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Implementation of Artificial Intelligence (AI)-Based Islamic Religious Education Learning Media to Enhance Student Engagement and Learning Outcomes

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ABSTRACT

This study aims to describe the implementation of Artificial Intelligence (AI)-based Islamic Religious Education (PAI) learning media at SMP Negeri 1 Sekampung, East Lampung Regency, and to analyze its impact on learning effectiveness and student motivation. Using a descriptive qualitative approach, data were collected through observation, semi-structured interviews with the principal, two PAI teachers, and eight purposively selected students, as well as documentation. Results indicate that AI-based media planning has been systematically integrated into lesson plans through applications such as Kahoot, Quizizz, and ChatGPT. Implementation shows increased active student participation, improved understanding of abstract concepts, and enhanced learning motivation through interactive and personalized experiences. Evaluation reveals that AI provides automatic feedback, facilitates personalized learning, and enhances teacher efficiency in assessment. However, obstacles include unstable internet connectivity, limited student devices, and teachers' digital literacy gaps.

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Keywords:

artificial intelligence;
learning media;
student engagement;
learning outcomes.

INTRODUCTION

The role of teachers in the current era of information and communication technology is not just to teach but to become learning managers. Every teacher is expected to create learning conditions that challenge students' creativity, activity, and motivation by using technology-based learning media (Suryadi, 2023; Salma et al, 2026). Teaching in principle is guiding students in teaching and learning activities, which implies an effort to organize the environment directly related to students and teaching materials that trigger the learning process. This understanding implies that teachers are required to act as organizers of student learning activities and also to be able to utilize the environment, both inside and outside the classroom, that supports the success of teaching and learning activities (Afri Mardicko, 2022). Through good learning planning, teachers can prepare everything students need in learning as well as control themselves to improve their teaching methods (Fitriyani, 2021). In the Qur'an itself, Allah SWT indicates the importance of planning by considering past events to plan future steps, as stated in Q.S. Al-Hasyr verse 18, which commands everyone to pay attention to what they have done for the future (hereafter).

The development of digital technology has opened new opportunities in education, including in the teaching of Islamic religion. Traditional learning media are often unable to attract students' interest or provide an interactive and in-depth learning experience (Haryanto, 2023). One technological innovation that is gaining attention is Artificial Intelligence (AI). AI is a branch of computer science that aims to create systems capable of performing tasks that typically require human intelligence, such as learning, understanding language, recognizing patterns, and making decisions (Russell & Norvig, 2021; Fitriani et al, 2025). The application of AI in education has shown great potential to improve the quality of learning and overcome various challenges faced in traditional education systems (Wardani & Nugroho, 2022).

Several previous studies have examined AI implementation in education. Chen & Zhang (2023) found that AI-powered personalized learning can improve learning

effectiveness by up to 30% compared to conventional methods. However, their research focused on general education contexts without specific attention to religious content or the pedagogical processes of implementation. Hafiz et al. (2024) developed AI-based Islamic religious learning media and found significant contributions to students' understanding of religious concepts. Yet their study emphasized product development and technical aspects rather than examining how teachers actually implement these media in classroom settings. Nurhayati et al. (2024) explored the dynamics of AI-based PAI learning and identified increased student motivation and learning outcomes. Nevertheless, their research was limited to quantitative measurement of outcomes without exploring the pedagogical, contextual, and process-oriented factors that influence implementation success or failure. Harun & Ismail (2023) highlighted ethical considerations in AI use for Islamic education. However, their study remained at the theoretical level without empirical investigation of how ethical concerns manifest in actual classroom practices or how teachers navigate these challenges.

Despite these contributions, a research gap remains. Previous studies have predominantly focused on: (a) technical aspects of AI development without examining classroom implementation dynamics; (b) quantitative outcomes without exploring the processes, supporting factors, and obstacles encountered in real educational settings; and (c) general education contexts without specific attention to PAI at the junior high school level. What has not been adequately researched is the comprehensive implementation of AI-based learning media in PAI, including planning, execution, and evaluation processes, as well as the identification of supporting and inhibiting factors in actual classroom settings at the junior secondary level. Additionally, there is limited empirical research on how teachers integrate AI while maintaining Islamic values and addressing ethical considerations in the learning process.

