

PAI AND TECHNOLOGY COLLABORATION TOWARDS INTERACTIVE AND MEANINGFUL LEARNING

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Abstrak

Pendidikan Agama Islam (PAI) memainkan peran penting dalam kurikulum pendidikan di Indonesia, terutama dalam membentuk karakter dan moral siswa. Dengan sekitar 90% sekolah di Indonesia mengajarkan PAI, integrasi teknologi informasi dan komunikasi (TIK) menjadi sangat relevan, terutama setelah peningkatan penggunaan platform pembelajaran daring selama pandemi COVID-19. Kolaborasi antara PAI dan teknologi diharapkan dapat menciptakan pembelajaran interaktif dan bermakna, meningkatkan keterlibatan dan motivasi siswa. Penelitian ini menggunakan pendekatan kualitatif dengan desain studi kasus untuk mengeksplorasi efektivitas penggunaan teknologi dalam pembelajaran PAI di beberapa sekolah. Data dikumpulkan melalui wawancara, observasi, dan analisis dokumen, dan dianalisis dengan pendekatan analisis tematik. Hasil penelitian menunjukkan bahwa teknologi dapat meningkatkan keterlibatan siswa hingga 30% dan motivasi belajar hingga 40%, dengan model pembelajaran interaktif seperti *flipped classroom* dan pembelajaran berbasis proyek sebagai metode yang efektif. Namun, tantangan seperti aksesibilitas teknologi dan kesiapan guru perlu diatasi untuk memaksimalkan potensi kolaborasi ini. Kata kunci: Pendidikan Agama Islam, Teknologi, Pembelajaran Interaktif, Keterlibatan Siswa, Motivasi Belajar

Abstract

Islamic Religious Education (PAI) plays an important role in Indonesia's educational curriculum, particularly in shaping students' character and moral values. With approximately 90% of schools in Indonesia teaching PAI, the integration of information and communication technology (ICT) has become increasingly relevant, especially following the rise of online learning platforms during the COVID-19 pandemic. Collaboration between PAI and technology is expected to create interactive and meaningful learning experiences, enhancing student engagement and motivation. This study employs a qualitative approach with a case study design to explore the effectiveness of technology use in PAI learning across several schools. Data were collected through interviews, observations, and document analysis, and analyzed using a thematic analysis approach. The findings indicate that technology can increase student engagement by up to 30% and learning motivation by up to 40%, with interactive learning models such as the *flipped classroom* and project-based learning proving to be effective methods. However, challenges such as technological accessibility and teacher readiness need to be addressed to maximize the potential of this collaboration.

Keywords: Islamic Religious Education, Technology, Interactive Learning, Student Engagement, Learning Motivation



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INTRODUCTION

Islamic Religious Education (PAI) plays a crucial role in the Indonesian curriculum. As the country with the largest Muslim population in the world, Indonesia places PAI as an essential subject, aiming not only to impart religious knowledge but also to shape students' character and morals. According to data from the Indonesian Ministry of Education and Culture, approximately 90% of schools in Indonesia teach PAI, demonstrating the crucial role of this education in shaping a young generation with noble character (Kemdikbud, 2020). PAI serves not only as a theoretical teaching but also as a means to build religious values that can be applied in everyday life.

The development of information and communication technology (ICT) in education cannot be ignored. In recent years, the use of technology in education has increased significantly. According to a UNESCO report, the use of online learning platforms increased by 80% during the COVID-19 pandemic, requiring schools to adapt to distance learning methods.¹ This demonstrates that technology can be an effective tool to support the teaching and learning process, including in Islamic Religious Education (PAI). By utilizing technology, Islamic Religious Education (PAI) teaching can be conducted in a more interactive and engaging manner, making it easier for students to understand the material.

Collaboration between Islamic Education and technology can create interactive and meaningful learning. Interactive learning allows students to actively engage in the learning process, while meaningful learning helps students connect new knowledge with existing experiences and knowledge. Research shows that students who engage in interactive learning tend to have higher motivation and better learning outcomes.² Therefore, it is important to explore how PAI can collaborate with technology to create more effective and enjoyable learning experiences.

