



Investigating Islamic Religious Education Learning Through Technology-Based Interactive Quizzes at SDN Rondokuning

Zaenol Fajri¹, Oktavia Safitri²

^{1, 2} Faculty of Islamic Studies, Nurul Jadid University, Probolinggo, Indonesia

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ABSTRACT

Purpose of the study: This study looks at how students' motivation, engagement, and comprehension of religious concepts are affected when technology-based interactive tests are used. The study analysed the Islamic Religious Education (PAI) learning experiences of sixth-grade pupils using interactive Wordwall-based tests as a cutting-edge teaching method. The problem of low student engagement and excitement for PAI learning was addressed with this strategy.

Methodology: The study, which was carried out at SDN Rondokuning, Probolinggo, used an exploratory qualitative design. Data were gathered through direct classroom observations, in-depth interviews with educators and learners, and recording educational activities and test results. Thematic analysis was employed to find essential trends in the students' experiences. Triangulation procedures were used to guarantee the data's validity and reliability.

Main Findings: The findings demonstrated that interactive tests considerably raised student interest, comprehension of religious content, and involvement. Average quiz scores rose by 15%, learner satisfaction improved, and participation rates rose from 60% to 90%. Students also showed improved social interaction, teamwork, and the incorporation of Islamic principles into their everyday lives. Effective school management can reduce technical limitations like erratic internet connectivity.

Novelty/Originality of this study: This study is distinctive because it used an exploratory qualitative methodology to examine Islamic Religious Education (PAI) instruction at the elementary school level, accounting for cognitive development and emotional, social, and spiritual factors. This study goes beyond just concentrating on learning objectives to reveal students' opinions and experiences with interactive tests, showing how technology may be included in PAI to improve understanding and foster character.

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Corresponding Author:

Zaenol Fajri,
Faculty of Islamic Studies, Nurul Jadid University,
Jalan Paiton 1 67291 Probolinggo, Indonesia
Email: lfajri002@gmail.com

1. INTRODUCTION

One of the main pillars of a country's development is education. How to successfully and pertinently educate the younger generation is one of the major educational difficulties in the age of globalization fueled by technology breakthroughs [1], [2]. Islamic Religious Education is one course that is essential in forming students' values and character [3], [4]. Islamic Religious Education (PAI) teaching methods have changed significantly in tandem with technological improvements, moving from traditional to more dynamic and participatory approaches

[5], [6]. Interactive, technology-based quizzes are one educational innovation that is starting to be used; these are thought to improve student engagement and comprehension of the subject matter [7]-[9].

However, there are frequently issues with the Islamic Religious Education (PAI) learning process, especially when it comes to techniques and the usage of educational materials. Low student involvement in learning is a result of certain institutions' continued reliance on traditional teaching methods and video viewing [10], [11]. Students fail to fully comprehend the subject and become bored due to the absence of innovation in learning technologies [12], [13]. This has led to a lack of student engagement in the learning process, a diminished comprehension of Islamic values, and a decline in learning motivation [14], [15]. A technology-based interactive quiz is one approach that is presently being developed with the goal of motivating students to take an active role in their education and enhance their comprehension of PAI content. Due to its online accessibility and engaging character, this quiz is thought to be beneficial in raising learning motivation [16]-[18].

In order to measure student experiences, this study examines Islamic Religious Education (PAI) learning through interactive, technology-based tests [19]-[21]. As opposed to earlier research [22]-[24], which concentrated more on the use of digital quiz technology in general learning or engineering and university settings, this study focuses on the context of Islamic Religious Education (PAI) subjects at the elementary level. Additionally, contrary to other research that has focused on merely assessing effectiveness or enhancing learning outcomes, the methodology employed in this study is exploratory of student experiences [25]-[27].

In the meantime, this study is distinct from studies conducted by [28], [29]. Using more complex media than more straightforward and reasonably priced technology-based interactive tests, Asril et al, investigated the application of virtual reality in Islamic religious education. However, Rafsanjani et al, did not investigate the use of quizzes for evaluation in Islamic religious education; instead, they concentrated more on digital interactive approaches in Islamic learning [30]-[33]. In order to understand the meanings, perceptions, and dynamics of students' experiences using interactive quizzes in the context of Islamic religious education learning—an area that has not been thoroughly examined in prior literature—this study offers a novel contribution using an exploratory qualitative approach..