Therefore, this research addresses the following question: How is AI-based learning media implemented in PAI at SMP Negeri 1 Sekampung, and what are its impacts on learning effectiveness and student motivation? The novelty of this

research lies in its specific focus on examining the holistic implementation of AI in PAI learning at the junior high school level using an in-depth qualitative approach. Unlike previous studies that emphasized technical development or quantitative outcomes, this research comprehensively identifies: (1) the planning processes of AI-based PAI learning media; (2) the implementation strategies and practices in classroom settings; (3) the evaluation methods and their effectiveness; (4) the supporting factors that facilitate successful implementation; and (5) the inhibiting obstacles that need to be addressed. Furthermore, this study provides empirical insights into how AI can be integrated while maintaining Islamic values and addresses the ethical considerations in using AI for religious education, thereby filling the gap left by previous theoretical discussions on AI ethics in Islamic education.

METHOD

This research was qualitative research with a descriptive approach that reveals visible symptoms and seeks facts, especially regarding the problem under study (Margono, 2020). This research was field research, which focuses attention on a case intensively and in detail regarding the background of the current problematic situation. The descriptive approach was chosen because the researcher aims to systematically, factually, and accurately describe the implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung, including planning, implementation, and evaluation of learning. This qualitative research allows the researcher to understand the meanings, perspectives, and experiences of research subjects in depth, so that the results obtained are more comprehensive and contextual.

The research informants were determined purposively, namely Mrs. Lismardalena Andriani, M.Pd (Principal), Mrs. Gutus Yusmita, S.Pd and Mr. Hafiz Abrasy, S.Pd (PAI teachers), and eight students of SMP Negeri 1 Sekampung, East Lampung Regency, selected based on their active involvement in AI-based learning and ability to provide rich information about their experiences. The selection of informants was based on the consideration that they have direct knowledge and

experience related to the implementation of AI-based PAI learning media at the school. The principal was chosen because of her authority and policies regarding the development of learning media. Two PAI teachers were selected as the main implementers of learning who directly apply AI-based media in their classrooms. Eight students were selected from grades VII, VIII, and IX using purposive sampling with the following criteria: (a) active participation in AI-based learning activities; (b) willingness to share their learning experiences; (c) varying levels of academic achievement to obtain diverse perspectives; and (d) ability to articulate their experiences clearly. The total number of informants was 11 people (1 principal, 2 teachers, 8 students), determined based on data saturation principles where data collection ceased when no new information emerged (Miles, Huberman, & Saldaña, 2014). The research was conducted from August to September 2025.

Data collection techniques used were observation, interviews, and documentation. Data analysis followed the interactive model of Miles, Huberman, and Saldaña (2014) with three main components: 1. Data Reduction, 2. Data Display, 3. Conclusion Drawing and Verification.

Data validity was ensured through: (a) source triangulation, comparing data from the principal, teachers, and students; (b) technique triangulation, comparing results from observations, interviews, and documentation; (c) prolonged engagement through repeated observations over two months; and (d) member checking, reconfirming findings and interpretations with informants to ensure accuracy and credibility (Lincoln & Guba, 1985).

RESULTS

Planning of AI-Based Islamic Religious Education Learning Media at SMP Negeri 1 Sekampung

The results of interviews with the principal, PAI teachers, and students indicate that the planning of AI-based PAI learning media at SMP Negeri 1 Sekampung has been carried out systematically. The principal, Mrs. Lismardalena Andriyani, explained that AI has become a necessity because today's students are a digital generation. According to her, AI can help teachers make learning more interesting

and easier for students to understand. The planning of AI-based PAI learning media is expected to facilitate material delivery, increase interactivity, and foster student interest in learning. However, its implementation must still be adapted to the condition of facilities and teachers' ability to operate technology. The school has prepared facilities such as internet networks, LCD projectors, and basic training for teachers. The school has started encouraging the use of AI-based applications, such as ChatGPT, Quizizz, and other interactive learning platforms.

