



Implementation of Gemini Application in Moral Education for Early Childhood Learning

Yonanda Afrilioni¹, Alimni¹, Dayun Riyadi¹

¹Universitas Islam Negeri Fatmawati Soekarno Bengkulu, Indonesia

✉ yonandaafrilioni21@gmail.com *

Article Information:

Received May 25, 2026

Revised June 28, 2026

Accepted July 28, 2026

Keywords: *Gemini application, moral education, early childhood education, artificial intelligence*

Abstract

Moral education in early childhood holds critical urgency, as this developmental stage represents the golden age that shapes children's character, moral values, and spiritual foundations for subsequent growth. This study aims to analyze the implementation of the Gemini application in moral education for early childhood learning. Employing a qualitative case study design, data were collected from four classroom teachers and one principal through in-depth interviews using purposive sampling, with all students observed as research subjects to assess character development. Data were obtained through interviews and classroom observations, then analyzed using data reduction, presentation, and conclusion drawing techniques, with validity ensured through source and methodological triangulation. The findings reveal that the integration of the Gemini application occurs across planning, implementation, and material development stages, serving as a source of ideas, references, Islamic stories, and learning activities tailored to the characteristics of young children. The use of Gemini enhances efficiency in lesson preparation, strengthens teachers' creativity in designing moral education, and provides more relevant learning materials aligned with early childhood needs. This study contributes to the growing discourse on artificial intelligence in moral education and offers practical insights for teachers to integrate the Gemini application effectively, creatively, and responsibly in early childhood education.

INTRODUCTION

Character education in early childhood education is of the utmost importance because early childhood is the "golden age" that shapes a child's character, morals, and spirituality for subsequent stages of development. Masripah et al., (2025) also note that early childhood is a golden period that determines a child's personality development in later stages of life. During this phase, children possess a high capacity to absorb various values, attitudes, and habits acquired from their surroundings. Instilling moral values from an early age is a strategic effort to shape a generation that not only possesses intellectual intelligence but also has a strong moral and spiritual foundation. Moral education helps children recognize the value of goodness, build a sense of responsibility,

How to cite:

Afrilioni, Y., Alimni, A., Riyadi, D. (2026). Implementation of Gemini Application in Moral Education for Early Childhood Learning. *International Journal of Multidisciplinary of Higher Education (IJMURHICA)*, 9(3), 985-1000.

E-ISSN:

2622-741x

Published by:

Islamic Studies and Development Center Universitas Negeri Padang

foster respect for others, and develop religious awareness that serves as a guide in daily life (Suwanto & Zainudin, 2025). Moral education for young children is also a cornerstone of the Islamic education system. The most fundamental focus during this period is character building through the instillation of moral values toward Allah SWT, which includes an introduction to tawhid (monotheism), a sense of gratitude, and devotion to worship from an early age. However, conveying the concept of divinity to children aged 4–6 years presents a significant challenge for teachers, as children's minds are still in the concrete operational stage, while the attributes of Allah are abstract in nature (Hasanah, 2024).

In this era, early childhood education teachers serve as educators, mentors, and role models in helping children internalize moral values through the processes of habit formation, modeling, and learning experiences that are appropriate to children's developmental characteristics. According to the National Association for the Education of Young Children, early childhood education must be grounded in developmentally appropriate practice that is, learning tailored to children's developmental stages, needs, and learning characteristics. In accordance with Ministry of Education and Culture Regulation No. 137 of 2014, early childhood educators are required to possess professional competencies, including the ability to utilize information technology in the delivery of instruction. Therefore, early childhood education teachers need the ability to develop creative, contextual, and innovative moral education lessons including through the use of artificial intelligence (AI)-based technologies such as Gemini as a learning support tool so that abstract concepts of morality and monotheism can be presented more concretely without diminishing the essence of Islamic values. The use of artificial intelligence (AI) in education must also be carried out ethically and centered on the teacher's role as the primary facilitator of the learning process, not as a substitute for the teacher.