According to earlier research, digital learning platforms like Quizizz and other interactive apps can boost motivation, engagement, and achievement in Islamic Religious Education (IRE) classes [25], [34], as well as help teachers become more competent and support the digital transformation of education [35]. Additionally, studies have looked at using digital technologies to improve student comprehension and engagement [36], [37], and even looked into creative ways to teach science via interactive movies [38]. However, little attention has been paid to investigating students' firsthand experiences and perceptions when participating in interactive quiz-based learning in IRE classrooms; instead, these studies have mostly concentrated on general effectiveness, teacher competency, or the theoretical integration of digital media in learning. Specifically, there is currently a dearth of empirical research investigating the ways in which interactive platforms affect primary school pupils' motivation, zeal, and comprehension of religious concepts.

In addition to highlighting the significance of digital transformation and teacher proficiency with technology to support educational quality [26], [35], a number of earlier studies have shown the efficacy of interactive digital media, such as Quizizz, in enhancing Islamic Religious Education (PAI) learning achievement [25], [34]. Additional research has also emphasized the use of digital media in Islamic Religious Education (PAI) instruction, which has been shown to boost student engagement [36], [37], and interactive scientific learning innovations that can inspire students [38]. Nonetheless, the majority of this research concentrates on quantitative elements of teacher preparedness, technology efficacy, or the overall adoption of digitalization. There is currently a dearth of research on kids' firsthand experiences using interactive tests to comprehend religious principles, especially at the primary school level. Prior research has mostly overlooked the emotional, value, and religious aspects of students' reactions to learning technology.

By employing an exploratory qualitative methodology to investigate sixth-grade elementary school students' experiences with interactive quiz-based Islamic Religious Education (PAI) learning, this study adds something new. This focus is different from earlier studies that mostly used quantitative or experimental methods to determine effectiveness. This study primarily investigates how students use digital quizzes to evaluate their learning experiences, leading to a better contextual understanding on a psychological, emotional, and spiritual level. The problem of low student enthusiasm and involvement in Islamic Religious Education learning is what makes this research so urgent. This research offers a tangible contribution to the development of Islamic Religious Education learning strategies that are more contextual, adaptive, and pertinent to the needs of the digital generation by providing empirical evidence that interactive quizzes can be an enjoyable medium while also fostering students' religious character [39], [40].

2. RESEARCH METHOD

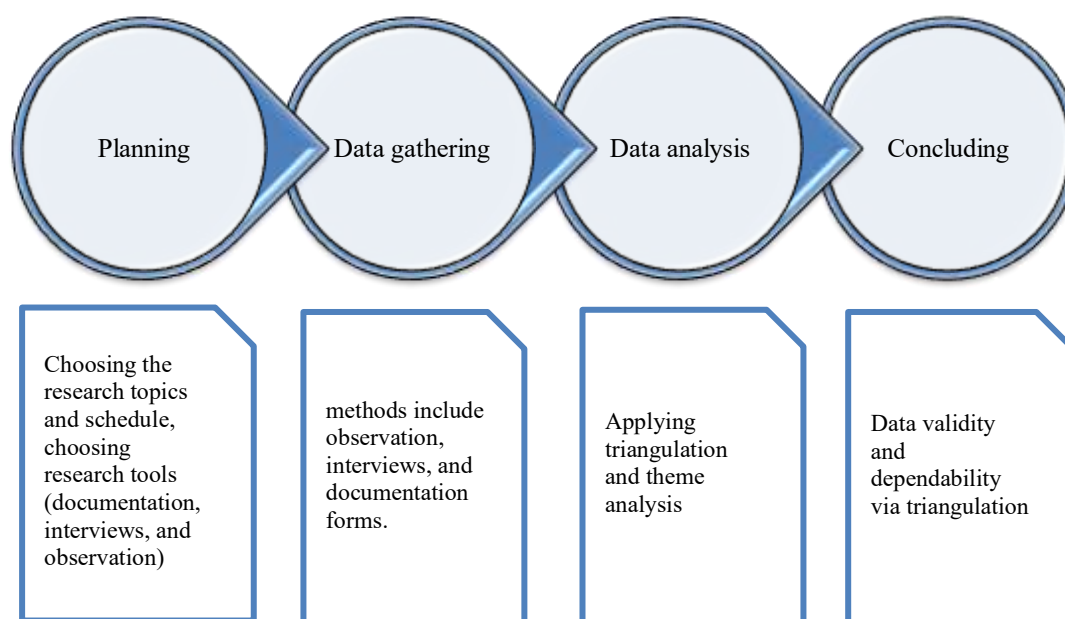


Figure 1. The flow of research

This kind of study employs an exploratory qualitative design[41], [42] which is a qualitative research design that is open-ended, in-depth, and adaptable, and is intended to examine phenomena, events, or experiences that have not been thoroughly studied. This design's main objective is to investigate and comprehend the meanings, viewpoints, and experiences of the research participants without being constrained by strict hypotheses. This study was carried out in several methodical steps to gather precise and pertinent data[43]. The selection of research subjects, who were sixth-grade children participating in Islamic Religious Education (ISE) classes, and the choice of the research site, SDN Rondokuning Probolinggo, marked the start of the planning stage. Semi-structured interview guides, documentation formats, and observation sheets were among the study tools utilized. Additionally, the study was planned for several weeks during Islamic Religious Education (ISE) lessons to minimize disruptions to the students' studying schedules.