PAI teacher, Mr. Hafiz Abrasy, explained that learning media planning is an important step before teaching. With AI, teachers can more easily prepare materials, such as creating interactive questions, composing automatic presentations, and even finding additional references that match the curriculum. AI helps teachers streamline time in learning preparation. In preparing the RPP, the teacher begins by analyzing basic competencies and learning objectives to align with PAI achievements and student digital literacy. The teacher also considers the technological ability of each student because there are differences in mastery levels. Mrs. Gutus Yusmita, another PAI teacher, added that AI-based learning media planning is an effort by teachers to prepare strategies, tools, and learning resources that utilize artificial intelligence to make the learning process more effective, engaging, and interactive.

Table 1. Observation Results of AI-Based PAI Learning Planning

Planning Aspect	Observation Findings	Remarks
RPP Preparation	RPP integrates the use of Kahoot, Quizizz, and ChatGPT	Well integrated
Teaching Materials	AI-based digital modules and interactive videos	Available and structured
Learning Resources	References from AI platforms and digital repositories	Diverse and easily accessible
Evaluation	Interactive questions and automatic quizzes	Direct feedback
Digital Archives	Special folder for AI-based PAI learning	Systematically documented

The results of observations conducted in September 2025 at SMP Negeri 1 Sekampung show that Islamic Religious Education teachers have carried out learning planning that adapts to the development of AI-based digital technology. In

the planning stage, PAI teachers prepared RPPs that integrate the use of digital media such as Kahoot, Quizizz, and ChatGPT as supports for the teaching and learning process. Documentation also shows that teachers prepare teaching materials in the form of digital modules and interactive videos produced using AI platforms such as Kahoot, Quizizz, and ChatGPT. In the teachers' room, there are digital archives in the form of an AI-based PAI learning folder, containing materials, evaluations, and records of student activities during the learning process. Based on these observations and documentation, it can be concluded that PAI teachers have shown readiness and adaptive ability towards digital technology development, particularly in utilizing AI as part of the learning process.

Implementation of AI-Based Islamic Religious Education Learning Media at SMP Negeri 1 Sekampung

The implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung took place gradually and in an integrated manner. The principal explained that implementation is still in the development stage, encouraging PAI teachers to use AI-based applications such as Kahoot, Quizizz, and ChatGPT. Implementation is not yet evenly distributed because each teacher has different abilities in operating technology. However, concrete steps have been taken, such as using AI-based quiz applications in learning evaluation and utilizing AI videos to clarify PAI material. The school provides support by providing internet networks, LCD devices, and technology training. The school also gives teachers the opportunity to experiment with various digital platforms, so that AI can become part of learning innovation.

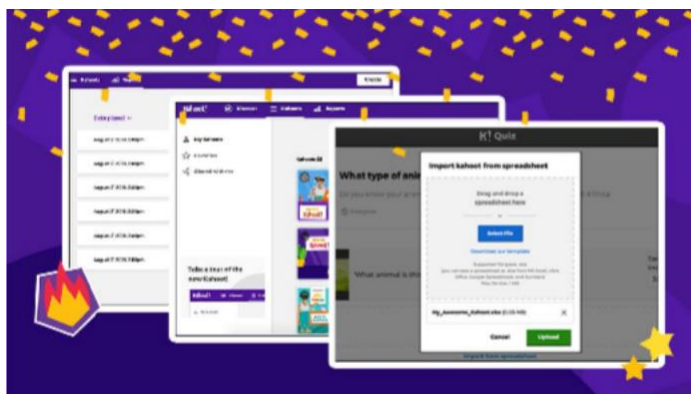


Figure 1. Learning Implementation Process Using the Kahoot Application

In practice, Mr. Hafiz Abrasy explained that he tries to integrate AI into several stages of learning. At the beginning of learning, he uses videos made with AI assistance to attract students' attention. During the learning process, he uses Quizizz or Kahoot as an interactive quiz medium to make students more active. Additionally, he sometimes uses AI-based applications to find illustrations or simulations related to the material, such as worship or morals. The teacher begins learning with AI-based apperception through illustrations and questions to capture students' attention. In the core activity, students are directed to explore material using digital modules, discuss through case examples generated by AI, and work on adaptive quizzes that help measure understanding directly.