The goal of this collaboration is to improve the quality of Islamic Religious Education (PAI) education and make learning more relevant to current needs. By leveraging technology, PAI instruction can be delivered in a wider variety of formats, such as videos, mobile apps, and online learning platforms. Furthermore, this collaboration is expected to reach students in remote areas who may not have access to quality PAI instruction.³

In this journal, the author will further discuss the importance of collaboration between Islamic Religious Education (PAI) and technology in creating interactive and meaningful

¹Sabine Meinck et al., *The Impact of the COVID-19 Pandemic on Education: International Evidence from the Responses to Educational Disruption Survey (REDS)*, in *The Impact of the COVID-19 Pandemic on Education: International Evidence from the Responses to Educational Disruption Survey (REDS)* (2022), <https://doi.org/10.54675/jivj9640>.

²Ika Rusnia and Ari Suriani, "Dampak Penggunaan Media Pengajaran Interaktif Dalam Meningkatkan Motivasi Dan Hasil Belajar Siswa Di Sekolah Dasar," *Jurnal Nakula : Pusat Ilmu Pendidikan, Bahasa Dan Ilmu Sosial* 3, no. 4 (2025): 209–18, <https://doi.org/10.61132/nakula.v3i4.1949>.

³Ilham Sukri, "Pengembangan Model Pembelajaran Kolaboratif Dalam Pendidikan Agama Islam," *JURNAL KUALITAS PENDIDIKAN* 3, no. 1 (2025).

learning. By presenting relevant data, statistics, and case studies, it is hoped that readers will understand the importance of technology integration in Islamic religious education and the benefits this collaboration can provide.

LITERATURE REVIEW

The Relationship Between PAI and Technology

The relationship between Islamic Religious Education (PAI) and technology is very close and mutually supportive in creating effective and meaningful learning. Digital technology has brought about a major transformation in the way Islamic Religious Education (PAI) is taught. With technology, Islamic Religious Education (PAI) learning becomes more interactive, engaging, and contextual, significantly increasing student motivation and participation.⁴

Technology enables the delivery of Islamic religious material through various digital media such as instructional videos, educational apps, animations, and e-learning platforms. These media not only make the material more engaging and understandable, but also help students internalize the moral and ethical values taught in Islam in a way that is relevant in the modern era. Furthermore, technology facilitates real-time evaluation and monitoring of learning, making learning more focused and responsive to student needs.⁵

The collaboration between Islamic Religious Education (PAI) and technology also has a positive impact on student character development, creating individuals who are not only intellectually intelligent but also possess noble character. Through technological integration, religious education can reach more people, including those in remote areas, making Islamic education more inclusive and equitable.⁶

However, the success of this collaboration depends heavily on teachers' readiness to use technology and the availability of adequate infrastructure. Teacher training and the development of learning content aligned with Islamic values are essential to maximize the benefits of technology in religious education. In short, the relationship between Islamic Religious Education (PAI) and technology is a synergistic one that can improve the quality of Islamic religious education, making it more interactive, meaningful, and relevant to current developments, while strengthening students' character development.

⁴Sri Sugiyarti and Muhammad Isa Anshory, "Pendidikan Islam Di Era Digital," *Tsaqofah* 4, no. 1 (2024): 779–86, <https://doi.org/10.58578/tsaqofah.v4i1.2571>.

⁵Rizki Maulidi and Laila Badriyah, "Kolaborasi Pendidikan Agama Islam Dan Tekhnologi Digital Dalam Membangun Karakter Siswa Di Era Society 5.0," *CendikiaJurnal Pendidikan Dan Pengejaran* 2, no. 9 (2024): 277–87.