In this rapidly evolving digital age, Artificial Intelligence (AI) has emerged as one of the innovations capable of having a significant impact across various aspects of life, including education. AI's ability to perform intelligent tasks such as pattern recognition, natural language processing, and data-driven decision-making has opened new opportunities to enrich the learning process through machine learning. Machine learning is a method that enables machines to learn automatically based on patterns and requires fewer instructions compared to humans (Kurniawijaya et al., 2021). Furthermore, Abidin, (2023) states that artificial intelligence (AI) is a type of intelligent system that plays a major role in how humans interact with information in their personal and professional lives, and can transform the way humans discover and use information in schools and academia. This means that artificial intelligence (AI) can contribute to education by facilitating the transfer of information to learners.

Teaching children aged 4–6 about God presents its own challenges. According to Jean Piaget's theory of cognitive development, children at this age are in the preoperational stage, during which they tend to think concretely. Meanwhile, the concept of God is abstract. If teachers lack the creativity to simplify this concept, religious education will merely become a set of doctrines that are difficult to understand (Arisanti et al., 2024). This aligns with the view of (Nasution et al., 2025), who state that technological innovation is essential in early childhood education to bridge the gap between complex material and children's still-limited comprehension.

Early childhood education teachers play a central role in instilling moral values in children because, at an early age, the learning process occurs primarily through observation, imitation, and habit formation. Children tend to model the behavior demonstrated by those in their immediate environment, especially teachers with whom they interact directly every day during learning activities. The teacher's role is not limited to delivering content but also includes creating a learning environment that supports character development, setting a good example, and consistently reinforcing positive behaviors. A teacher's ability to provide engaging, contextual, and developmentally appropriate learning experiences is a key factor in successfully instilling moral values in early childhood education.

Currently, Artificial Intelligence (AI) technologies, such as Google Gemini, can be used to support the learning process ([Amalia et al., 2024](#)). This platform enables teachers to teach more efficiently and effectively. This aligns with the view that technology supports educators in enhancing the teaching and learning process and enables greater autonomy without replacing their role ([Karyadi, 2023](#)).

This program has several main objectives. First, to equip teachers with the skills to use artificial intelligence (AI) specifically Gemini to create more effective and creative learning modules. Second, to improve the quality of the learning modules developed by teachers and help them integrate Artificial Intelligence (AI) technology into the learning process at school. Participants in this program are teachers from various subject areas and educational levels in Melawi Regency. The program curriculum is designed so that every teacher can use Gemini through a participatory action research approach ([Maryani, 2025](#)).

Early childhood education teachers play a crucial role in laying the foundation for children's education, particularly for young children. Children's ability to adapt to technological innovations will significantly influence the quality of the education they receive. Interactive learning media have proven effective in capturing children's attention, increasing their engagement, and fostering a better understanding of learning concepts ([Cahyana & Faisal, 2024](#)). However, all these processes require considerable time, creativity, and resources. Gemini is not merely a tool but also a partner in the world of education that can help teachers be more creative and innovative in developing learning methods. The benefits of the Gemini app stem largely from its unique "Gems" feature, which simplifies the management of learning materials.

The Development of Islamic Education in the Modern Era In the development of Islamic education during the modern era, particularly after the onset of the 19th century CE, the Islamic world entered an age of revival and modernization. This spirit of revival was driven by two factors: i) The Quran encourages people to think and reflect, even commanding them to contemplate and uncover the secrets of the universe. ii) The drive for progress in the form of advancements in science and technology that entered the Islamic world. This was spurred by contact between the Islamic world and the West, which subsequently introduced new ideas, such as rationalism and so on ([Nurhayati et al., 2025](#)).

In today's digital age, Artificial Intelligence (AI) offers solutions as a creative assistant for educators. One of the leading platforms is the Gemini app. Theoretically, Artificial Intelligence (AI) in education functions as scaffolding to support teachers in enriching instructional materials ([Nurhayati et al., 2025](#)). This is the phenomenon researchers have observed in Early Childhood Education.

Although the use of Artificial Intelligence in education continues to grow, studies specifically examining the use of Artificial Intelligence (AI) to support character education in early childhood remain very limited. Most previous research has focused primarily on the use of Artificial Intelligence (AI) to improve digital literacy, learning effectiveness, the development of teaching materials, and the creation of educational media in general. Research examining how artificial intelligence (AI) is utilized as a teacher's assistant in instilling moral values and the concept of Tawhid in early childhood, particularly through the Gemini app, remains scarce. This situation highlights a research gap between the rapid advancement of AI technology in education and its application in moral education at the Early Childhood Education level. This gap is increasingly important to address, given that teachers need creative strategies and learning resources to convey abstract religious concepts to young children without compromising the essence of the Islamic values they aim to instill (Fauziddin & Agustin, 2024).