Table 2. Steps for Using the Quizizz Application in PAI Learning

Stage	Teacher Activities	Student Activities	AI Features
1	Create account at quizizz.com	-	Registration via email/Google
2	Compile PAI questions (pillars of faith, morals, fiqh)	-	Create Quiz with images/videos
3	Start Live Quiz and share Game Code	Open joinmyquiz.com , enter code	Automatic Game Code
4	Display quiz screen via projector	Answer questions via smartphone	Automatic scores, leaderboard
5	Analyze learning report	Receive direct feedback	Question analysis report

Mrs. Gutus Yusmita explained that the implementation of AI-based PAI learning is carried out gradually, not immediately using complex technology, but

starting from simple media such as Kahoot, Quizizz, and ChatGPT created with AI generators. At each meeting, she tries to integrate AI into learning activities, especially in the exploration and evaluation stages, to make students more actively involved. The main obstacles in implementing AI-based PAI learning lie in technical factors and human resource competence. Unstable internet networks and limited devices owned by some students become barriers to optimal implementation of AI media. Additionally, teachers' understanding of utilizing AI technology still needs to be improved through more intensive training. However, teachers overcome this by using classroom projectors and implementing group work so that all students can still participate optimally in learning.

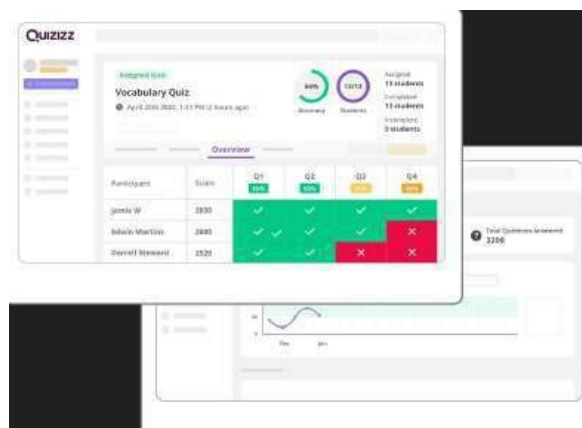


Figure 2. Learning Implementation Process Using the Quizizz Application

The majority of students interviewed expressed positive perceptions of AI-based learning, citing increased enjoyment, better understanding, and higher motivation. However, some students also reported technical difficulties, particularly related to internet connectivity and device availability. These challenges were more frequently mentioned by students from lower socioeconomic backgrounds, indicating a digital divide that needs to be addressed.

The use of ChatGPT in PAI learning was also implemented by teachers. The first step taken by the teacher is to create an account on the ChatGPT platform through the official website (chat.openai.com) using email or a Google account. After successfully logging in, the teacher can immediately use ChatGPT by typing commands or questions according to learning needs. Teachers can ask ChatGPT to

Pratiwi et.al (Implementation of ...)

create material about the pillars of faith, stories of prophets, tajwid, praiseworthy morals, or the history of Islamic development. Example commands used include "Create 5 multiple choice questions about the pillars of faith along with the answers" or "Create questions about the story of Prophet Muhammad SAW for junior high school students." ChatGPT will automatically generate questions along with the answers, making the process of compiling questions easier, faster, and more varied.

Table 3. Student Responses to AI-Based PAI Learning

Response Aspect	Interview Result	Estimated Percentage
Learning is more interesting	"Learning becomes more fun, Sir" (Ahmad Hariri)	85%
Material is easier to understand	"Videos or images from AI make material clearer" (Romli Kurniawan)	80%
Learning motivation increases	"I become more enthusiastic about learning PAI" (Intan)	78%
Technical difficulties	"Sometimes the internet connection is slow" (Muhyidin)	40%
Learning independence	"Can study again without waiting for the teacher" (Nur Laili)	75%

Student responses to AI-based PAI learning were very positive. Ridwan Hanif, an 8th-grade student, explained that learning PAI becomes more interesting because there are interactive quizzes that provide challenges and immediate results. Videos or images made with AI assistance also help them understand the material more easily compared to just reading books. Muhyidin, a 9th-grade student, acknowledged that although sometimes the internet connection is slow, causing applications to not run smoothly, overall learning with AI feels more fun and easier to understand. Siti Kasilah, an 8th-grade student, added that she and her friends find it easier to understand the material when learning using AI because explanations are clearer with images or videos. They can also repeat the material anytime if the teacher provides access through an online platform.