Researchers used three primary methods to collect data on students' experiences with technology-based interactive quizzes (Wordwall): in-depth interviews with Islamic Religious Education (ISE) teachers and students who were actively involved in ISE learning and had taken interactive quizzes; and direct classroom observation to gauge student interaction and engagement[34]. To better understand their perceptions and perceived meanings, these interviews were conducted. Learning resources, quiz scores, and other supporting paperwork were also gathered to enhance the research data.

Key themes that emerged from the observations, interviews, and documentation were then identified by applying thematic analysis methodologies to the collected data. A thorough investigation was carried out to find trends in students' experiences with motivation, comprehension, and reactions to interactive quizzes. Triangulation of sources and methods was used to compare data from diverse topics and information collection procedures to guarantee data accuracy.

In the final step of making conclusions, researchers synthesized the results based on the themes examined. They deduced the significance of students' experiences learning Islamic Religious Education through interactive, technology-based tests. Triangulation preserved the quality and dependability of the data, guaranteeing that the conclusions were impartial and supported by science. Careful consideration was given to the pupils' backgrounds and social circumstances while concluding.

3. RESULTS AND DISCUSSION

3.1 Findings from the Interview

The implementation of technology-based interactive tests (Wordwalls) had a major impact on the learning environment and experience of Islamic Religious Education, according to in-depth interviews conducted with sixth-grade students at Rondokuning Elementary School. According to the pupils, the quiz approach increased the challenge and enjoyment of learning. Because the tests were presented as digital games that allowed students to compete with other groups healthily, they found it engaging. They were inspired to actively participate in the learning process and listen to the content through the quizzes' interactive and visual components (Wordwalls).

Additionally, the students stated that they could better comprehend the Islamic Religious Education content when the questions were framed in terms of daily life. One student provided an example, saying she felt better understood and could recall these principles when a question addressed the significance of respecting parents through a case study at home. Islamic ideals became tangible and integrated into their everyday lives due to the quizzes' assistance in helping them relate religious ideas to practical applications.

Additionally, the interviews focused on the pupils' spiritual and emotive experiences. Many students reported that post-test reflections, which included open-ended questions about attitudes and wisdom, made them reevaluate their everyday conduct, including helpfulness, politeness, and honesty. They admitted that this method of instruction assisted them in experiencing the information on an emotional and spiritual level, in addition to helping them retain it.

Additionally, interviews revealed a rise in students' internal and extrinsic motivation to learn. Most students felt content after passing a quiz, even in the face of figurative incentives like digital badges or instructor recognition. Without waiting for a material reward, the sense of pleasure in their achievement inspired them to work harder in their studies. This implies that the quiz approach promoted greater motivation for learning.

Students did, however, also mention significant technological difficulties, namely erratic internet connectivity. Slow device response caused some groups to be delayed in responding to inquiries. In spite of this, the school has attempted to set up a backup network and plan quiz times for when the signal is somewhat steady. Students conveyed gratitude for these endeavors and voiced the expectation that further technological advancements will facilitate more seamless learning.

3.2 Observation Results

Classroom observations showed that Islamic Religious Education (PAI) learning sessions using interactive quizzes (Wordwall) created a lively and participatory learning atmosphere. Almost all students actively participated in the quizzes, evident in their eagerness to come forward and attentiveness to the teacher's instructions. Their enthusiasm was evident in their cheerful facial expressions and eagerness to answer each question displayed on the screen.

The PAI teacher acted as a facilitator, actively interacting with students. She praised groups that answered correctly and continued to motivate groups that failed. The classroom atmosphere was inclusive and supportive, as the teacher encouraged mutual respect, avoided embarrassing groups that failed to answer, and emphasized the spirit of collaborative learning. This created a safe and enjoyable learning environment.

The observations also strongly captured students' emotional responses. Students applauded and smiled at the high-scoring groups when the quiz scores appeared on the projector. They also frequently encouraged other groups whose scores were not optimal. This demonstrates that quiz-based learning builds cognitive aspects and fosters social values such as mutual support and empathy.

