The Use of Lumio Media in Islamic Religious Education (PAI) Instruction at Madrasah Aliyah

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Abstract: *The learning of Islamic Religious Education (PAI) and its impact on students' interest and academic achievement at Madrasah Aliyah were analyzed in this study. Using a quantitative research method, this study explored in depth the integration of technology into religious education practices. The background of this research arises from the rapid development of educational technology and the urgent need to improve the quality of PAI instruction. The study was conducted in a Grade XI class at a Madrasah Aliyah that had previously employed conventional teaching approaches. The findings revealed that the use of Lumio—with interactive features such as digital whiteboards, quizzes, and collaborative tasks—successfully created a more engaging and dynamic learning environment. This media proved effective in improving learning outcomes, as evidenced by the increase in pretest and posttest scores. Moreover, student engagement and learning motivation also increased. These findings support the constructivist theory, which emphasizes the essential role of interactive media in fostering deep understanding. In conclusion, the use of Lumio in PAI instruction not only enhanced academic performance but also provided a more enjoyable and meaningful learning experience for students.*

Keywords: ***Lumio, Media, Islamic Studies, Learning Outcomes***

Abstrak: pembelajaran Pendidikan Agama Islam (PAI) serta menganalisis dampaknya terhadap minat dan pencapaian belajar siswa di Madrasah Aliyah. Dengan metode penelitian kuantitatif, studi ini menggali secara mendalam implementasi teknologi dalam proses pembelajaran keagamaan. Latar belakang kajian ini berangkat dari perkembangan teknologi yang pesat di dunia pendidikan serta pentingnya peningkatan mutu pembelajaran PAI. Penelitian dilaksanakan di salah satu kelas XI Madrasah Aliyah yang sebelumnya masih menerapkan pendekatan konvensional. Hasil penelitian menunjukkan bahwa penggunaan Lumio dengan fitur interaktif seperti papan tulis digital, kuis, dan tugas kolaboratif berhasil menciptakan suasana belajar yang lebih hidup dan menarik. Media ini efektif dalam meningkatkan capaian belajar, terlihat dari peningkatan skor antara pretest dan posttest. Selain itu, keterlibatan serta motivasi siswa dalam pembelajaran juga meningkat. Temuan ini mendukung pandangan teori konstruktivisme yang menekankan peran penting media interaktif dalam membangun pemahaman yang mendalam. Kesimpulannya, penggunaan Lumio dalam pembelajaran PAI bukan hanya meningkatkan hasil belajar, tetapi juga menghadirkan pengalaman belajar yang menyenangkan dan bermakna bagi siswa.

Kata Kunci: Lumio, Media, Pembelajaran PAI, Hasil Belajar

Introduction

Education is a deliberate and structured effort to prepare younger generations to face the challenges of globalization. According to Law No. 20 of 2003, education is defined as a conscious and planned endeavor to create a learning environment and learning process in which students actively develop their potential to possess spiritual strength, self-control, personality, intelligence, noble character, and the skills necessary for themselves, society, the nation, and the state. Therefore, education must aim to provide students with quality learning and enhance the overall quality of human resources.

In the ever-evolving digital era, the education sector is required to adapt by utilizing technology to create more effective, interactive, and contextually relevant learning processes. Islamic Religious Education (PAI) in Madrasah Aliyah also faces similar challenges. As one of the pillars of character and spiritual development among youth, PAI is governed by national education policies and directed by the Ministry of Religious Affairs to strengthen character education and religious moderation in line with the Merdeka Curriculum (KSKK Madrasah Directorate, 2022). Traditionally, PAI instruction at the Madrasah Aliyah level has relied heavily on conventional methods such as lectures and discussions, which often fail to engage students or stimulate active participation. Yet, the distinctive nature of PAI demands deeper content comprehension and innovative approaches to achieve optimal learning outcomes.

The use of instructional media has advanced significantly—from traditional tools such as textbooks, teachers, and blackboards to digital and online platforms. Teachers are now expected to develop skills in utilizing new and previously unused educational technologies while maintaining cost-effective and engaging teaching methods (Suyanto & Jihad, 2013).

One promising innovation is the use of Lumio, an interactive digital learning platform based on slides and quizzes. Lumio facilitates real-time collaboration between teachers and students through their individual devices. It offers accessible and engaging features such as game-based quizzes, which foster a dynamic, inclusive, and motivating learning atmosphere. Through Lumio, educators can design varied content tailored to students' needs, making PAI lessons at Madrasah Aliyah more active, creative, and meaningful. This study investigates the potential, advantages, and practical implementation of Lumio in PAI instruction to improve the quality of religious education in madrasah settings. It is expected that the findings will assist both educators and students in adapting to new learning environments that promote enthusiasm and prevent classroom monotony.

