

Teacher Competency in Applying Assessment for Islamic Education Learning in the Digitalisation

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ABSTRACT

The era of digitalisation has transformed the learning assessment process, especially in Islamic Religious Education (PAI). Teachers' competence in carrying out assessments integrating digital technology with Islamic values is a determining factor in the effectiveness of learning evaluation. This study aims to analyse teachers' competence in conducting Islamic Education learning assessments, identify effective assessment criteria, and examine the implementation of Islamic Education assessments in the digital era. This research uses a descriptive qualitative approach with a phenomenological method, using data collection techniques through interviews, observation and documentation at SMP Muhammadiyah PK Kotabarat Surakarta. PAI teachers' competence in assessment still needs continuous strengthening. The implementation of Computer-Based Tests (CBT) for PAI shows a significant transformation in the evaluation process, although it still faces technical and pedagogical challenges. The school implemented a comprehensive strategy to address teachers' competency gaps through periodic evaluations, deliberation forums, and continuous training. Developing teachers' competencies in PAI assessment in the digital era requires the integration of pedagogical, technological and analytical skills supported by continuous professional development programs.

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1. Introduction

Information and communication technology development has brought significant transformation in various sectors of life, including education. The learning assessment process is one aspect of education that has undergone substantial changes. Learning assessment is a critical component in the educational cycle that measures the achievement of learning objectives and provides feedback for the development of the next learning process [1]. In the era of digitalisation, the learning assessment

paradigm has shifted from a conventional approach that focuses on the end results to a more comprehensive and sustainable approach by utilising digital technology [2].

In Islamic Religious Education (PAI) context, learning assessment has its own characteristics and challenges. PAI is oriented towards developing not only cognitive aspects but also affective and psychomotor aspects related to the application of Islamic values in daily life. Teacher competence in implementing PAI learning assessments is a determining factor that determines the effectiveness of the evaluation process [3].

Teacher competence in learning assessment consists of three main components integrated with each other: pedagogical competence, technological competence, and analytical competence. The challenges of digitalisation in education, especially in PAI learning assessment, require teachers to have new skills, including the ability to use digital platforms for assessment, analyse evaluation data electronically, and integrate various assessment methods in hybrid learning. However, recent studies show that there is still a gap between the demands of ideal competencies and the reality of teachers' ability to carry out comprehensive assessments in the digital era [4].

Based on observations at SMP Muhammadiyah PK Kotabarat Surakarta, it was found that PAI teachers are still continuously learning about digital assessment competencies. Despite having a basic understanding, teachers often face confusion when implementing it in the field. This is due to updates in the assessment system that require teachers to continue learning and adapting. To overcome this, the school implements various strategies such as periodic evaluations, plenaries and deliberations, and further training for teachers.

This challenge is increasingly complex with the presence of various educational technology platforms, which require teachers not only to be proficient in conventional assessment methods but also to be able to integrate digital technology in the assessment process. On the other hand, the dynamic development of the educational curriculum also demands the adaptability of PAI teachers in implementing an assessment system that is in accordance with the demands of the current curriculum. An in-depth study of teacher competency in assessing PAI learning in the era of digitalisation is urgently needed to be carried out as a first step in formulating strategies for improving the competence of increasing PAI teachers [1].

This research has substantial theoretical and practical significance. Theoretically, the results of this study can enrich the enrichment of knowledge in the field of PAI learning assessment in the digital era, especially in the context of teacher competencies needed to carry out effective assessments. The research findings are expected to be a reference in the development of PAI learning assessment theory that integrates digital technology and Islamic values [5].

Practically, the results of this study can be a reference for educational institutions and policymakers in formulating professional development programs for PAI teachers in the field of learning assessment. This study also makes a significant contribution to efforts to improve the quality of Islamic education through strengthening teacher competence in implementing comprehensive learning assessments in the era of digitalisation.

In this study, the discussion will begin with a theoretical study of teacher competency in learning assessment in general, followed by a discussion of the criteria for effective PAI learning assessment. Furthermore, the article will review teacher competence in PAI learning assessment and end with an analysis of PAI learning assessment in the digitalisation era. This structure is designed to provide a comprehensive understanding of the research theme, starting from the broader context to a specific focus on the implementation of PAI learning assessments in the digital era.