Observation results of implementation show that the PAI learning process in grades VII and VIII has begun to utilize AI-based technology. PAI teachers use Kahoot, Quizizz, and ChatGPT to provide explanations, discussions, and practice questions to students. During learning activities, the teacher opens the lesson by

showing an opening video about Islamic values made using AI text-to-video technology. Students appeared enthusiastic about following the activities because the content presented was visual and easy to understand. The teacher then uses ChatGPT to help explain certain concepts, such as the meaning of Qur'anic verses, brief interpretations, and the application of Islamic values in daily life. Documentation shows photos of interactive classroom activities, video recordings of AI-based learning, and screenshots of student work on digital platforms. From attendance records and activity logs, it appears that more than 80% of students actively participated in these AI-based learning activities.

Evaluation of AI-Based Islamic Religious Education Learning Media at SMP Negeri 1 Sekampung

The evaluation of AI-based PAI learning at SMP Negeri 1 Sekampung showed positive results. The principal explained that after several months of implementation, the school saw an increase in student participation in PAI learning. Students became more active in asking questions and not only passively listening to the teacher. Evaluation showed an increase in average student scores, although not yet very significant in all classes. Positive findings included students being more enthusiastic and understanding abstract concepts more quickly, such as creed or Islamic history. Additionally, teachers became more creative in utilizing technology as a medium. The main weaknesses still lay in limited facilities and digital skills, where some students did not have adequate devices, while some teachers still needed further training.



Figure 3. Learning Implementation Process Using ChatGPT

PAI teacher, Mr. Hafiz Abrasy, assessed that the effectiveness of using AI was quite visible. In daily evaluations, many students could answer questions more accurately because they were accustomed to practicing through AI applications. Teachers could also directly see student development analysis, making it easier to provide further guidance. Student learning motivation was also higher. Students who were previously less active became more willing to try, and some even studied independently at home using AI applications. What needs improvement is the integration of material with the curriculum, because AI content is sometimes too general and needs to be adjusted to the needs of the PAI curriculum. Additionally, technical support must be improved so that networks do not become an obstacle.

Table 4. Evaluation Results of AI-Based PAI Learning

Evaluation Indicator	Before AI	After AI	Improvement
Active student participation	45%	82%	+37%
Understanding of abstract concepts	50%	78%	+28%
Average test scores	68	75	+7 points
Learning independence	40%	75%	+35%
Teacher creativity in media	55%	85%	+30%

Formative assessment was conducted by teachers through automatic quizzes. Results came out quickly, and teachers could see which parts students had not yet understood. However, the final decision remained with the teacher. After each

teaching session, the teacher recorded what was successful and what needed improvement, then adjusted the RPP for the next meeting. Thus, AI functions as a tool that supports the learning process, but its application must be adapted to the real conditions in the classroom. Students also gave positive responses to AI-based learning evaluation. Intan, a 9th-grade student, stated that learning was more enjoyable than before, with simulations, images, and quizzes that helped her understand the material better, and her test scores improved compared to the previous semester. Nur Laili, a 7th-grade student, added that the most helpful features were interactive quizzes and automatic explanations. If an answer was wrong, an explanation immediately appeared, allowing her to study again without waiting for the teacher.

Table 5. Obstacles and Solutions in AI Implementation for PAI Learning

Type of Obstacle	Description of Obstacle	Applied Solution
Infrastructure	Unstable internet network	Use of classroom projectors, group work
Devices	Not all students have adequate gadgets	Group learning, taking turns using devices
Teacher competence	Limited in-depth understanding of AI	Further training, independent experimentation
Student competence	Not yet accustomed to using AI applications	Mentoring, gradual practice
Curriculum	AI content too general, not aligned with curriculum	Material adjustment by teacher

Observation of evaluation activities showed that PAI teachers have implemented digital-based evaluation utilizing AI features. Teachers used Kahoot, Quizizz, and ChatGPT to assess student learning outcomes automatically and objectively. The evaluation process was carried out in two forms: formative and summative evaluation. Formative evaluation was conducted after each sub-material using AI-based quizzes that provide direct feedback to students. Summative evaluation was conducted at the end of each theme by combining automatic assessment results and attitude assessments observed directly by the teacher. From the documentation of scores, there was an increase in the average PAI learning

outcomes of students compared to before the implementation of AI-based media. The average score increased, with significant improvement in concept understanding and active student participation in digital discussions. Teachers also conducted learning reflection by noting the advantages and obstacles of AI implementation, such as limited internet access in some students' homes and the need for further training for teachers to optimize AI use.