Based on preliminary observations conducted on January 6, 2026, at an early childhood education center, it was found that four teachers had consistently used the Gemini app for six months to design moral education lessons, such as creating creative narratives, Islamic stories, and strategies for introducing the attributes of Allah tailored to the characteristics of young children. These practices demonstrate that artificial intelligence is not only utilized to assist in the development of instructional materials but also serves as a tool to support the creation of more contextual and engaging character education lessons. However, these field findings reveal a gap between the development of artificial intelligence (AI) practices in schools and the available scientific research. Most previous research has focused on the use of artificial intelligence (AI) to improve digital literacy, the development of teaching materials, the creation of learning media, or the effectiveness of learning in general, whereas research specifically examining the implementation of the Gemini application in character education in early childhood education remains very limited. This situation indicates a research gap namely, the lack of empirical evidence regarding how generative Artificial Intelligence (AI) is implemented by teachers to support character education in early childhood.

Given this gap, this study offers a novel approach by analyzing the implementation of the Gemini app in character education in Early Childhood Education through a qualitative approach that combines interview data, observations, and documentation to uncover the implementation process and the benefits of its use for teachers. Unlike previous studies that have focused more on the technical aspects of artificial intelligence (AI) use or learning in general, this study focuses on the use of generative Artificial Intelligence (AI) to support the internalization of moral values in early childhood while maintaining the teacher's role as the pedagogical decision-maker. The results of this study are expected to provide theoretical implications by enriching the literature on the integration of artificial intelligence into Islamic education for young children, while also offering practical implications as a reference for teachers, early childhood education administrators, and policymakers in developing innovative and effective moral education that remains child-centered and grounded in Islamic values. Based on this, this study aims to analyze the implementation of the Gemini application in character education and to identify the benefits of its use in supporting character education in early childhood education.

This study is expected to contribute to the development of research on the use of artificial intelligence in Islamic education, particularly in character

education in Early Childhood Education. Theoretically, this study broadens our understanding of the implementation of the Gemini application as a supporting technology that strengthens teachers' pedagogical competencies without displacing the teacher's role as the primary actor in the learning process. Practically, the results of this study can serve as a reference for Early Childhood Education teachers, educational institution administrators, and policymakers in integrating artificial intelligence effectively, ethically, and responsibly to improve the quality of moral education. Furthermore, this study is expected to serve as a foundation for future research in developing models for the use of artificial intelligence in various aspects of Islamic education across different levels of education.

METHODS

This study employs a qualitative method using a case study approach. It utilizes the case study method because it aims to examine, in an intensive and in-depth manner, a single case namely, the specific phenomenon of teachers' use of the Gemini app to teach moral values in the natural context of Early Childhood Education. Through this approach, the researcher can capture words and actions relevant to the established inclusion and exclusion criteria (Akem et al., 2025; Aryasutha et al., 2025; Engkizar et al., 2023, 2025; 2026; Kasheem et al., 2025; Masoud & Almajri, 2025; Moleong, 2002; Putra et al., 2020). Data sources were drawn from four classroom teachers and one school principal selected as informants through in-depth interviews using purposive sampling as well as all students, who served as research subjects whose character development was observed. The selected informants met four criteria: they had a good understanding of the research problem, were still active in the field of study, had time to provide information to the researcher, and provided information consistent with the facts observed in the field (Efendi et al., 2026; Engkizar et al., 2026; Sugiyono, 2014).