2. Method

This study is a field research approach with a descriptive qualitative method, which aims to describe and analyse complex phenomena in depth. This method was chosen because it allows researchers to collect data in detail and in depth. The approach used is phenomenological, which aims

to understand the experiences of research subjects related to certain phenomena, including behavior, perception, and motivation, in the context of their language and natural environment [6].

Data were collected through interviews, observations, and documentation, with data analysis covering the stages of collection, reduction, presentation, and drawing conclusions or verification. In addition, this study utilized triangulation techniques, both in terms of method and source, to ensure the validity of the data obtained.

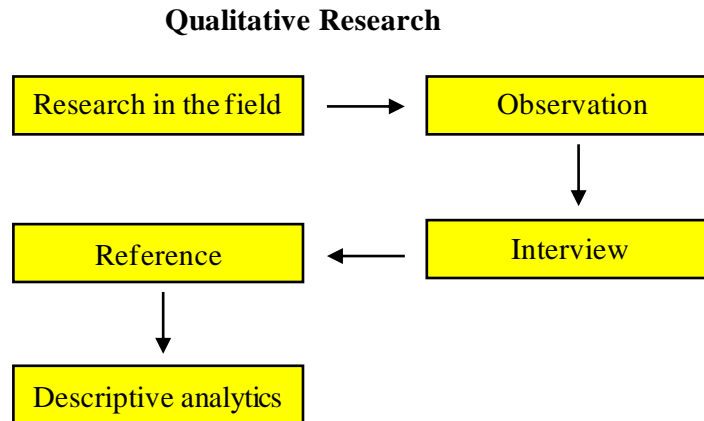


Fig.1. Flow chart image

3. Results and Discussion

3.1. Teacher Competence in Learning Assessment

Teacher competence in carrying out learning assessments is a fundamental aspect that determines the quality of education. This competency includes the ability to plan, implement and analyse assessment results comprehensively [7]. Technological developments and curriculum changes bring their own challenges, especially the digital transformation in education that requires teachers to have new skills in conducting learning assessments, including the ability to use digital platforms for assessment, analyse evaluation data electronically, and integrate various assessment methods in hybrid learning [8].

Teacher competence in learning assessment consists of three main components that are integrated with each other. First, pedagogical competence in assessment includes the ability to design valid and reliable assessment instruments, skills in applying various assessment techniques according to learning characteristics, and a deep understanding of the application of formative and summative assessments. Second, assessment technology competencies, which are increasingly crucial in the digital era, include mastery of various digital assessment platforms, the ability to analyse data using modern technology, and the skills to integrate technological tools into the learning evaluation process. Third, analytical competence, which emphasizes the ability to interpret assessment results accurately, provide constructive feedback, and understand follow-up based on evaluation results [9].

The three components are a complementary whole, reflecting the complexity and importance of the teacher's role in implementing effective and quality learning assessments. Developing teachers' competence in learning assessment requires a sustainable approach through professional development programs that include technical training on the use of assessment instruments, workshops on developing assessment rubrics, assistance in implementing authentic assessments, as well as evaluation and reflection on assessment practices [10].

3.2. Criteria for PAI Learning Assessment

In evaluating Islamic Religious Education (PAI) learning, educators need to consider various comprehensive criteria. According to Aziz and Rahman (2020), the criteria for effective PAI

assessment include several important aspects: (1) understanding of religious concepts, which assesses the understanding of basic concepts such as faith, worship and morals; (2) ability to practice worship, which measures the skill of performing compulsory and sunnah worship; (3) application of Islamic values in daily life; (4) ability to think critically in an Islamic context; and (5) communication skills in preaching [11].

Based on the results of interviews with several informants, the PAI learning assessment system is not only limited to academic knowledge, but also includes attitudes, manners and the practice of Islamic values in everyday life. To measure students' understanding comprehensively, teachers use various assessment methods, such as written and oral tests to measure cognitive abilities and practical assessments to assess applicative abilities. Formative assessments are conducted periodically to monitor students' progress continuously, while summative assessments provide a final picture of student achievement.

The PAI assessment process begins with the creation of a transparent learning contract, where the teacher conveys the learning objectives, the process that must be followed, and the assessment criteria to students. The aspects assessed include academic knowledge, attitudes and manners, respect for teachers and friends, activeness in the learning process, application of Islamic values in daily behavior, and practical skills in PAI.

