

Implementation of the Use of ICT Technology for Cognitive Assessment in Islamic Education Learning at the Elementary School

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Abstract

The benefits of Information and Communication Technology (ICT) have expanded significantly in the field of education, aiding in filling gaps and enhancing teacher efficiency in the teaching and learning process to achieve educational goals. The utilization of ICT by educational institutions, particularly teachers, encompasses various aspects, one of which is facilitating the assessment or evaluation of students' cognitive domains. This study focuses on the utilization of ICT as an instrument in assessing the cognitive domains of students in Islamic Religious Education (PAI) classes. The research methodology employed is field research with a qualitative approach. In conducting qualitative analysis, this study utilizes a taxonomy-based analysis model that focuses on the domain and a single common characteristic. The model analyzes interview results with respondents, along with observations and field documentation. Data collection techniques involve interviews, observations, and documentation. The research findings indicate that PAI teachers at SD Negeri 01 Windurojo have implemented three cognitive domain assessment techniques during online learning, namely written tests, oral tests, and assignments. In their assessment processes, teachers make use of various ICT platforms such as Google Form, WhatsApp, and Google Meet.

Keywords: *ICT, Assessment Techniques, Cognitive Domain*

Abstrak

Manfaat Teknologi Informasi dan Komunikasi (TIK) saat ini telah tersebar luas di bidang pendidikan, membantu mengisi dan meningkatkan efisiensi guru dalam kegiatan pembelajaran untuk mencapai tujuan pembelajaran. Pemanfaatan TIK oleh lembaga pendidikan, khususnya guru, mencakup berbagai hal, salah satunya adalah mempermudah proses asesmen atau penilaian ranah kognitif peserta didik. Fokus penelitian ini adalah pemanfaatan TIK sebagai alat penilaian ranah kognitif peserta didik dalam pembelajaran Pendidikan Agama Islam (PAI). Metode penelitian ini adalah penelitian lapangan (*field research*) dengan pendekatan kualitatif. Dalam melakukan analisis kualitatif, penelitian ini menggunakan model analisis taksonomi yang berfokus pada domain dan satu karakteristik yang sama. Model ini menganalisis hasil wawancara dengan narasumber serta hasil observasi dan dokumentasi di lapangan. Teknik pengumpulan data melibatkan wawancara, observasi, dan dokumentasi. Hasil penelitian menunjukkan bahwa guru mata pelajaran PAI di SD Negeri 01 Windurojo telah mengimplementasikan tiga teknik penilaian ranah kognitif selama pembelajaran daring, yaitu tes tertulis, tes lisan, dan penugasan. Dalam proses penilaiannya, guru menggunakan beberapa platform TIK seperti Google Form, WhatsApp, dan Google Meet.

Kata Kunci: TIK, Teknik Penilaian, Ranah Kognitif

INTRODUCTION

The central component crucial for effective learning is the evaluation or assessment of the learning process. This is a pivotal aspect in the discourse of teaching and learning activities. Teaching

and learning involve various elements such as objectives, materials, methods, tools, and the process of assessment. A focal point of our discussion will be the assessment aspect. Learning assessment is an endeavor aimed at gauging the extent to which predetermined objectives can be accomplished, utilizing a tool to measure students' success in the learning process (Sudjana, 1995: 22). Educational evaluation is a process or undertaking designed to ascertain the progress of education in alignment with predetermined goals. It also serves as an effort to acquire feedback for the enhancement of the educational system (Sudijono, 1996: 2).

The benefits of Information and Communication Technology (ICT) have permeated the field of education, evolving over time to assist and enhance the effectiveness of teachers in the teaching and learning process, ultimately striving to achieve learning objectives. The presence of technology can create a more conducive learning environment, preventing the teaching and learning process from becoming monotonous (Maruti and Kusumawati, 2018: 190). Teachers, in particular, harness this technology for assessment processes (Hambali Alman Nasution and Nasution, 2020: 107). Technology-based assessment instruments are even being developed to simplify educators' task of evaluating students' learning achievements (Munazar and Qomarudin, 2021: 37). Pangesti and Sufanti (2020) further emphasize that in the current era of rapid ICT development, utilizing technology in the implementation of learning assessments greatly facilitates teachers, especially in online learning environments (Pangesti and Sufanti, 2020: 74).