RESULT AND DISCUSSION

The author presents empirical findings from the field obtained through in-depth interviews, direct observation, and a review of documentation in Early Childhood Education. The structure of the research data presentation is outlined in a thematic narrative based on key indicators gathered from key informants, namely school principals and classroom teachers. Based on the research conducted, the following results were obtained:

Table 1. Results of Thematic Analysis

Theme	Subtheme	Data Source	Synthesis of Findings
Implementation of Gemini application in moral education	Lesson planning	Principal, Teacher B1, Teacher B2, Observation	Gemini is utilized to prepare RPPH/RPPM, search for material ideas, Islamic stories, and moral habituation activities.
	Lesson implementation	Principal, Teacher B1, Teacher B2, Observation	Materials generated by Gemini are applied through storytelling, role play, educational

			games, and moral habituation.
	Development of materials and media	Principal, Teacher B1, Teacher B2	Gemini helps produce varied songs, games, and more creative learning activities.
Benefits of using Gemini	Ease of obtaining materials	Principal, Teacher B1, Teacher B2	Teachers gain faster, more diverse references aligned with early childhood characteristics.
	Time efficiency	Teacher B1, Teacher B2	Preparation time for learning tools is shortened, allowing teachers to focus more on teaching strategies.
	Creativity enhancement	Principal, Teacher B1, Teacher B2	Gemini generates innovative ideas for developing methods, media, and moral learning activities.
Teachers' role in utilizing artificial intelligence	Selection and adaptation of materials	Principal, Teacher B1, Teacher B2	All Gemini outputs are verified, adapted, and further developed before being applied to students.
	Teachers as pedagogical decision-makers	All informants	Gemini functions as a supporting tool, while teachers remain the main actors in determining learning quality.
Impact on moral education	More engaging and contextual learning	Teacher B1, Teacher B2, Observation	Varied methods and media increase children's engagement in the learning process.
	More effective inculcation of moral values	Principal, Observation	Moral education becomes more meaningful as it is delivered through activities suited to early childhood characteristics.

The research findings identified four main themes: the implementation of the Gemini app in character education, the benefits of using Gemini, the role of teachers in utilizing artificial intelligence, and its impact on character education. Gemini was implemented systematically during the planning, implementation, and instructional material development stages. During the planning stage,

teachers used Gemini to generate ideas for developing lesson plans (RPPH/RPPM), Islamic stories, and character-building activities. During the implementation phase, the resulting materials were applied through storytelling, role-playing, educational games, and character-building activities. Furthermore, during the material development phase, Gemini helped generate a variety of more engaging media, songs, dialogues, and learning activities, thereby enriching the children's learning experience.

The research results also show that the use of Gemini provides three main benefits: it makes it easier for teachers to access learning resources, improves time efficiency in lesson preparation, and encourages teachers' creativity in developing teaching methods, media, and learning activities. The diverse range of materials generated enables teachers to design character education lessons that are more contextual, innovative, and tailored to the characteristics and developmental needs of early childhood students.

On the other hand, the research findings confirm that the use of Gemini does not supplant the professional role of teachers. All generated materials still undergo a process of selection, adaptation, and development before being applied in learning activities, so teachers remain the primary decision-makers in determining the quality and appropriateness of the materials. Thus, Gemini functions as a supportive technology that strengthens teachers' pedagogical competencies without replacing their role as educators. The use of this technology has led to the creation of character education that is more engaging, interactive, contextual, and effective in instilling moral values in early childhood.

The Use of the Gemini App in Character Education in Early Childhood Education

The implementation of the Gemini app in character education in Early Childhood Education demonstrates that generative artificial intelligence has been utilized as a supporting technology that assists teachers in the planning, implementation, and development of learning materials. These findings not only illustrate the integration of technology into learning but also demonstrate a shift in the role of technology from merely a source of information to a tool that supports teachers' pedagogical decision-making. These results address the first research objective to describe the implementation of the Gemini app in character education in Early Childhood Education while also showing that the success of AI integration depends on teachers' ability to manage technology according to students' characteristics, rather than on the technology itself.

These findings are consistent with the Technological Pedagogical Content Knowledge (TPACK) framework developed by Punya Mishra and Matthew J. Koehler, which explains that the use of technology is effective when teachers are able to integrate technological knowledge, pedagogy, and learning content in a balanced manner (Koehler et al., 2014). In the context of this study, teachers did not merely use Gemini to obtain information but integrated the results into learning strategies aligned with the learning objectives for moral education and the characteristics of early childhood students. Recent developments in the TPACK framework also emphasize that in the era of generative Artificial Intelligence (AI), teachers' competencies extend beyond the ability to use technology to include evaluating, verifying, and adapting artificial intelligence (AI) outputs before implementing them in instruction.