Although the quizzes were administered in groups, researchers observed spontaneous discussions and collaboration to answer the questions on the screen. Students were seen asking and explaining questions to each other, and some even provided reasons why one answer was more correct than another. This collaboration indicates high student curiosity and enthusiasm for collective learning.

Time efficiency was also a positive highlight. A 15-minute quiz session, followed by a 15-minute reflection period, proved more efficient than a 30-minute lecture. The transition from material presentation to the Wordwall quiz was smooth. Students experienced no confusion and immediately grasped the flow of the activity. This indicates that using quizzes has become a familiar and structured part of the students' learning routine.

3.3 Documentation Results

The documentation results focused on Islamic Religious Education (PAI) learning materials through technology-based interactive quizzes implemented at SDN Rondokuning Probolinggo. The documentation obtained included various forms of data, including the learning tools used during the quiz sessions, student quiz results, and progress reports on the activity. In addition, images and screenshots show student interactions with the technology used in the quizzes. This documentation provides a concrete picture of how quiz technology facilitates the learning process, including student motivation, the quality of material understanding, and the social relationships formed during the learning process. By relying on this documentation, we can see how technology

helps deliver Islamic Religious Education (PAI) material more engagingly and interactively, and how students react to implementing this new method.

The following table shows the documentation results related to the level of student participation and material understanding after using the technology-based interactive quizzes. This data includes the average student scores on the quizzes before and after the technology implementation and the number of students who actively participated in the activity.

Table 1. Documentation Results: Level of Student Participation and Material Understanding

Learning Aspects	Before Interactive Quiz	After Interactive Quiz	Modification (%)
Average Quiz Score	70	85	15%
Number of Actively Participating Students	60%	90%	30%
Student Contentment (Scale 1–5)	3.5	4.5	+1.0
Group Discussion (Frequency)	2 times per session	3 times in a session	+1 time

This table illustrates how interactive tests have had a major impact on several learning domains. Following a more dynamic learning experience, students were able to master the content more effectively, as seen by the 15% improvement in average quiz scores. Additionally, there was a noticeable rise in student satisfaction and participation, which is compelling proof that the interactive quizzes (Wordwall) promoted their active involvement in Islamic Religious Education (PAI) instruction.

The data presented in the table clearly shows that using interactive quizzes based on technology has significantly improved many learning-related areas. First, the rise in average scores suggests that students' comprehension of the subject matter has enhanced due to the quiz technology. This is because interactive tests allow students to study the content more entertainingly and memorably. Second, the large number of students who actively participated following the technology's introduction suggests that the technology successfully grabbed students' interest and increased their motivation to learn. Last, the rise in group discussions indicates that the interactive tests promoted student collaboration and communication, fostering a more supportive and cooperative learning environment.

A detailed examination of shifts in student behavior and learning preferences can also be found in teacher reflection notes. Teachers saw that children were more interested in the introspective questions, especially those that dealt with values like responsibility, honesty, and tolerance. Teachers found that using quizzes with written or spoken responses allowed students to better grasp religious beliefs rather than just the "right answers."

It is possible to interpret the data patterns found in the teacher reflection notes and student involvement rate table as proof that interactive quiz technology, such as WordPress, has great potential to boost student interest in Islamic Religious Education (PAI) courses. The notable rise in quiz scores suggests that the tests were successful in helping students comprehend and remember the subject matter, in addition to grabbing their attention. Increased participation in group discussions implies that the technology-based method enabled more intense student contact, crucial for reiterating religious ideas in a communal and social setting. Constructivist learning theory, which highlights the value of social connections and active learning experiences in fostering deeper understanding, can be used to explain this accomplishment. As a result, using this quiz technology enhanced students' learning of Islamic Religious Education in cognitive, affective, and social domains.

Increased student involvement was found in studies on Islamic Religious Education (PAI) learning in sixth-grade classes at Rondokuning Elementary School (SDN Rondokuning) that used technology-based interactive quizzes. Students eagerly responded to quizzes on the Wordwall platform, which was shown on the classroom screen during the learning process. When practically every kid enthusiastically stepped up to engage, the classroom environment became more lively. This result is consistent with research showing that using technology in the classroom can boost student involvement and speed up knowledge [44], [45]. Additionally, interactive tests foster a joyful learning atmosphere and pique students' interest [46], [47]. Technology has therefore been shown to be a useful instrument for raising engagement in Islamic Religious Education (PAI) instruction.