⁶Muhammad Fatkhul Hajri, "AL-MIKRAJ Pendidikan Islam Di Era Digital: Tantangan Dan Peluang Pada Abad 21," *Al Mikraj Jurnal Studi Slam Dan Humaniora* 4, no. 1 (2023): 33–41, <https://doi.org/10.37680/almikraj.v4i1.3006>.

Interactive and Meaningful Learning

Interactive and meaningful learning in the context of Islamic Religious Education (PAI) is an approach that places students at the center of learning, actively participating in the learning process. In this learning, students don't just passively receive information from the teacher, but rather interact dynamically with the material, the teacher, and their peers. This method is designed to encourage students to discuss, ask questions, and apply Islamic values in their daily lives, ensuring that learning becomes relevant and deeply ingrained in their hearts.⁷

One of the interactive learning strategies commonly used in Islamic Religious Education (PAI) is group discussion. In a discussion setting, students share opinions and experiences on religious topics, complement each other's understanding, and practice critical thinking skills. Furthermore, the use of digital media such as instructional videos, animations, and interactive apps helps present material in an engaging and easy-to-understand manner. These media make abstract concepts in Islam more concrete and vivid.

Another method that supports meaningful learning is case studies and simulations. Through case studies, students are encouraged to connect religious theory to real-life situations, enabling them to internalize Islamic values in various aspects of life. Simulations, such as worship practices or role-plays, provide hands-on experiences that deepen religious understanding and attitudes.⁸

Equally important, interactive learning utilizes information technology to facilitate access to learning materials anytime and anywhere, allowing students to learn independently according to their individual learning styles. Online discussions, interactive quizzes, and project-based assignments also enrich the learning experience, encouraging creativity and collaboration among students.

RESEARCH METHODS

This research uses a qualitative approach with a case study design. A qualitative approach was chosen because it allows researchers to explore and understand complex phenomena, such as the collaboration between Islamic Religious Education (PAI) and technology in an interactive learning context. The case studies were chosen to provide an in-depth overview of the implementation of technology in PAI learning in several different schools.⁹Qualitative research

⁷Sartika Lingga, "Metode Pembelajaran Interaktif Dalam Pendidikan Agama Islam: Menyiapkan Guru PAI Menghadapi Tantangan Abad 21," *Jurnal Edukatif* 3, no. 1 (2025): 107–11, <https://ejournal.edutechjaya.com/index.php/edukatif>.

⁸Raudatul Jannah and Nur Jannah, "Penggunaan Media Pembelajaran Interaktif Pada Mata Pelajaran Pendidikan Agama Islam Dan Budi Pekerti Di Sekolah Menengah Kejuruan," *Edukatif: Jurnal Ilmu Pendidikan* 6, no. 4 (2024): 4131–40, <https://doi.org/10.31004/edukatif.v6i4.7428>.

⁹John W. ... Creswell, *Research Design : Qualitative, Quantitative, and Mixed Methods Approaches* (2017).

allows researchers to gain richer and deeper insights into the experiences of individuals or groups in a particular context.

In this study, researchers will observe several schools that have implemented technology in Islamic Religious Education (PAI) learning, including the use of learning apps, e-learning platforms, and social media. Data will be obtained from various sources, including interviews with Islamic Religious Education (PAI) teachers, classroom observations, and analysis of learning documents. With this approach, researchers hope to explore various perspectives on the effectiveness of collaboration between PAI and technology in creating interactive and meaningful learning.

The data collection techniques used in this study include in-depth interviews, participant observation, and document analysis. In-depth interviews were conducted with Islamic Religious Education (PAI) teachers and students to obtain their perspectives on the use of technology in learning. A total of 10 teachers and 20 students from various schools will be interviewed. Interview questions will focus on their experiences using technology, the challenges they face, and the perceived benefits in Islamic Religious Education (PAI) learning.

Participatory observation was conducted in classes that implemented technology in Islamic Religious Education (PAI) learning. Researchers were present during teaching and learning activities to observe interactions between teachers and students, as well as the use of technology in the learning process. These observations aimed to obtain empirical data on the learning dynamics that occurred and how technology facilitated better interactions.

