MEDIUM."
- There are 37 items categorized as "HIGH."

**Table 2.** Problem Dataset

Category	Total	Grain
High	37	1, 4, 5, 6, .....
Medium	43	2, 3, 7, 8, ....

##### 2. Reliability Results

The reliability test can be seen in the following table, with rxy showing 0.705.

**Table 3.** Reliability Test

Respondents	$r_{xy}$	$R_{tabel}$	Description
384 students	0,705	0,271	Reliable

With a reliability value of 0.705, the instrument used in this study can be considered a reliable or reliable tool. This is because the reliability value obtained is greater than the t-table Value used as the standard for determining Reliability, which is 0.271. This shows that the instrument can be relied upon to measure the variables studied in this study. This is a positive indicator related to the quality and Reliability of the instruments used in the study.



**Figure. 3.** Distribution of Instrument Level of Difficulty by Category

**Table 4.** Data on the Number of questions

Category	Number	Percentage
Easy	2	2.50%
Medium	62	77.50%
Difficult	16	20.00%

Based on the data on the Number of items that have been tested, there are three categories of instrument difficulty levels, namely "Easy," "Medium," and "Difficult." The following is a detailed interpretation of this data:

- "Easy" category: The Number of items in this category is 2. The percentage of total items is about 2.50%.
- "Medium" category: The Number of items in this category is 62. The percentage of total items is about 77.50%. This shows that the majority of the items tend to have a medium level of difficulty.
- "Difficult" category: The Number of items in this category is 16. The percentage of total items is about 20.00%.

This indicates that there are a small number of items that have a higher level of difficulty. These results can provide insight into the distribution of the difficulty of the piloted instruments. A balanced and diverse level of instrument difficulty can help measure different levels of ability and knowledge of examinees.

$$TK = \Sigma B$$



TK Level of Difficulty

$\Sigma B$  Number of students who answered correctly

$\Sigma P$  Number of test takers

The results of the "Distinguishing Power" measurement for the various items (in the range between -1 to 1) and the given category (Low or High). There were 80 items measured for "Distinguishing Power." Items with positive "Distinguishing Power" tended to be better able to distinguish between high and low-ability participants. Many items had "Distinguishing Power" categorized as "Low" and "High":

- Items with low "Distinguishing Power": 38 items have a "Distinguishing Power" of about 0.036 (Low), meaning that these items have a low ability to distinguish between high and low-ability participants.
- Items with high "Distinguishing Power": 42 items have a "Distinguishing Power" of about 0.394 (High), meaning that these items have a high ability to distinguish between high and low-ability participants.



Figure 4. Image of the Distribution of the Instrument's Differential Power

#### 4.1.3 Utilization of Islamic Religious Education Diagnostic Assessment Instrument Results

The Islamic Religious Education diagnostic assessment instrument was tested in four schools located in Bandung Regency and belonging to MGMP PAI sub rayon 8. The following are the details of the Number of respondents from each school:

- SMPN 1 PACET: There were 105 students who were respondents to this diagnostic assessment. This means that in this school, 105 students took and completed the Islamic Religious Education assessment instrument.
- SMPN 2 CIPARAY: A total of 163 students from SMPN 2 CIPARAY participated in the diagnostic assessment. This shows the higher participation of this school in the assessment of students' abilities in PAI subjects.
- SMPN 2 KERTARASARI: There were 65 students from SMPN 2 KERTARASARI who took part in the PAI diagnostic assessment. The Number of respondents in this school was lower compared to SMPN 2 CIPARAY.
- SMPN 3 CIPARAY: This school had 51 students participate in the diagnostic assessment. This was the lowest Number of the four schools tested.

From the results of the diagnostic assessment on Islamic Religious Education (PAI) learning for 383 students, the following data were found:

- Achieving the Minimum Completeness Criteria (KKM): There were 9 students out of a total of 383 students who reached or exceeded the KKM. This means that 9 students have obtained scores equal to or higher than 75, which is the minimum standard or criteria expected in PAI learning.

- Not yet reaching the KKM: The remaining 374 students have not yet reached the KKM. This means that most students (almost all) still need additional help or attention in understanding and mastering PAI learning materials.

**Table 5.** Descriptive statistics of student diagnostic assessment results

Statistics	Value
Total	383
Average	42.77
Maximum	95
Minimal	17.5

Based on the assessment data from 383 student respondents, some important information can be drawn:

- Average score: The average score obtained by the students was 42.77. This reflects the average achievement level of the entire population of students who took the assessment.
- Maximum Score: The highest score achieved by a student in this assessment was 95. This shows that there are students who have a very good understanding of the material tested.
- Minimum score: The lowest score obtained by students was 17.5. This indicates that there are also students who may need more help or attention in understanding the material.

## 4.2 Discussion

It appears that the results of student diagnostic assessment in Islamic Religious Education (PAI) learning in Bandung Regency, especially in MGMP PAI sub rayon 8, are very important. This data was obtained through researcher interviews with two PAI teachers who were resource persons and were asked about the utilization of diagnostic assessment results. There were six questions related to this. Diagnostic assessment results provide an overview of the extent to which students understand PAI materials, and this information can be used to develop more effective lesson plans. This helps teachers to personalize the learning approach according to the needs and abilities of each student. Thus, diagnostic assessment results play a key role in improving the quality of PAI learning in the region.

From the results of field data, it has been found that assessment results are part of evaluating students' learning progress in Islamic Religious Education (PAI) subjects. By using the assessment results, teachers can determine the extent to which students have understood the PAI material. This allows teachers to understand students' level of understanding in more detail and allows them to provide guidance or additional materials according to the needs of each student.

## 5 Conclusion

Overall, the results of the research on the development of diagnostic assessments in PAI learning in junior high schools in Bandung Regency, specifically in the region of subrayon 8 MGMP PAI, are as follows:

The stages of the process of preparing instrument questions in Islamic Religious Education (PAI) include analyzing material competencies. Selection of learning materials and making specification tables, Quality of Islamic Religious Education Instruments. With a reliability value of 0.705, which is greater than the standard 0.271, this research instrument is reliable. This shows that the tools used are accurate and reliable to measure the variables in this study. In the

difficulty level experiment, most of the items in the instrument tend to have a moderate level of difficulty (77.50%). There are also some questions that are classified as easy (2.50%) and difficult (20.00%). Of the 80 items measured for "Distinguishing Power," most could distinguish between high and low-ability participants (42 items). However, 38 items also had a low ability in this regard. From the validation results of the Islamic Religious Education diagnostic assessment instrument, 80 items were assessed by three different validators. The assessment results from the validators show that:

1. 43 items are categorized as having a "MEDIUM" level of validity.
2. Thirty-seven items are categorized as having a "HIGH" level of validity.

This shows that the majority of the items in the diagnostic assessment instrument have an adequate level of validity, with most of the items having a higher level of validity. This is a positive indicator of the quality of the PAI diagnostic assessment instrument.

Then, the results of the diagnostic assessment in PAI learning for 383 students showed that only 9 students reached or exceeded the Minimum Completion Criteria (KKM) of the total students. The rest, 374 students, had not reached the KKM, indicating that most students needed additional help in understanding PAI materials. The utilization of assessment results helps teachers in assessing students' understanding of PAI lessons. Teachers can provide guidance and additional materials according to the needs of each student. These results are also important for measuring the achievement of PAI learning objectives, enabling teachers to develop effective lesson plans according to student's needs and abilities.

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