The use of digital tests to help students comprehend religious content is supported by research [48]-[50]. Students are more engaged and learn the material more rapidly when quizzes are based on real-world scenarios. Students in this study also enjoyed the learning process better and participated more actively in group discussions. Students' emotive experiences are improved, and cognitive features are supported when learning is interactive. This supports research showing that students who participate in interactive quiz discussions can improve their reflection on Islamic teachings [51], [52]. It has been demonstrated that incorporating technology into Islamic Religious Education (PAI) promotes increased social and emotional engagement. This proves that the advantages of digital interaction go beyond only comprehending theory; in Islamic Religious Education (PAI) study, quizzes also help students grow as individuals and as spiritual beings. Digital quiz techniques have improved

comprehension of religious beliefs and recollection of the content [29], [53]. After completing exams that linked the content to real-world situations, a few of the pupils in this study even claimed to feel more in line with Islamic beliefs. Reflections from students demonstrate that they internalize the meaning of religious teachings in addition to learning theory. This illustrates how pupils' spiritual qualities can be strengthened through technology.

Additionally, quizzes facilitate the more engaging instillation of religious ideals. When used properly, technology can enhance religious education's emotive component. However, the findings of these studies run counter to the claims made by [54], [55] that pupils start concentrating more on electronics than face-to-face interaction. Observations, however, reveal that students interact more, especially while working in groups and supporting one another during tests. Technology is a supplementary tool that improves teamwork rather than replacing communication. In order to maintain vibrant interactions in the classroom, teachers often actively facilitate learning. This illustrates how, when used properly, technology does not necessarily sabotage interpersonal relationships. It can foster a respectful and cooperative learning environment within the Islamic Religious Education (PAI) framework.

Additionally, some students encountered technical difficulties, like internet access; nonetheless, the school prepared for these issues by postponing classes and offering a backup network. This finding contrasts with studies that found technology increases the gap between students in urban and rural areas [56], [57]. Effective technical management can handle these challenges in practice at SDN Rondokuning. As a result, technology availability does not significantly affect the quality of learning. Negative effects can be reduced despite obstacles. This illustrates how crucial mitigation techniques and infrastructure preparedness are when integrating educational technologies. Technology can continue to be inclusive if certain actions are taken.

In contrast, our study did not support worries that pupils' respect for instructors will be eroded by technology [58], [59]. According to this study, kids' attention to technology may cause them to become less emotionally connected to their teachers. Nonetheless, the instructor plays a vital role in this classroom by offering direction, awarding pupils, and maintaining social norms. Teachers use technology to improve relationships with students and to improve communication. Instead of undermining the teacher's function, quizzes help to foster a friendly and courteous learning environment. From a humanistic perspective, technology can strengthen relationships rather than vice versa. As a result, the teacher's active position as the student's principal companion continues to be essential to learning achievement.

Additionally, the study's conclusions offer significant contextual support for learning management in Islamic institutions. In addition to raising student enthusiasm and engagement, the use of technology-based interactive tests also provides Islamic educational institutions with a reproducible innovation model for technology-based classroom management. By setting up digital infrastructure, educating teachers, and creating curricula that are up to date with technology, Islamic schools can implement comparable tactics. Therefore, without sacrificing the religious principles that form the foundation of Islamic education, the study's findings demonstrate that technology-based learning innovations can play a significant role in contemporary Islamic school administration.

However, it should be highlighted that this study has a number of drawbacks. First, the results' generalizability was limited because the study was limited to a single sixth-grade class at SDN Rondokuning. Second, the study did not longitudinally evaluate the effect of technology on long-term learning outcomes; instead concentrated on student involvement and experience. Third, there are still external factors that can affect learning results, such as technical limitations like internet connections. It is therefore advised that more research be done to include more schools—including Islamic institutions in underdeveloped areas—and to look more closely at the long-term effects of technology on students' spiritual and cognitive development.

4. CONCLUSION

This study demonstrates that implementing interactive, technology-based tests in Islamic Religious Education (PAI) instruction at SDN Rondokuning significantly improves student comprehension and participation. Students are more motivated to participate actively, the learning atmosphere is more entertaining, and the comprehension of religious content is facilitated when quizzes are presented as digital games. Students' social and emotional skills, including teamwork, respect for one another, and reflection on Islamic values in daily life, are also strengthened by this quiz-based learning. Even while internet connectivity has certain technical limitations, these effects can be lessened by school management initiatives.

Based on these results, it is advised that Indonesian schools, particularly those with poor access to technology, consider using interactive tests based on technology as a substitute to raise the standard of instruction. Educators must receive training to make the most of technology in religious education, including in promoting spiritual contemplation and enhancing students' moral fiber. Better infrastructure, such as a reliable internet connection, is also essential to guaranteeing that technology is used for education. As a result, technology can be a useful instrument for raising the standard of religious instruction in elementary schools.

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