The utilization of technology serves as an alternative to enhance the quality of education in schools. Regardless of this, technology plays a crucial role for educators in optimizing the learning process. One aspect of technology utilization frequently employed by teachers is in the assessment process (Maruti and Kusumawati, 2018: 191). Assessment is a vital component of the curriculum, serving as a planning tool for activities. In education, assessment is not only a means to gather information and assess educational achievements but is also interconnected with other components. Evaluation, among other components, can be examined because the evaluation arena involves various elements (Sudaryono, 2012: 35–36). Through assessment, we can evaluate a learning process. Therefore, the development of assessment techniques is necessary to determine the effectiveness of the methods used and the success of the material conveyed. Consequently, assessment is valuable for improving the teaching and learning process (Setemen, Dewi, and Purnamawan, 2019: 55). This, in turn, can influence the development of technology-based knowledge assessment techniques and instruments.

This research will focus on the utilization of Information and Communication Technology (ICT) as an instrument in assessing the cognitive domain of students in the context of Islamic Religious Education (PAI) learning. Based on the literature review, several studies have discussed the use of technology in assessing cognitive learning, including a study by (Hambali Alman Nasution and

Nasution 2020), which reveals that technology-based assessment in the educational context is a process conducted by educators to monitor the performance of students during the learning process, involving media such as computers, LCDs, smartphones, and the like, to optimize the efficiency of assessing learning outcomes.

Similarities between this study and previous research lie in the focus on the use of technology as a tool to assess the cognitive learning outcomes of students. However, differences include the research method employed, with the previous study using a literature review method, while this research adopts a qualitative approach. Additionally, a substantial difference lies in the level of findings; the previous study only reached the level of identifying the technological devices used in assessing learning outcomes, whereas this study explores how the assessment process is conducted through various digital applications currently in development, such as e-learning, WhatsApp, and others.

Additionally, a study conducted by Munazar and Qomarudin in 2021 highlights that effective assessment techniques include both testing and non-testing methods, incorporating multiple-choice questions, oral assessments, and assignments. They suggest various digital applications for educators, such as e-portfolios, a question bank for home learning, digital rubrics, exam view, and alternative digital assessment tools. Similar to the previous research, the differences lie in the chosen research methodology, with Munazar and Qomarudin opting for a literature review, whereas this study employs a qualitative approach. Another distinction is that Munazar and Qomarudin primarily focus on presenting digital tools for assessing students' learning outcomes, whereas this research directly investigates the process of assessing students' cognitive learning outcomes using various digital applications like e-learning, WhatsApp, and similar platforms.

In the context of Islamic Religious Education, according to Zakiyah Daradjat as cited by Gunawan, the objective is for students to consistently grasp the entirety (*kaffah*) of Islamic teachings. They are encouraged to internalize these teachings so that, at the culmination, students can practice and adopt Islam as a way of life (Sugiana, 2019: 21). Assessing or evaluating the cognitive domain is therefore crucial to gauge students' success in comprehending the received Islamic Education (PAI) material. Consequently, this article will delve into the application of Information and Communication Technology (ICT) in assessing the cognitive domain during the teaching of Islamic Religious Education in elementary schools.

RESEARCH METHODS

This study is a field research employing a qualitative approach. The researcher's role in this study is that of a non-participating observer with the research subject. The research is conducted at SD

Negeri 01 Windurojo. It utilizes qualitative analysis, employing a taxonomy-based analysis model focusing on the domain and a singular shared characteristic (Sugiyono, 2015: 78). This model analyzes interview results from informants along with observations and field documentation.

The data collection methods utilized in this research comprise interviews, observations, and documentation. The interviewees consist of PAI teachers at SD Negeri 01 Windurojo responsible for teaching PAI to students in grades 1-6. Observations focus on assessing the condition of the learning evaluation media used by teachers during the assessment process. This type of observation is known as non-participant observation, where the researcher is an independent observer and not actively involved in the informant's life. Documentation involves scrutinizing relevant documents related to learning evaluation media, teachers' learning outcomes, evaluation materials, and so on.