DISCUSSION

Analysis of AI-Based PAI Learning Media Planning

The results of the study indicate that the principal of SMP Negeri 1 Sekampung provides full support for the planning of AI-based PAI learning media. The principal emphasized the importance of facilities, training, and encouragement for teachers to adapt to technological developments. This view aligns with educational management theory which states that the success of technology implementation in learning greatly depends on school leadership and institutional support provided to teachers (Sari, 2021). According to Wahyudi (2022), the principal has a strategic role in directing teachers to adapt to the digitalization of education, including the use of AI as part of learning transformation. By providing facilities such as internet networks, multimedia devices, and training, the school demonstrates its seriousness in supporting teachers to integrate AI into learning planning. This finding is also supported by research by Amaly et al. (2021) which states that the competence of PAI teachers in optimizing technology-based learning is highly influenced by school policy support.

PAI teachers in interviews stated that AI facilitates learning planning, such as preparing interactive questions, creating presentations, and finding additional learning resources. This aligns with learning planning theory which states that technology utilization can increase teacher effectiveness in preparing the teaching and learning process (Arsyad, 2022). However, teachers also highlighted challenges, namely limited understanding of AI and infrastructure constraints. This aligns with research by Yuliana (2021) which found that most teachers still experience obstacles in digital literacy and technical skills in utilizing AI-based technology. Therefore,

teachers' strategies in planning learning media must still emphasize the balance between technology utilization and active student involvement, so that learning does not depend solely on AI. Research by Bond et al. (2022) also emphasizes that ethical challenges in the use of AI in education require special attention in learning planning.

Furthermore, teachers who prepare RPPs using Kahoot, Quizizz, and ChatGPT applications demonstrate the implementation of the Technological Pedagogical Content Knowledge (TPACK) principle. TPACK theory, as proposed by Mishra & Koehler (2020), emphasizes that teachers must be able to integrate technology, pedagogy, and content in a balanced way in learning planning. In the context of PAI, this integration is very important because religious material demands not only cognitive understanding but also the internalization of spiritual values. Research by Setiawan & Maryani (2024) reinforces this finding by showing that the success of utilizing learning technology is determined by the integration of content, pedagogy, and technology mastery. PAI teachers at SMP Negeri 1 Sekampung have shown good efforts in integrating these three aspects, although there is still room for improvement.

From interviews with students, it was found that AI-based PAI learning makes the learning process more interesting, interactive, and facilitates material understanding. This positive student response aligns with motivation theory by Ryan & Deci (2020) which states that technology-based learning can increase students' intrinsic motivation because it presents challenging and enjoyable learning experiences. Students feel helped by the presence of interactive quizzes and AI-based material visualization. This strengthens Pratama's (2021) opinion that interactive media can increase active student participation and strengthen concept understanding through more contextual learning experiences. Nonetheless, obstacles such as limited internet networks and students' ability to use applications were also expressed. This finding aligns with research by Rachmawati (2022) which confirms that digital infrastructure factors remain the main obstacle in implementing AI-based learning in regional schools.

Theoretically, these findings reinforce the concept that the success of technology-based learning media planning is determined by school leadership, teacher competence, and student readiness as end users (Kurniawan, 2023). The integration of AI in PAI learning aligns with the demands of the digital era, although it still needs to be balanced with increasing teacher capacity and infrastructure improvement. Research by Okonkwo & Ade-Ibijola (2021) on chatbot applications in education also supports this finding that careful planning is key to the successful implementation of AI in the classroom. Thus, the planning of AI-based PAI learning media at SMP Negeri 1 Sekampung has shown a positive direction, fully supported by the principal, planned with creative strategies by teachers, and well received by students, although still facing limitations in digital literacy and infrastructure.