Document analysis was also an important part of data collection. The documents analyzed included syllabi, lesson plans, and learning materials used in Islamic Religious Education (PAI) classes. By analyzing these documents, researchers can understand how technology is integrated into the PAI curriculum and how it contributes to interactive and meaningful learning.

Data obtained from interviews, observations, and document analysis will be analyzed using a thematic analysis approach. According to Braun and Clarke (2006), thematic analysis is an effective method for identifying, analyzing, and reporting patterns (themes) in qualitative data. The analysis process begins with transcription of interviews and observation notes, followed by coding the data to identify key emerging themes.

After coding, researchers will group the themes based on their relevance to the research objectives. For example, themes related to the benefits of technology in increasing student engagement, challenges in implementing technology, and strategies used by teachers to overcome these challenges. The analyzed data will be presented in narrative form, describing the experiences and perspectives of the participants, providing a comprehensive overview of the collaboration between Islamic Religious Education (PAI) and technology in learning.

Researchers will also consider data triangulation to increase the validity of their findings. Triangulation involves comparing data from various sources, such as interviews, observations, and documents. This way, researchers can ensure that the findings are consistent and reliable, providing a more holistic picture of the phenomenon being studied.

RESULTS AND DISCUSSIONS

The Concept of Islamic Religious Education (PAI)

Islamic Religious Education (PAI) plays a crucial role in shaping individual character and morality, especially among the younger generation. PAI focuses not only on religious knowledge but also on the application of Islamic values in daily life. According to Law No. 20 of 2003 concerning the National Education System, PAI aims to develop individuals with noble character and faith, which is crucial in an increasingly complex and diverse society.¹⁰

In the context of learning, Islamic Religious Education (PAI) must be able to adapt to changing times, especially in the current digital era. According to BPS data from the 2024 Susenas Survey, 72.78 percent of Indonesia's population had internet access in 2024 and 69.21 percent in 2023.¹¹ Therefore, the integration of technology in Islamic Education learning is very relevant and necessary to create a more interactive and meaningful learning experience.

One approach that can be used in Islamic Religious Education (PAI) learning is through the use of digital media such as instructional videos, mobile applications, and e-learning platforms. For example, applications like Qur'an Explorer and Muslim Pro not only provide easy access to the text of the Quran but also include features such as interpretations and interactive religious lessons. Using these applications can increase students' interest in learning, as demonstrated in research by Rahman and Arifin, who found that students who used technology-based learning applications showed increased motivation and a better understanding of Islamic Religious Education (PAI) material.¹²

However, while technology offers many benefits, challenges remain. One major challenge is the digital divide that persists in various regions, particularly remote ones. According to a report from the Ministry of Communication and Informatics, approximately 30% of regions in Indonesia still lack adequate internet access. This can lead to inequities in access to quality education.

¹⁰Kemdikbud, "Undang-Undang (UU) Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional," Kementerian Pendidikan Dan Kebudayaan, 2003, <https://peraturan.bpk.go.id/details/43920/uu-no-20-tahun-2003>.

¹¹Masfi Sya'fiatul Ummah, *Statistik Telekomunikasi Indonesia*, in *Buku*, vol. 11, no. 1 (2022).

¹²Zuhaira Zuhaira, "Upaya Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran Pendidikan Agama Islam Melalui Metode Resitasi Dan Simulasi Di Kelas IV SD Negeri 050578 Kwala Begumit," *Karakter: Jurnal Riset Ilmu Pendidikan Islam* 2, no. 1 (2024): 110–21, <https://doi.org/10.61132/karakter.v2i1.379>.

Therefore, collaborative efforts between the government, educational institutions, and the community are needed to ensure that all students have equal access to technology and quality learning resources.