During the planning stage, Gemini helps teachers access a variety of alternative ideas, such as Islamic stories, practice activities, educational games, and more diverse lesson plans. Scientifically, these findings indicate that generative Artificial Intelligence (AI) functions as a cognitive support that expands teachers' capacity to generate various learning alternatives without

compromising their professional autonomy. With more material options available, teachers have the opportunity to choose the strategies that best suit their students' needs. This indicates that the use of Artificial Intelligence (AI) not only improves planning efficiency but also enriches the quality of lesson plans, as teachers can focus their time on designing more meaningful learning experiences.

This interpretation aligns with the instructional design theory proposed by (Gagné et al., 1993), which positions planning as a fundamental stage in creating effective learning experiences. According to this theory, the success of learning is influenced by the teacher's ability to design stimuli that align with learning objectives and learner characteristics. The findings of this study show that Gemini enriches the range of learning stimuli by providing a wider variety of stories, activities, and media, thereby making it easier for teachers to develop contextual character education lessons that are appropriate for children's developmental stages. The ease of accessing lesson ideas also saves teachers time when preparing teaching and learning activities (Tarrapa & Al, 2025).

The research findings also show that teachers do not use Gemini's output directly, but instead engage in a process of selection, language simplification, and adaptation to classroom conditions. These results indicate that the quality of learning is not determined by the sophistication of Artificial Intelligence (AI), but rather by the teacher's ability to interpret the information generated by the technology from a pedagogical perspective. These findings expand on Lev Vygotsky's concept of scaffolding. According to this theory, the learning process occurs through support or scaffolding that helps individuals complete tasks that were previously difficult to accomplish independently (Ariansyah, 2023). The results of this study show that teachers use Gemini to generate story ideas, activity examples, and practice exercises, which are then modified to meet students' needs. This demonstrates that technology functions as a cognitive aid that expands teachers' capacity to design learning experiences without diminishing their role as the primary decision-makers.

During the implementation phase, the research findings showed that teachers implemented the materials produced by Gemini through storytelling, role-playing, educational games, and character-building activities. These findings indicate that Artificial Intelligence (AI) was not used directly by the students but was mediated by teachers through learning activities tailored to the developmental characteristics of early childhood. This strategy has important implications because it minimizes children's dependence on digital devices while maintaining social interaction as the core of learning in Early Childhood Education. Thus, technology serves as a support for the learning process, while pedagogical interaction between teachers and students remains central to character development.

This interpretation aligns with Jean Piaget's theory of cognitive development, which states that children in the preoperational stage more easily grasp concepts through concrete experiences, symbolic play, and activities closely tied to daily life. Therefore, transforming Gemini's outputs into stories, games, and practice activities constitutes a form of pedagogical adaptation that enables children to understand moral values in a more meaningful way.

In addition to improving the quality of learning, the research findings show that the use of Gemini fosters teachers' creativity in developing learning materials and activities. This indicates that generative Artificial Intelligence (AI) does not limit teachers' creativity but rather expands the scope for exploring ideas by providing various alternatives that can be modified to suit the learning context. This finding aligns with the research by Judijanto et al., (2025), which

found that the use of generative Artificial Intelligence (AI) can enhance teachers' creativity in designing learning materials by providing a variety of alternative ideas that can be adapted to students' needs. The availability of Gemini helps teachers overcome limitations in reference sources while expanding the variety of learning strategies that can be applied in the classroom (Apriliani et al., 2024).

The findings of this study are also consistent with the results of a study conducted by Sulastri et al., (2026), which states that the use of digital technology in Early Childhood Education can increase the variety of learning activities and teachers' motivation in developing character-based learning. That study found that technology provides broader access to learning resources, but its effectiveness still depends on teachers' ability to manage and adapt the material to children's needs. Research by Maulida et al., (2025) also indicates that digital technology and artificial intelligence have great potential to support learning innovation when used wisely and integrated with teachers' pedagogical competencies.