Research Methods

This study employed a descriptive quantitative method for data collection, analysis, and interpretation. Qualitative methods were also incorporated, where data were derived from observable descriptions of individuals' behavior and verbal expressions. The learning experiences of Islamic Religious Education (PAI) in Class XI-1 of Madrasah Aliyah were described through images and written narratives.

This approach was selected to comprehensively explain how Lumio media is utilized in PAI instruction at the Madrasah Aliyah level. The research covered various approaches, challenges, and the impact of the media on the learning process. The primary objective was to determine the extent to which students understood the subject matter through the use of Lumio.

The research design aimed to investigate the causal relationship between the independent and dependent variables while controlling for other influencing factors. In this context, the use of ICT-based instructional media (Lumio) served as the independent variable, while student learning outcomes constituted the dependent variable. The study was conducted at Madrasah Aliyah Hubulo, with the participants consisting of students from Class XI-1.

This study followed four main stages: the planning phase, implementation phase, data analysis phase, and reporting phase. These stages were carried out systematically to obtain valid and relevant data regarding the utilization of Lumio media in Islamic Religious Education (PAI) instruction in Class XI-1 at Madrasah Aliyah.

During the planning stage, a preliminary study was conducted, referring to Majid (2014), which included the development of a structured lesson plan (RPP) as part of professional teaching preparation. Once the problem was identified, the researcher designed the study by defining the objectives, research questions, methodology, research instruments, and the implementation scenario for using Lumio media. Collaboration with the PAI teacher was also undertaken to align instructional materials with the digital learning format.

In the implementation phase, the research was carried out over three classroom sessions at Madrasah Aliyah in Class XI-1. Lumio media was used to support the delivery of PAI content, particularly on topics previously agreed upon, such as noble character and tolerance in Islam. To enhance student engagement, the teacher employed Lumio's interactive features, such as real-time quizzes, interactive whiteboard discussions, and drag-and-drop exercises. The researcher monitored the learning activities to assess student responses and participation firsthand.

In the data analysis phase, information collected through documentation, questionnaires, and classroom observations was analyzed using descriptive qualitative methods. Observational data was used to evaluate how Lumio media was integrated into classroom activities, while student questionnaires were

analyzed to capture their perceptions of the media's functionality. The analysis helped determine whether Lumio positively impacted students' motivation and comprehension in learning PAI. Finally, the reporting phase involved compiling a comprehensive research report covering the methodology, introduction, literature review, findings, discussion, and conclusions. This report serves as a scholarly resource to assist PAI teachers and educational institutions in developing technology-based learning media that can enhance instructional quality in the classroom.

This study involved two types of data: qualitative data derived from student observations and quantitative data obtained from students' learning achievement tests. Accordingly, descriptive analysis was applied to the qualitative data, while basic statistical analysis was used for the quantitative data. The qualitative data were collected using observation sheets during the implementation of Lumio media, documenting teacher and student activities throughout the PAI learning process. Descriptive qualitative analysis was employed to describe the findings based on indicators such as student engagement, their responses to the learning media, and the quality of interactions observed during the learning sessions.

According to Moleong (2012), descriptive qualitative analysis aims to systematically portray the facts and characteristics of the research object with an emphasis on meaning and the contextual situation being observed. The observational data were interpreted to evaluate the extent to which Lumio media fostered an active and interactive learning environment in Class XI-1 at Madrasah Aliyah.

Meanwhile, the quantitative data were obtained from students' learning outcomes, specifically through pretest and posttest scores conducted before and after the implementation of Lumio media. To analyze this data, simple statistical techniques were used, including the calculation of mean scores, the difference between pretest and posttest results, and the percentage of improvement in learning outcomes. As noted by Sugiyono, descriptive statistical techniques are utilized to summarize or describe data without drawing broader conclusions. These calculations were used to determine whether a significant increase in student achievement occurred following the use of Lumio in PAI instruction. By integrating both analytical approaches, the researcher was able to gain a comprehensive understanding of Lumio's effectiveness in terms of both the learning process and student outcomes.

Findings and Discussion

The implementation of Lumio across various madrasahs has shown a positive impact on learning interactivity (Rahmah et al., 2024). Interactive learning media, such as Lumio by SMART, have proven to enhance instructional effectiveness, particularly in Islamic Religious Education (PAI). These tools allow students to

actively engage in lessons through multimedia elements, quizzes, educational games, and real-time collaboration—supporting the constructivist approach.