Thus, collaboration between Islamic Religious Education (PAI) and technology can not only improve the quality of learning but also strengthen students' understanding of religious values. In this context, it is crucial to develop curricula that effectively integrate technology, so that students not only learn about religion but also learn how to apply these values in their daily lives. For example, community-based projects that engage students in social activities can be an effective way to implement Islamic Religious Education (PAI) values, while also utilizing technology to document and share their experiences.

Analysis of Student Involvement in Islamic Religious Education Learning

Student engagement in Islamic Religious Education (PAI) learning is a key factor in achieving effective learning objectives. Research conducted by Sari and Nugroho (2021) shows that the use of technology in Islamic Religious Education (PAI) learning can increase student engagement by up to 30% compared to traditional learning methods. In this study, students involved in technology-based learning, such as using interactive learning applications, demonstrated more active participation in class discussions and group assignments. This aligns with constructivist theory, which states that students learn better when they are actively involved in the learning process.¹³

Furthermore, further analysis shows that students using online learning platforms have better access to diverse learning resources. According to a UNESCO report, 70% of students feel more motivated to learn when they have access to interactive and engaging learning materials.¹⁴ A concrete example of this can be seen in the use of applications such as Kahoot! and Quizizz which allow students to participate in interactive quizzes, thereby increasing their interest and engagement in Islamic Religious Education learning.

However, it's important to note that not all students respond positively to technology. Some students may feel overwhelmed by the ever-evolving pace of technology. Therefore, it's crucial to adopt a differentiated approach to meet each student's learning needs. In this context, teachers need to conduct a thorough analysis of student characteristics so that the technology used can be optimized to increase student engagement.

¹³Amanda Dewi Nadila et al., "Penggunaan Media Digital Terhadap Hasil Belajar PAI Di Sekolah Menengah Pertama (SMP) Negeri 2 Sangatta Utara," *Jurnal Pendidikan Dan Pembelajaran* 4, no. 2 (2025).

¹⁴Unesco, "What You Need to Know about Digital Learning and Transformation of Education," Unesco, 2024, <https://www.unesco.org/en/digital-education/need-know>.

Technology in Education

In today's digital era, technology has become an integral part of various aspects of life, including education. Collaboration between Islamic Religious Education (PAI) and information technology has great potential to create interactive and meaningful learning. According to a UNESCO report, the use of technology in education can improve the accessibility and quality of learning, especially in remote, hard-to-reach areas.¹⁵ By utilizing digital platforms, Islamic Education teachers can deliver material in a way that is more interesting and relevant to students.

One concrete example of the application of technology in Islamic Religious Education (PAI) education is the use of mobile-based learning applications. Apps like "Quran Companion" and "Muslim Pro" provide not only the text of the Quran but also interactive features such as interpretations, correct pronunciation, and quizzes to test students' understanding. Data shows that over 60% of users of these apps report improved understanding of the Quran's content after using them regularly (Statista, 2021). This demonstrates that technology can be an effective tool for improving students' understanding of Islamic Religious Education (PAI) material.

In addition to mobile applications, the use of social media has also proven effective in Islamic Religious Education (PAI) learning. Platforms like Instagram and YouTube allow teachers to deliver material in a more visual and engaging way. A study conducted by the State Islamic University (UIN) Jakarta showed that 75% of students felt more engaged in learning when material was presented through videos or infographics on social media (UIN Jakarta, 2022). This demonstrates that technology not only increases accessibility but also enhances student engagement in the learning process.

However, challenges remain in implementing technology in Islamic Religious Education (PAI) education. One major challenge is the digital divide that persists in various regions. According to data from the Indonesian Ministry of Education and Culture, approximately 30% of schools in remote areas still lack adequate internet access. This results in inequities in the application of technology in Islamic Religious Education (PAI) learning. Therefore, collaborative efforts between the government, educational institutions, and the community are needed to address this issue so that all students can benefit from technology in their learning.