Furthermore, the results of this study reinforce the view that character education in early childhood cannot be separated from the process of modeling. Albert Bandura's social learning theory explains that children learn through observing and imitating the behavior of those around them. The study's findings indicate that even though the material is derived from Gemini, teachers remain the primary role models that children imitate in their daily lives. The practice of greeting others, praying, sharing with friends, and demonstrating good manners are concrete examples of the social learning process that cannot be replaced by technology (Zahiyah, 2025). Thus, Gemini's role is best understood as supporting the learning process, while character development continues to take place through the pedagogical relationship between teachers and students.

Overall, the research findings indicate that the implementation of Gemini not only introduces technological innovation in character education but also strengthens teachers' pedagogical competencies by improving the quality of planning, implementation, and development of instructional materials. These findings enrich the literature on the use of generative Artificial Intelligence (AI) in early childhood education by demonstrating that the success of technology implementation does not depend on the ability of Artificial Intelligence (AI) to generate information, but rather on teachers' competencies in validating, adapting, and integrating that information into learning that is appropriate for the characteristics of the learners. Thus, this study offers theoretical implications for the development of the TPACK framework in the era of generative AI, as well as practical implications for early childhood education institutions in integrating AI in an ethical, effective, and character-building manner.

Benefits of Using the Gemini App to Support Character Education in Early Childhood Education

The research findings show that the use of the Gemini app provides three main benefits for character education: it makes it easier for teachers to access relevant learning materials, increases efficiency in lesson preparation, and encourages teachers' creativity in designing teaching methods, media, and activities. These findings not only demonstrate the practical benefits of using artificial intelligence but also indicate a transformation in how teachers acquire, develop, and manage learning resources. Thus, the research results address the second research objective, which is to explain the benefits of using the Gemini app in supporting character education in early childhood education.

The first benefit identified was Gemini's ability to help teachers obtain learning materials relevant to learning objectives and the characteristics of young children. Teachers no longer rely on a single learning resource but can access a

variety of Islamic stories, practice activities, educational games, and examples of commendable behavior in a relatively short amount of time. This finding indicates that Gemini functions as a digital learning resource that expands teachers' access to information while enriching the variety of learning materials. Conceptually, this finding aligns with the definition provided by the Association for Educational Communications and Technology, which asserts that educational technology is the ethical study and practice of facilitating learning and enhancing performance through the creation, use, and management of appropriate technological processes and resources (Seels & Richey, 2012). From this perspective, Gemini is understood not only as an Artificial Intelligence (AI)-based application but also as a technological resource that supports the improvement of learning quality by providing information that is relevant, easily accessible, and tailored to teachers' needs.

An interpretation of these findings suggests that the ease of accessing materials does not merely speed up the search for information but also expands teachers' opportunities to select materials that are most appropriate for the learning context. Teachers have the flexibility to compare various material options before deciding which teaching materials to use in the classroom. This situation demonstrates that the use of Artificial Intelligence (AI) supports a more reflective pedagogical decision-making process because teachers not only receive information but also select, adapt, and develop it according to students' needs. Thus, the quality of learning is not determined by the amount of information generated by Artificial Intelligence (AI), but rather by the teacher's ability to manage that information and transform it into a meaningful learning experience.

The findings of this study are also supported by research conducted by (Aziz et al., 2025), which found that the use of Artificial Intelligence (AI)-based technology can help teachers access learning resources more quickly and from a wider variety of sources compared to conventional methods. This study indicates that artificial intelligence (AI) can serve as a supportive tool that expands teachers' access to a variety of relevant learning materials. Similar findings were observed in the study by Muthohar et al., (2025), in which teachers gained access to numerous alternatives for Islamic stories, practice activities, and examples of ethical behavior that could be tailored to learning objectives. This aligns with digital learning theory, which states that information technology enables expanded access to learning resources without being limited by time or space. The ease of accessing this information helps teachers develop learning experiences that are richer, more relevant, and better suited to students' needs (Basyiroh, 2026). This demonstrates that the use of Artificial Intelligence (AI) provides opportunities for teachers to improve the quality of the materials used in instruction. Artificial Intelligence (AI) adds value when it functions as a professional support tool for teachers, rather than as a substitute for the pedagogical process.