PAI assessment not only focuses on numbers (such as 90 or 100) but also considers the development of students' attitudes and morals. This is in line with PAI learning, which is not only to transfer knowledge, but also to form Islamic character in students. With this comprehensive assessment approach, teachers can holistically monitor students' development, cognitive, affective, and psychomotor, according to the Islamic values taught.

There are five important elements in the assessment of PAI learning outcomes. First, assessment is a process. Second, the assessment is conducted systematically based on certain rules and principles. Third, assessment always involves decision-making activities. Fourth, assessment is an activity that determines the level of achievement of instructional goals. Fifth, good assessment criteria must be valid, reliable, objective, practical, economical and discriminatory [12].

Integration of assessment criteria with Islamic values can be done through several approaches: (1) preparing of assessment instruments that reflect Islamic values such as honesty, justice and responsibility; (2) use of examples and case studies relevant to the lives of contemporary Muslims; (3) emphasis on the applicative aspects of Islamic teachings; (4) assessment that considers the development of students' Islamic character; and (5) use of language and terminology that is in accordance with the Islamic context [13].

3.3. Teacher Competence in PAI Learning Assessment

Teacher competence in the context of PAI learning assessment can be defined as a set of knowledge, skills and attitudes that must be possessed, lived and mastered by a PAI teacher in carrying out professional duties. These competencies include understanding the principles of assessment, developing valid and reliable assessment instruments, analyzing assessment results, and using assessment results to improve the quality of PAI learning [14].

Although the education curriculum continues to change to adapt to the times, PAI teachers are still required to continue learning and adapting. Curriculum changes often give rise to new assessment methods, such as summative and formative assessments that replace previous assessment models such as practical, projects and portfolios [15].

Based on the results of interviews with several individuals, PAI teachers participate in various professional development activities to improve competence in the field of assessment. School programs such as internal workshops for all teachers and Subject Teacher Consultation Forums (MGMP) have become forums for exchanging knowledge and experience among PAI teachers. Especially for PAI teachers, there are the MGMP PAI and Muhammadiyah Teachers who regularly hold meetings every two or three months, depending on needs.

In facing developments in educational technology, PAI teachers need to understand the platforms and technologies used in the learning and assessment process. This understanding becomes the basis for determining the appropriate test model and assessment method. Thus, teacher competence in assessment includes an understanding of assessment methods and the ability to integrate technology into the learning assessment process.

In addition to these data, researchers also made observations related to the same thing, finding that PAI teachers' assessment still requires continuous strengthening. Some teachers still struggle to adapt new assessment methods and integrate technology into the learning evaluation process. Despite the availability of various professional development forums, there is still a gap between the demands of ideal competence and the reality of teachers' ability to conduct comprehensive assessments. This challenge is increasingly complex with the presence of various educational technology platforms that require teachers not only to be proficient in conventional assessment methods but also to be able to integrate digital technology.

Based on Pratiwi's research (2021), there is still a gap between teachers' understanding of the assessment criteria in the current curriculum and their implementation in the field. This shows the need for continued efforts to improve PAI teachers' understanding of the applicable assessment system. PAI teachers need to understand that assessment in the current curriculum focuses on cognitive aspects and includes affective and psychomotor aspects in a balanced manner [16].

Based on the results of interviews with several informants, in the context of assessment competency, teachers are still in the process of continuous learning. Although they have a basic understanding of assessment, they often experience confusion when implementing it in the field. To overcome this, teachers actively share experiences and knowledge with colleagues. The main challenge faced is the renewal of the assessment system. Some teachers may still use old methods, while new methods have been introduced.

This requires teachers to continue learning and adapting to change. The school has implemented several strategies to overcome gaps in understanding and implementing the new grading system. Among them, periodic evaluations are conducted every week and month to monitor teachers' understanding and performance. Regular plenary meetings and deliberations are held prior to implementation to facilitate discussion and problem-solving. The school curriculum plays an active role in organizing these activities. In addition, assessments of teachers' understanding are conducted periodically to identify areas that need strengthening. Finally, advanced training is provided for teachers who need to deepen their knowledge.

In addition to this data, the researcher also made observations related to the same thing, finding that teachers' assessment competencies are still in the continuous development stage, although they have a basic understanding, teachers still face challenges in implementation in the field. To address the gap, the school has implemented a comprehensive range of strategies that include weekly and monthly periodic evaluations, plenary sessions for discussion of the new system, the active role of the curriculum section in organizing discussions and training, conducting assessments of teachers' understanding of the assessment system, and organizing further training for teachers who need to strengthen their competencies.