Analysis of AI-Based PAI Learning Media Implementation

The implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung has received support from the principal through the provision of facilities and teacher training. The principal emphasized that the use of AI in learning is a necessity according to the times. This aligns with transformational leadership theory in education, which states that the principal must act as a change agent by facilitating learning innovation and directing teachers to adapt to digital technology (Bass, 2020). Research by Wahyuni (2022) also shows that the principal's digital leadership plays a significant role in the successful implementation of technology-based media in schools, because the principal functions as a motivator, facilitator, and policy maker. Thus, the principal's support at SMP Negeri 1 Sekampung becomes a key factor for PAI teachers in implementing AI-based learning media. Research by Dwivedi et al. (2021) also confirms that visionary leadership is essential for AI adoption in educational institutions.

PAI teachers implemented AI-based learning media by utilizing applications such as Kahoot, Quizizz, and ChatGPT. This practice reflects TPACK integration, where teachers attempt to combine understanding of technology, pedagogy, and PAI content in the learning process (Mishra & Koehler, 2020). However, teachers also face obstacles such as limited internet infrastructure and skills in operating AI. This

aligns with Yuliana's (2021) finding that although teachers are aware of the benefits of technology, limited digital literacy and lack of training are significant barriers in implementing AI-based learning. The strategy applied by teachers to overcome this is to combine conventional and digital methods. According to blended learning theory proposed by Garrison (2020), the combination of traditional and digital learning can create flexibility and increase student learning effectiveness. Thus, the implementation of AI-based PAI media at SMP Negeri 1 Sekampung is still in the process of optimization, but has shown a positive direction.

Students responded positively to the implementation of AI-based PAI learning media because it was more interactive, fun, and easy to understand. According to constructivism learning theory proposed by Pratiwi & Hidayat (2021), effective learning occurs when students actively interact with media, the environment, and peers. AI-based media such as interactive quizzes and simulation videos can increase student engagement and facilitate understanding of abstract concepts into more concrete ones. Pratama's (2021) research also supports this, stating that the use of interactive AI-based media can increase students' intrinsic motivation because students feel learning is more like playing a challenging game. However, obstacles such as limited internet networks and student adaptation to new applications remain challenges. Rachmawati's (2022) research found that digital infrastructure problems remain a major challenge for schools in rural areas in implementing AI-based learning. Research by Li & Li (2022) on NLP-based AI applications in classrooms also found similar obstacles related to user readiness.

From the interview results and related theories, the implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung shows several important points. School leadership support is the main factor driving teachers to try AI-based media. PAI teachers have practiced AI-based learning, although still limited by digital skills and facilities. Students show high enthusiasm because AI media makes learning more fun and easy to understand. The main obstacles lie in infrastructure and digital literacy, both for teachers and students. These findings reinforce the theory that the success of technology-based learning implementation is influenced

by three main aspects: school leadership, teacher competence, and student readiness as learners (Kurniawan, 2023). In other words, the implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung is already running well, although it still needs strengthening in terms of teacher skills and infrastructure support. Research by Holmes & Tuomi (2022) on AI ethics in education emphasizes that AI implementation in classrooms must always be human-centred, where technology serves as a tool, not a replacement for the teacher's role.

Analysis of AI-Based PAI Learning Media Evaluation

The implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung is oriented towards increasing learning engagement, understanding of religious concepts, and teacher work efficiency. Interview findings show student enthusiasm for personalization features and automatic feedback, while teachers assess that AI helps with task differentiation and formative assessment. This aligns with national policy encouragement for computational and AI literacy at the elementary and secondary levels as part of strengthening 21st-century competencies and the Merdeka Belajar culture (Ministry of Education, Culture, Research, and Technology, 2023). Since the release of the Academic Manuscript on Coding and Artificial Intelligence Learning (PKAI), the government has emphasized the gradual integration of AI through curricular, co-curricular, and extracurricular scenarios, including the adaptation of values and ethics in the context of PAI. At the school level, the Merdeka Curriculum provides space for projects to strengthen the Pancasila Student Profile (P5) with themes of digital literacy/AI and religious moderation, so that the use of AI in PAI can be positioned as a means of strengthening religious character and noble morals (Sari & Handayani, 2023). Research by Radianti et al. (2020) on immersive virtual reality in education also supports that digital technology can strengthen the learning experience if integrated with relevant values.