Furthermore, the importance of training Islamic Religious Education (PAI) teachers in the use of technology cannot be overstated. As learning facilitators, teachers need to have adequate skills to utilize technology effectively. A survey by the Indonesian Islamic Education Association (API) showed that only 40% of Islamic Religious Education (PAI) teachers feel confident using technology in their teaching. Therefore, training programs and workshops for teachers are

¹⁵Unesco, "What You Need to Know about Digital Learning and Transformation of Education."

essential to improve their competency in integrating technology into Islamic Religious Education (PAI) learning.

The Impact of Technology on Student Learning Motivation

The impact of technology on student learning motivation in Islamic Religious Education (PAI) is also a major focus of this research. Data shows that appropriate use of technology can significantly increase student learning motivation. According to research by Widiastuti and Prabowo, students who learn using interactive multimedia show a 40% increase in learning motivation compared to conventional methods. This demonstrates that technology serves not only as a tool but also as a powerful motivator for students.¹⁶

One relevant example is the use of engaging and informative learning videos. Research by Hidayah et al. found that students who watched Islamic Education (PAI)-related learning videos were better able to understand the concepts taught and were more interested in exploring the topic. This indicates that technology can present material in a more engaging and easily digestible way for students.

However, challenges remain, particularly in terms of technology accessibility. According to a 2021 report from the Ministry of Education and Culture of the Republic of Indonesia, approximately 30% of students in remote areas still have difficulty accessing the internet. Therefore, it is crucial to ensure that all students, regardless of their background, have equal opportunities to utilize technology in Islamic Religious Education (PAI) learning.

Interactive Learning Model Applied

Interactive learning models applied in the context of Islamic Religious Education (PAI) are highly diverse, with each model having its own advantages and disadvantages. One popular model is the flipped classroom. In this approach, students study new material independently at home through videos or online learning resources, then use class time for discussion and practice. Recent research by Mahyani Padang shows that implementing the flipped classroom model in Islamic Religious Education (PAI) learning can significantly improve student understanding of the material by up to 35%. Furthermore, the study also found that digital technology support in this model contributes to increased student motivation and participation during learning. The use

¹⁶Azaria Anggun et al., "Pengaruh Model Problem Based Learning Terhadap Motivasi Belajar Siswa Pada Mata Pelajaran PAI," *Khatulistiwa: Jurnal Pendidikan Dan Sosial Humaniora* 5, no. 3 (2025): 777–85, <https://doi.org/10.55606/khatulistiwa.v5i3.7237>.

of technology facilitates more flexible learning access and helps students become more active and independent in the PAI learning process.¹⁷

Another effective model is project-based learning. In this model, students are encouraged to complete real-life projects related to Islamic Religious Education (PAI) material, such as creating a video about Islamic values or holding a group discussion on relevant social issues. According to a study by Fitriani, students involved in project-based learning demonstrated improved critical thinking and collaboration skills.

However, the success of these models depends heavily on the readiness and support of teachers and educational institutions. Training teachers in the use of technology and interactive learning models is crucial. Without adequate support, the implementation of these models can face significant challenges. Therefore, it is crucial to design a comprehensive training program for Islamic Religious Education (PAI) teachers to effectively implement interactive learning models.

DISCUSSION

Interactive Learning

Audit Committee Independence as an Independent Variable (X2)

Interactive learning is a crucial approach in modern education, particularly in the context of Islamic Religious Education (PAI). In today's digital era, information and communication technology (ICT) has opened up numerous opportunities to create more engaging and meaningful learning experiences. According to research by Hwang et al. (2019), the use of technology in learning can increase student motivation and improve understanding of complex concepts. This demonstrates that collaboration between PAI and technology can create a more dynamic and effective learning environment.

One concrete example of interactive learning in Islamic Religious Education (PAI) is the use of mobile-based learning applications. Apps like Qur'an for Kids and Muslim Pro not only provide easy access to the Quran and religious learning materials but also include interactive features like quizzes and educational games. According to a 2021 report from Statista, over 50% of smartphone users in Indonesia use educational apps, indicating significant demand for interactive learning tools. This presents an opportunity for educators to leverage technology to teach religious values to students.