RESULT AND DISCUSSION

Implementation of Information and Communication Technology for Cognitive Domain Assessment in Islamic Religious Education at SD Negeri 01 Windurojo

The subject of Islamic Religious Education (PAI) stands out due to its unique characteristics compared to other subjects. Its primary feature is the incorporation of Divine values as fundamental principles in the learning process. These principles are then categorized into the '*aqliyah* (cognitive), *qalbiyah* (affective), and '*amaliyah* (psychomotor) domains (Hidayat and Asyafah, 2019: 172). Evaluation in the context of PAI covers planning, development, monitoring, efficiency, and overall program assessment. In terms of assessment techniques, a combination of test and non-test methods is employed. Test techniques are used to gauge the quality of students' understanding ('*aqliyah* or cognitive). On the other hand, non-test techniques are effective in assessing '*amaliyah* and *qalbiyah* competencies, especially since these domains are challenging to evaluate through written tests (S. Arifin, Abidin, and Anshori, 2021: 72).

The use of Information and Communication Technology (ICT) in assessment tools is increasingly prevalent, especially in online learning, which became necessary for a period to prevent the spread of the COVID-19 virus. Various applications are easily accessible through Android devices (Santoso, 2019: 289), such as Google Forms, Google Classroom, e-learning platforms, and even through WhatsApp.

Based on interviews with Islamic Religious Education (PAI) teachers at SD Negeri 01 Windurojo regarding the utilization of information and communication technology as an assessment tool for the cognitive domain in PAI during online learning, the following results were obtained:

Written Test

A written test is an evaluation where both the questions and answers are presented in a written format. Teachers commonly use this form of assessment to gauge students' academic progress. In its

execution, Arifin categorizes written test instruments into two types. Firstly, subjective formats, where the implementation is often influenced by the teacher's personal judgment. These tests typically involve essay questions, requiring students to elaborate, organize, and articulate their responses using their own words, employing different forms, techniques, and styles (Z. Arifin, 2016: 125). Secondly, objective formats, as the answer key for these tests is clear and precise, ensuring consistent results regardless of who grades or reviews the answers. Examples of objective test formats include multiple-choice, fill-in-the-blank, true-false, and matching questions (Z. Arifin, 2016: 135). Regarding their purpose, written tests are further categorized into two types: measuring lower-level cognitive abilities (knowledge, understanding, and application) and higher-level cognitive abilities (analysis, synthesis, evaluation, along with elements of imagination and creativity) (Ismanto, 2014: 220).

The assessment method utilizing written tests at SD Negeri 01 Windurojo is exclusively based on multiple-choice formats. Multiple-choice tests are selected for mid-semester assessments (PTS) and final semester exams (UAS). Google Forms is the chosen test medium during online learning. Google Forms, a part of Google Docs, is used for event planning, surveys, quizzes, or efficient information collection. This service is particularly suitable for educators, students, or office employees accustomed to creating online quizzes, forms, and surveys (Mulatsih, 2020: 19). In the educational context, Google Forms can serve various purposes, including assigning online tasks, exercises, or quizzes through websites; collecting opinions from others via websites; gathering various data from students or teachers via websites; creating online school registration forms; and distributing questionnaires to many people online (Batubara, 2016: 41).

According to interviews with the informants, Google Forms are exclusively used for learning evaluations in grades 3 through 6. The choice of assessment techniques and media at SD Negeri 01 Windurojo is determined through deliberations by the Teacher Working Group (KKG), with members being PAI teachers in the Kesesi District of Pekalongan Regency.

The second medium used for assessing learning outcomes at SD Negeri 01 Windurojo is WhatsApp. WhatsApp is employed for assessments in grades 1 and 2. According to Khusaini et al. (2017: 5–6), the use of WhatsApp in the assessment process has advantages such as effective access to test materials for participants, with the flexibility to be done anytime and anywhere. Furthermore, WhatsApp can be utilized for peer assessment directly, instantly, and without significant delays. According to the informant, WhatsApp is chosen to facilitate students in accessing assessment materials due to its user-friendly nature, even for children.

Oral Test

Oral skills, or speaking skills, are crucial aspects for students to master in language proficiency. By

acquiring speaking skills, students can express their thoughts, feelings, ideas, and creativity intelligently and promptly within the context of various situations. Additionally, speaking skills contribute to shaping students into communicative, creative, critical, and culturally aware individuals (Nugraheni, 2012: 78). One effort taken to assess students' competencies in speaking skills is through oral tests.