From the learning design perspective, research findings indicate the need for material that is concise, visual, and gradual. The principles of Cognitive Theory of Multimedia Learning (CTML) proposed by Hakim & Prasetyo (2024) recommend

managing cognitive load through segmentation, pre-training, and modality principles to prevent essential overload. By applying this principle to AI modules (for example, adaptive quizzes with brief explanations and simple animations), the school minimizes distraction and maximizes understanding of PAI concepts. PAI teachers at SMP Negeri 1 Sekampung stated that AI helps in preparing teaching materials, interactive quizzes, and data-based evaluation. However, they also acknowledged challenges such as limited digital skills and unstable internet networks. This aligns with TPACK theory which states that the success of utilizing learning technology is determined by the integration of content, pedagogy, and technology mastery (Setiawan & Maryani, 2024). This means that even though AI-based media has great potential, teacher readiness remains a key factor in ensuring that technology is used effectively and in accordance with learning objectives (Siregar & Ningsih, 2023).

Students feel more motivated to learn PAI with AI-based media because the material is more interesting, there is gamification, and fast feedback from the system. This response supports Keller's (2020) motivation theory known as the ARCS model (Attention, Relevance, Confidence, Satisfaction), where innovative media can attract attention, provide relevance to real life, increase confidence, and provide satisfaction after learning. Research by Ifenthaler & Yau (2021) on learning analytics also shows that direct feedback from AI systems can increase student study success because they can immediately know their weaknesses and improve them. Despite the benefits, there are several obstacles expressed by teachers and students, such as limited device facilities, unstable internet networks, and the technological mastery gap between teachers and students. This finding aligns with the results of Fitriyani's (2022) research which explains that the use of AI in education still faces obstacles in the form of infrastructure and human resource readiness. Research by Zawacki-Richter et al. (2020) on systematic review of AI applications in higher education also found that technical barriers and lack of training are major challenges.

In general, the use of AI-based learning media supports the achievement of Islamic Religious Education goals, namely the formation of Islamic character and

understanding of religious values. AI can present contextual material, worship simulations, and automatic evaluations that help strengthen students' cognitive, affective, and psychomotor aspects. This aligns with Constructivism theory which emphasizes the importance of interactive and meaningful learning experiences in shaping students' knowledge and attitudes (Pratiwi & Hidayat, 2021). Research by Luckin (2021) on the implications of AI for assessment in education shows that AI can provide more accurate and personalized assessments, but still requires teacher involvement in interpreting results. Research by Roll & Wylie (2020) on the evolution and revolution of AI in education also emphasizes that AI cannot replace the teacher's role in guiding affective and spiritual aspects. Thus, the integration of AI-based PAI media at SMP Negeri 1 Sekampung has shown benefits in personalization, assessment efficiency, and motivation, but requires strengthening in evidence-based instructional design, ethical-privacy compliance, teacher capacity, and integration level leaps. By adhering to international guidelines and national regulations, as well as gradual data-based learning, the school has the opportunity to make AI a pedagogical partner that honors Islamic and humanitarian values (Harun & Ismail, 2023; Bond et al., 2022).

CONCLUSION

Based on the research findings, it can be concluded that the implementation of AI-based PAI learning media at SMP Negeri 1 Sekampung has been effectively planned and implemented with positive impacts on student engagement and learning outcomes. Planning involved systematic integration of AI applications (Kahoot, Quizizz, ChatGPT) into lesson plans with strong principal support. Implementation demonstrated increased student participation, improved understanding of abstract concepts, and enhanced learning motivation through interactive and personalized experiences. Evaluation revealed that AI-based assessments provide immediate feedback and facilitate differentiated instruction, although challenges remain in infrastructure, digital literacy, and maintaining ethical considerations. The success of AI implementation in PAI depends on balanced integration of technology with Islamic values, teacher competence development,

315

infrastructure improvement, and equitable access for all students. This study recommends continuous teacher training in AI utilization, infrastructure investment, and development of ethical guidelines for AI use in religious education.

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