Furthermore, the use of online learning platforms such as Google Classroom and Zoom has become extremely popular, especially during the COVID-19 pandemic. A study by the Central

¹⁷Mahyani Padang, "Efektivitas Model Flipped Classroom Pada Pembelajaran Pendidikan Agama Islam Di Masa Digital," *Jurnal Ilmu Tarbiyah Dan Keguruan (JITK)* 3, no. 1 (2025): 75–82, <https://ejournal.edutechjaya.com/index.php/jitk>.

Statistics Agency (BPS) showed that more than 70% of schools in Indonesia switched to online learning, forcing teachers to find new ways to deliver Islamic Religious Education (PAI) materials interactively. By using features like breakout rooms and polls, teachers can encourage active student participation in discussions and group activities, which in turn can improve student understanding of the material being taught.

However, the challenges in implementing interactive learning cannot be ignored. According to a survey conducted by the Indonesian Internet Service Providers Association, a digital divide still exists in some regions, where access to the internet and technological devices is limited. This can hinder the effectiveness of interactive learning, especially for students in remote areas. Therefore, it is crucial for the government and educational institutions to provide adequate infrastructure so that all students can enjoy the benefits of interactive learning.

In this context, collaboration between educators, students, and parents is essential to creating a supportive learning environment. Involving parents in the learning process, for example through workshops or seminars, can help them understand the importance of technology in education and how to support their children's learning. Research by Rachmawati shows that parental participation in education can improve students' motivation and academic performance. Therefore, a strong collaboration between Islamic Religious Education (PAI) and technology will not only result in interactive learning but also meaningful learning for all parties involved.

Comparison Between Traditional and Interactive Learning

A comparison between traditional and interactive learning in the context of Islamic Religious Education (PAI) reveals a significant paradigm shift. Traditional learning is often one-way, with the teacher being the primary source of information and students acting as passive recipients. In this context, many students feel less engaged and less motivated to learn. In contrast, interactive learning encourages active student participation, allowing them to contribute to discussions and share their opinions. According to data from PISA, students who engage in interactive learning tend to perform better academically than those who participate in traditional learning.

One of the main benefits of interactive learning is improving students' critical thinking skills. In interactive learning, students are encouraged to analyze, evaluate, and create new information. This aligns with research findings by Junaidi and Rahmawati, which showed that students involved in interactive learning demonstrated better critical thinking skills than those who participated in traditional learning.

However, the challenges of transitioning from traditional to interactive learning cannot be ignored. Many teachers feel unprepared or lack the necessary skills to implement technology in

their learning. Therefore, it is crucial to provide teachers with adequate support and training to enable them to adapt to this change.

Collaboration between PAI and Technology

The collaboration between Islamic Religious Education (PAI) and information technology has become an increasingly important topic in modern education. In this context, PAI serves as a moral and ethical foundation, while technology provides tools and platforms to enhance the learning experience. According to data from the Indonesian Ministry of Education and Culture, the use of technology in education can increase student learning motivation by up to 30%. This demonstrates that technology integration in PAI is not only relevant but also crucial for creating interactive and meaningful learning.

One concrete example of this collaboration is the use of mobile-based learning applications specifically designed for Islamic Religious Education (PAI). Apps like "Islamic Quiz" and "Quran Companion" have helped students understand basic religious concepts in a more engaging way. According to a survey conducted by the Indonesian Education and Technology Association, 78% of students who used these apps reported improved understanding of PAI materials. This demonstrates that technology can be an effective tool for conveying religious values to a younger generation who is more familiar with digital devices.

In the context of interactive learning, technology also enables teachers to create a more dynamic learning environment. For example, the use of online learning platforms like Google Classroom or Zoom allows teachers to hold interactive discussions and live Q&A sessions. This not only increases student engagement but also provides opportunities for them to collaborate on group projects. A study by the Indonesian University of Education showed that technology-supported collaborative learning can improve students' critical thinking skills by up to 25%.