The use of Lumio at the Madrasah Aliyah level has led to a measurable improvement in student learning outcomes, with an average increase of approximately 15% in test scores following its implementation. Despite challenges such as limited access to technology and varying levels of teacher readiness, Lumio provides immediate feedback, enriches content delivery methods, and creates a more enjoyable and interactive learning atmosphere. These findings are consistent with prior research confirming the effectiveness of technology-based instructional media in improving student comprehension.

Interactive Learning Media

Interactive learning media are tools used in the teaching and learning process that enable two-way interaction between students and the learning content, thus creating a more active and enjoyable learning experience. According to Heinich et al. (2009), appropriate learning media can serve as a primary aid in effectively delivering instructional messages. Arsyad defines learning media as anything that can be used to convey messages and stimulate learners' thoughts, feelings, attention, and motivation in order to facilitate effective learning. Interactivity in learning media functions to enhance students' active participation and provide immediate feedback, which ultimately accelerates the achievement of learning objectives.

Interactive learning also aligns with the constructivist approach, which emphasizes the importance of active student involvement in constructing their own knowledge. In this context, interactive media—such as computer-based applications, interactive videos, and digital learning platforms—offer students opportunities to explore materials, complete tasks, and practice skills through simulations or educational games. Additionally, the use of interactive media in instruction has been proven to increase student motivation, particularly in subjects that require conceptual understanding, such as religious education, mathematics, or science.

One popular form of interactive learning media today is the use of learning management systems (LMS) and Android-based learning applications. These media are advantageous due to their flexible access, engaging visual presentation of material, and built-in assessment features that provide immediate feedback to students. In a study conducted by Fatmawati, Android-based interactive media significantly improved student learning outcomes in Qur'an and Hadith subjects at madrasahs. Thus, the use of interactive learning media not only enriches the delivery methods of instructional content but also accommodates diverse learning styles and fosters greater enthusiasm for learning in the educational process.

Lumio by SMART

Lumio is a shortened name for SMART Learning Suite Online, developed by SMART Technologies, a provider of classroom hardware and software. As an

interactive learning platform, Lumio offers several advantages that align well with the characteristics of Islamic Religious Education (PAI) content. Its multimedia capabilities allow for the integration of various content formats such as text, images, videos, and interactive simulations. This opens up opportunities to present abstract religious concepts in a more concrete and visual form, thereby facilitating student comprehension.

One of Lumio's strengths is its ability to combine multiple multimedia components within a single, user-friendly platform. To make the learning process more varied and less monotonous, teachers can easily insert quizzes, educational games, and animations into their presentation slides. Additionally, the real-time collaboration features enable teachers to directly monitor students' understanding and provide immediate feedback.

However, despite Lumio's advantages—such as high interactivity, ease of access, and collaborative features that support a more engaging and effective learning process—there are several challenges to its implementation.

The primary challenge is limited access to technology and infrastructure. Not all madrasahs and students have equal access to technological devices such as laptops, tablets, or smartphones, nor do they have stable internet connections. This inequality in access can hinder students' ability to participate optimally in Lumio-based learning. Unstable internet connections are also a common technical barrier that disrupts the use of the application during lessons.

Another challenge lies in the readiness and competence of both teachers and students. Using Lumio requires sufficient technological understanding and skills on the part of the teacher. Those unfamiliar with digital learning tools may find it difficult to prepare materials, operate the application, and adapt learning activities to Lumio's features. This necessitates additional time and training for teachers to fully leverage the platform's potential. Similarly, students' readiness in using digital tools is also a critical factor. Some students may lack the skills to operate digital applications or may be unaccustomed to technology-based learning, thereby requiring more intensive support. These factors can affect the level of participation and the effectiveness of learning with Lumio.

Basic Steps for Using Lumio as an Interactive Learning Medium in the Classroom

1. Creating and Accessing a Lumio Account
   To begin using Lumio, visit the official website at https://suite.smarttech-prod.com/. Then, click the "Sign Up for Free" button to register. You can log in using your Google account or a teacher's *belajar.id* account. After successfully logging in, select the "Adult" option (for teachers), complete the required information, and click "Finish" to complete the registration process.
2. Navigating the Lumio Main Interface
   After logging in, users will be directed to the Lumio main page. This page includes a "My Library" menu, which serves as a personal library for storing the materials you have created. Additionally, there is a "Lumio Library" menu that

allows you to access learning materials created by educators around the world, which can be filtered by subject or educational level.