An oral test is employed to measure the level of competency achievement, primarily in cognitive knowledge, where the teacher poses questions directly to the students verbally, and students respond verbally as well. This test is conducted during ongoing teaching and learning activities. Assessment through oral tests can be carried out through discussions, Q&A sessions, and conversations. Student responses may include words, phrases, sentences, or paragraphs. The goal of this test is to enhance students' ability to express opinions, evaluate knowledge as an assessment tool, boost self-confidence, and develop effective communication skills (Latip, 2018: 109).

The assessment through oral tests in the PAI (Islamic Education) learning at SD Negeri 01 Windurojo is conducted through interactive questions between teachers and students during online classes using Google Meet. Google Meet is a video conferencing application developed by Google, enabling users to conduct meetings, training sessions, interviews, and even virtual learning, among other uses. This platform is accessible through web, Android, and iOS applications and features a unique and functional interface with a lightweight, fast, and efficient design, making it user-friendly (Juniartini and Rasna, 2020: 134–35).

Additionally, for memorization tasks of short surahs (chapters) during online learning, oral tests are replaced by submitting memorization videos without direct face-to-face interaction with the teacher. Although this type of assessment is considered less effective in measuring students' memorization achievements in online learning because teachers cannot closely monitor whether students have completed the memorization tasks properly (Diasti, 2021: 160), it is still considered essential to enhance students' knowledge and skills.

Meanwhile, to assess students' speaking abilities, tasks are given, such as creating videos to read specific information or performing certain practices that allow students to utilize and enhance their speaking skills.

Assignment or Project

Assignment is the giving of tasks to students to measure and/or provide opportunities for students to acquire or improve knowledge (Latip, 2018: 110). Assignments take the form of assessments such as homework or projects done individually or in groups according to the characteristics of the task. The purpose of project assessment is to deepen the mastery of knowledge competencies that have been learned or mastered in the classroom through the learning process (Kunandar, 2015: 231). Thus,

assignments are given after students go through the learning process in the classroom (assessment of learning), which can be done at school, at home, or elsewhere outside of school.

In assigning tasks to students at SD Negeri 01 Windurojo, the PAI (Islamic Education) teacher uses multiple-choice and essay questions. This choice is made to complement the fact that only multiple-choice questions are used in mid-semester and final exams. The aspects assessed by teachers in assignment evaluation include the accuracy of students' answers to the given questions. Additionally, the teacher considers the speed of task submission by students and the punctuality of submission. In essence, the faster the task is submitted, the higher the value added by the teacher. On the other hand, if it exceeds or is late beyond the specified time, it will reduce the student's assignment grade. The media used by teachers in the assessment activities through assignments is by utilizing Google Forms and WhatsApp applications.

During the implementation of ICT (Information and Communication Technology) in the cognitive domain assessment in Islamic Education learning at SD Negeri 01 Windurojo, Mr. DI, the PAI teacher at the school, shared some aspects related to the advantages he experienced. These include the unrestricted nature of teachers by space and time, meaning that the assignment submission or receipt can be done anytime and anywhere because the necessary assessment components can be accessed through an Android smartphone or laptop.

As for the disadvantages or challenges experienced, one of them is that because tests or assignments are presented only in written form, students may not fully understand, requiring them to ask the teacher for clarification. Therefore, the role of parents is crucial in situations like this to always accompany and assist their children in completing assignments. Another issue, and a fundamental one, is that if there is a problem with internet connectivity, it will hinder the process of assessment or learning evaluation.

CONCLUSION

The PAI teacher at SD Negeri 01 Windurojo employs various cognitive domain assessment techniques while implementing information and communication technology (ICT). In general, three cognitive domain assessment methods—written tests, oral tests, and assignments—are implemented. For the assessment of cognitive abilities through written tests, the teacher utilizes multiple-choice assessments, employing platforms such as Google Forms and WhatsApp. Oral tests during online learning involve interactive question-and-answer sessions via Google Meet. Additionally, the evaluation of students' memorization skills, more effective in face-to-face settings, is replaced by the submission of videos. The PAI teacher assigns descriptive tasks to students using WhatsApp, and the submission of these assignments is also facilitated through the same platform.

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