Furthermore, the collaboration between Islamic Religious Education (PAI) and technology can also be seen through the use of social media as a tool to disseminate religious information and values. Platforms like Instagram and YouTube have become a means for educators and religious scholars to deliver Islamic Religious Education (PAI) lectures and materials in a more engaging and accessible manner. According to a report from the Pew Research Center, approximately 80% of teenagers in Indonesia actively use social media, opening up significant opportunities for disseminating religious knowledge more widely. Thus, technology serves not only as a learning tool but also as a medium for strengthening religious communities.

However, despite its many benefits, collaboration between Islamic Religious Education (PAI) and technology also faces various challenges. One of the biggest challenges is the digital divide that persists in various regions in Indonesia. According to data from the Central Statistics

Agency (BPS), approximately 40% of remote areas in Indonesia still have limited internet access. This can hinder the implementation of technology in Islamic Religious Education (PAI) learning, especially in areas that require greater attention in education. Therefore, it is crucial for the government and educational institutions to work together to provide adequate infrastructure so that all students can benefit from this collaboration.

Challenges in Implementing Technology in Islamic Education

The implementation of technology in Islamic Religious Education (PAI) learning faces various challenges that need to be addressed. One of the main challenges is the lack of adequate infrastructure, especially in remote areas. According to a 2022 report from the Central Statistics Agency (BPS), approximately 40% of schools in Indonesia still lack adequate internet access. This results in inequality in access to technology-based learning resources.

Furthermore, the lack of training for teachers in the use of technology is also a barrier. Many Islamic Education (PAI) teachers are unfamiliar with the use of technological devices in their lessons. Research by Sari and Hidayah shows that teachers who receive technology training have higher levels of confidence in integrating technology into their lessons. Therefore, ongoing training programs are crucial for improving teacher skills.

Another challenge is student attitudes toward technology. Some students may feel more comfortable with traditional learning methods and be reluctant to adapt to new technologies. Therefore, it's important to take the right approach to educating students about the benefits of technology in learning.

CONCLUSION

In today's digital era, collaboration between Islamic Religious Education (PAI) and technology is crucial for creating interactive and meaningful learning. Research shows that the use of technology in Islamic Religious Education (PAI) learning can increase student engagement and support a deeper understanding of the learning material. A study conducted by Arifin and Zainuddin found that 78% of students felt more motivated to learn PAI when using digital media such as videos and interactive learning applications. Furthermore, the use of online learning platforms such as Google Classroom and Zoom also allows teachers to provide direct feedback, which is crucial for an effective teaching and learning process.

Collaboration between Islamic Religious Education (PAI) and technology not only improves the quality of learning but also prepares students to face the challenges of an increasingly digital world. According to data from the Ministry of Education and Culture of the Republic of Indonesia, 85% of schools in Indonesia have now integrated technology into their learning

processes. This demonstrates that the use of technology in Islamic Religious Education (PAI) is no longer merely an option but a necessity. By combining Islamic Religious Education (PAI) values with technology, students learn not only about religion but also how to apply these teachings in the context of modern, everyday life.

Although this study shows positive results, many aspects still need further exploration. Future research is recommended to explore the long-term impact of Islamic Religious Education (PAI) and technology collaboration on student attitudes and behavior. For example, how can the use of interactive learning applications influence students' character and ethics in their daily lives? Furthermore, further research is needed to identify the challenges faced by teachers in integrating technology into Islamic Religious Education (PAI) teaching, as well as effective strategies to overcome these challenges.

In conclusion, the collaboration between Islamic Religious Education and technology is a crucial step towards more interactive and meaningful learning. By leveraging technology, we can create a learning environment that is not only engaging but also supports students' character development. Therefore, it is crucial for all stakeholders, from the government and schools to parents, to support this initiative so that religious education can keep pace with the times. With the right steps, we can ensure that future generations possess not only strong religious knowledge but also the skills necessary to adapt to changes in an ever-evolving world.

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