3. Creating Interactive Learning Materials
   To begin creating new materials in Lumio, click the "Create" button. Then, choose from the available templates such as "Activate Prior Knowledge" for pretests, graphic organizers, images, videos, or handouts. You can also add interactive elements such as quizzes, educational games, or direct questions to the slides to enhance student engagement. Furthermore, Lumio allows you to upload materials from PowerPoint or PDF, or to create content directly within the platform as needed.
4. Managing and Sharing Materials
   Once your materials are ready, save them in "My Library" for easy access. To start a learning session, click on the desired material and select the "Start" option. Then, share the class code or link with your students so they can join the session from their own devices and participate interactively.
5. Interaction and Collaboration During Learning
   Throughout the lesson, teachers can monitor student activity in real time using the Lumio dashboard. Students can complete tasks individually or in groups, participate in class discussions, and engage in game-based quizzes prepared by the teacher. Moreover, teachers can provide immediate feedback to students, ensuring effective interaction and guidance during the learning process.

Utilization of Lumio Media in Islamic Religious Education (PAI) Learning

The use of Lumio media in Islamic Religious Education (PAI) instruction at Madrasah Aliyah demonstrates considerable potential in enhancing the quality and effectiveness of the teaching and learning process. Lumio by SMART is an interactive slide-based digital learning platform that allows teachers to present content in an engaging manner, using features such as quizzes, educational games, animations, and real-time collaboration with students through their devices. This media transforms the previously monotonous classroom atmosphere into a more dynamic, interactive, and enjoyable experience for students.

The implementation of Lumio media in PAI instruction in Class XI-1 of Madrasah Aliyah Hubulo was carried out through a series of structured steps to maximize its effectiveness. At the beginning of the lesson, the teacher introduced Lumio as a tool that fosters interactivity and active student engagement. The first step involved preparing learning instruments, including the development of a Lesson Plan (RPP) tailored to Lumio's features.

Next, the teacher used the interactive whiteboard feature to explain the core subject matter, such as the topic of noble character, using slides that could be directly adjusted according to questions or discussions as they arose. In the middle of the lesson, the teacher activated the quiz feature to assess students' real-time understanding and facilitated group-based learning activities through the Lumio platform. The final step was a learning evaluation using Lumio-based tests, in

which students submitted responses and received immediate feedback from the teacher for each answer.

Test data analysis revealed a significant improvement in students' learning outcomes after the use of Lumio. Based on the comparison between pretest and posttest results, the average student score increased by approximately 15%. Before using Lumio, the average pretest score was 70; after its implementation, the posttest average rose to 80. This improvement indicates that Lumio can enhance students' understanding of PAI content, especially topics involving abstract concepts that require visual and interactive explanations. This finding is consistent with theories suggesting that interactive media can increase student motivation and deepen understanding through more tangible and enjoyable learning experiences (Arsyad, 2021).

These findings align with previous research indicating that the use of technology-based instructional media can significantly improve student achievement. For example, a study on the use of Lumio in teaching the Fiqh topic of Qurban in Grade IX of an Islamic junior high school (MTs) reported an increase in average scores from 49 in the pretest to 80 in the posttest—an improvement of 31 points. This suggests that Lumio is effective in enhancing students' comprehension of PAI content. Moreover, student responses to the media were highly positive, with significant increases in both engagement and active learning. These findings also support constructivist theory, which emphasizes that learning involving direct interaction with instructional materials—particularly through supportive media like Lumio—can help students build a deeper understanding (Piaget, 1973). Thus, this study not only confirms the effectiveness of Lumio media in PAI instruction but also reinforces expert perspectives on the crucial role of interactive media in improving learning quality.

Conclution

The findings of this study demonstrate that the use of Lumio media in Islamic Religious Education (PAI) instruction in Class XI-1 at Madrasah Aliyah has effectively increased both students' interest and academic achievement. The integration of Lumio in instructional planning—through the use of interactive features such as quizzes, digital whiteboards, and group activities—fostered a more engaging classroom environment. This enhancement was reflected in the significant improvement in students' test scores from the pretest to the posttest.

Moreover, the use of Lumio successfully heightened student participation in the learning process, thereby motivating them to be more actively involved in classroom activities. These findings support the principles of constructivist learning theory, which posits that interactive educational media can help learners develop a deeper understanding of the subject matter. In conclusion, the implementation of Lumio in PAI instruction not only improved student learning outcomes but also contributed to a more enjoyable and meaningful educational experience.

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