The competence of PAI teachers in assessment in the digital era must also include the ability to integrate Islamic values in the digital assessment process. PAI teachers must be able to design and implement assessments that not only measure students' knowledge and skills, but also evaluate their understanding and application of Islamic values in daily life [17].

3.4. Assessment of Islamic Education Learning in the Era of Digitalisation

The digitalization era has brought significant changes in education, including in the learning assessment process. Learning assessment in the digital era not only changes the way teachers assess student progress, but also how students interact with the assessment process itself. Digitalization in learning assessment has presented various platforms and tools that allow assessment to be more dynamic and interactive [18].

Learning Management Systems (LMS), online assessment applications, and educational data analysis software have become commonplace in many educational institutions. According to research by Rahman et al. (2021), the use of technology in learning evaluation can increase time efficiency by up to 40% compared to traditional methods, allowing teachers to allocate more time to more substantive aspects of teaching [19].

Based on interviews with several interviewees, this school has adopted a digital approach in the learning process. Each classroom is equipped with a projector, and students are allowed to bring laptops (not mobile phones) for learning purposes. SMP Muhammadiyah PK Kotabarat Surakarta, in implementing Computer-Based Tests (CBT) in learning evaluation, including PAI subjects, has significantly transformed the PAI learning assessment process. The school has built a comprehensive digital infrastructure by installing projectors in every classroom and providing adequate computer laboratories, while students are given the flexibility to use personal laptops or laboratory facilities to carry out the evaluation.

To ensure smooth implementation, the school implements a proactive communication strategy with parents regarding the need for digital devices and prepares an efficient scheduling system to accommodate limited facilities, especially during exam periods such as the Mid-Semester Assessment (PTS) and Final Semester Assessment (PAS). Improving teachers' digital competencies is also a priority through annual workshops held at the beginning of the school year.

While this system offers advantages in terms of time efficiency in managing exam results and practical administration, some significant challenges still need to be overcome, such as dependence on a stable internet connection, the need to simulate new devices, the demands of student responsibility in managing the devices, and the limitations of the assessment format dominated by multiple-choice questions that may be less than optimal in measuring students' in-depth understanding.

In addition to these data, the researcher also made observations related to the same matter and found that SMP Muhammadiyah PK Kotabarat Surakarta has implemented a comprehensive digital transformation in its learning and evaluation system, including for PAI subjects. Thus, the school has made significant investments in digital infrastructure by installing projectors in every classroom, providing computer laboratories, and adopting a Computer-Based Test (CBT) system for learning evaluation.

The integration of technology in the learning assessment process has proven to have a significant impact on time efficiency. The use of technology-based evaluation methods can save up to 40% of time compared to traditional, more manual methods. This time efficiency provides wider space for PAI teachers to develop fundamental aspects of teaching, such as designing more mature learning, developing more comprehensive teaching materials, and exploring more innovative teaching strategies [20].

Based on interviews with several interviewees, integrating technology in the learning evaluation process has proven to significantly impact time efficiency. Based on the study results, the use of technology-based evaluation methods can save up to 40% of time compared to traditional, more manual methods. With the implementation of a digital-based evaluation system, the resulting efficiency has a significant transformative impact on the overall quality of the learning process. The time optimization achieved through automating the assessment process has created more space for teachers to develop fundamental aspects of teaching [21].

Educators now have greater opportunities to design more thorough and in-depth lesson plans, develop more comprehensive and contextualized teaching materials, and explore more innovative and student-centred teaching strategies. Furthermore, this time efficiency allows teachers to give more personalized attention to students who need special assistance, while opening up greater opportunities for teacher professional development through various competency improvement activities. This transformation reflects how technical efficiency in the evaluation process can have positive implications for improving the substantive quality of the teaching and learning process, thus creating a more effective educational ecosystem that is oriented towards optimal development of student potential.

One of the fundamental changes in PAI learning assessment in the digital era is the shift from summative assessment that focuses on the end results to formative assessment that emphasizes the learning process. Digital technology allows teachers to conduct continuous assessments and provide real-time feedback to students. Research by Wijaya and Sumarni (2023) showed that the application of digital-based formative assessment can increase student learning motivation by 35% and improve material understanding by 28% compared to traditional assessment methods [22].

Based on the results of interviews with several interviewees, the utilization of digital technology in PAI formative assessments has shown a significant positive impact. The application of digital media such as videos and PowerPoint presentations has increased students' concentration and engagement in the learning process. The variety of teaching methods enabled by this technology has also enriched students' learning experiences. From an assessment perspective, the utilization of digital technology allows teachers to make more in-depth observations of student progress, improving the accuracy and precision of the formative assessment process.

Increasing the effectiveness of digital assessments is very relevant to the characteristics of today's learners who belong to Generation Z. This generation grew up in the digital era and tends to be more responsive to technology-based learning methods. However, behind these benefits, learning assessment in the digital era also presents its own challenges, such as the security and privacy of learners' data. Research by Nugroho et al. (2024) revealed that 68% of educational institutions in Indonesia do not have adequate data security protocols to protect learners' information in the digital assessment process [23].

Based on interviews with several interviewees, the school has developed an innovative learning evaluation system through a hybrid approach, which intelligently combines the advantages of digital technology with conventional supervision methods. This system is designed very systematically, where each exam room using the digital platform remains under the direct supervision of a supervisor who meets certain criteria set by the school, thus creating a structured and reliable evaluation environment.

Hybrid learning lies in its flexibility, allowing exams to be administered both at school and from home, while maintaining academic integrity through virtual supervision using video conferencing platforms such as Zoom for distance learning. Interestingly, this approach reflects the school's adaptability in responding to the demands of educational modernization while maintaining the basic values of traditional education, especially in terms of academic honesty and discipline. This hybrid evaluation system demonstrates the school's commitment to integrating technology into the learning process and reflects awareness of the importance of maintaining elements of direct supervision to ensure the validity and reliability of learning evaluation results.

Another challenge in implementing digital learning assessments is the digital divide that still exists in many regions. Not all learners have equal access to a digital and stable internet connection, which can affect the validity and reliability of evaluation results. Pratama and Rosita's (2023) research shows that there are significant differences in online evaluation performance between learners in urban and rural areas, with a gap of 23% mainly caused by differences in access to technology [24].

To overcome these challenges, a comprehensive approach is needed in the implementation of PAI learning assessments in the digital era. First, the development of digital competence of PAI teachers is essential through continuous training programs to ensure educators can use technology and understand the pedagogical principles in digital assessment. Second, there needs to be clear standardize the authors declare no conflict of interest. Action and regulations regarding the use of student data in the digital assessment process, including strict security and privacy protocols. The discussion above can be seen in the following table:

Table 1. Discussion component

Aspect	Description
Teacher Competence in Learning Assessment	It consists of three main components that are integrated with each other: (1) pedagogical competence in assessment, (2) assessment technology competence, and (3) analytical competence. The three components of competence are complementary units, reflecting the complexity and importance of the teacher's role in carrying out effective and quality learning assessments.
PAI Assessment Criteria	The PAI assessment system covers various aspects: understanding of religious concepts, ability to practice worship, application of Islamic values, critical thinking ability, and communication skills. Assessment includes cognitive, affective and psychomotor aspects with various assessment methods, both formative and summative.
Teacher Competence in PAI Learning Assessment	This includes understanding assessment principles, developing valid and reliable assessment instruments, analysing assessment results, and integrating Islamic values into the digital assessment process. Competency development is carried out through professional forums, workshops and MGMP.
Islamic Education Learning Assessment in the Digital Age	Digital transformation in PAI assessment includes the use of <i>Computer-Based Tests</i> (CBT), digital platforms, and hybrid approaches that combine technology with conventional supervision. Technology increases time efficiency by 40% and formative assessment effectiveness by 35%, but also presents challenges related to data security and the digital divide.

4. Conclusion

This research reveals that Islamic Religious Education teachers' competencies in digital learning assessment are still evolving, with gaps between theory and practice. Digital transformation provides opportunities to improve the efficiency and quality of assessment, but also poses challenges such as data security and unequal access to technology. This study has not explored in depth the implementation of digital assessment in various school contexts with diverse characteristics. This is a limitation that needs to be considered when generalizing the findings.

The implications of the findings suggest the importance of professional development programs that cover pedagogical, technological and analytical aspects. Further research is recommended to test the effectiveness of digital assessment models in the affective and psychomotor domains and strengthen student data protection.

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