The second benefit identified was increased time efficiency in lesson preparation. The research findings show that teachers can create teaching materials, search for references, and develop learning activities in less time than before using Gemini. However, this efficiency is not merely a matter of saving time but also an opportunity for teachers to devote more attention to activities with higher pedagogical value, such as adapting materials to students' characteristics, designing instructional media, and evaluating the learning process. In other words, Artificial Intelligence (AI) helps reduce the administrative workload so that teachers can focus more on their professional duties as educators.

This interpretation shows that the primary benefit of Artificial Intelligence

(AI) is not merely to speed up the completion of tasks, but to enhance teachers' professional productivity. This aligns with the evolving concept of educational technology, which positions technology as a means to improve the effectiveness, efficiency, and quality of learning through the proper management of resources. The evolution of the definition of educational technology also indicates that technology is no longer viewed merely as a medium, but as a system that supports improvements in educators' performance and the quality of the learning experience.

The efficiency provided by Gemini not only saves time but also gives teachers the opportunity to focus more on more important pedagogical aspects. The results of this study show that the time previously spent searching for references can be redirected toward adapting materials, creating learning media, and designing activities that are more engaging for children. From the perspective of work productivity theory, this situation demonstrates that technology can improve the quality of work because available time and effort can be directed toward activities with greater added value. Therefore, the benefits of Gemini lie not only in the speed of obtaining information but also in the increased productivity of teachers in carrying out their instructional duties (Romadhon & Alatas, 2026).

The findings of this study are consistent with the results of a study conducted by Mahande et al., (2025), which stated that the use of generative AI can improve teachers' efficiency in developing learning tools and instructional materials. That study found that teachers can save time on lesson preparation and become more effective because they receive assistance in the process of generating ideas and developing materials. Research findings at the Cut Nyak Dien Early Childhood Education Center reveal a similar situation, where teachers feel that their workload has become lighter and more efficient without compromising the quality of instruction provided to students. These findings are further supported by recent research on the acceptance of generative Artificial Intelligence (AI) among educators, which indicates that the majority of teachers view artificial intelligence (AI) as a tool that helps accelerate the development of teaching materials, improve work efficiency, and reduce routine workloads although its use still requires artificial intelligence (AI) literacy, ethical consideration, and validation by teachers.

The third benefit identified was an increase in teachers' creativity in developing character education lessons. Teachers utilized Gemini to generate various alternatives for Islamic stories, educational songs, games, simple dialogues, learning materials, and practice activities, which were then modified to suit classroom conditions. This finding indicates that generative Artificial Intelligence (AI) does not diminish teachers' creativity but rather expands the scope for exploring ideas by providing various alternatives that can be developed into instructional innovations. The creativity that emerges does not stem solely from Artificial Intelligence (AI), but rather from teachers' ability to process, combine, and adapt the various ideas generated by the technology into learning experiences that meet students' needs.

This interpretation aligns with E. Paul Torrance's theory of creativity, which explains that creativity develops when individuals are given the opportunity to explore various possibilities and generate diverse solutions to a problem (Wahyuni et al., 2025). In this study, Gemini provided stimuli in the form of a variety of alternative ideas, while teachers served as facilitators who transformed these ideas into contextual learning activities. Thus, Artificial Intelligence (AI) functioned as a creativity catalyst, while learning innovations continued to be generated through the teachers' professional competencies.

These findings are also consistent with the evolution of the TPACK framework developed by (Koehler et al., 2014). In its latest iteration, this framework emphasizes that the emergence of generative Artificial Intelligence (AI) requires teachers not only to master technology, pedagogy, and learning content, but also to be able to critically evaluate and integrate artificial intelligence (AI) outputs into their teaching practices. Therefore, in the artificial intelligence (AI) era, teachers' creativity is no longer measured by their ability to produce learning materials independently, but rather by their ability to utilize technology to create learning experiences that are more innovative, meaningful, and tailored to students' needs.

Overall, the research findings indicate that the use of the Gemini app provides significant benefits for character education in Early Childhood Education. These benefits include ease of access to learning materials tailored to children's needs, increased time efficiency in lesson preparation, and the development of teachers' creativity in designing more innovative learning activities. These findings demonstrate that Gemini serves as both a digital learning resource and a professional tool that supports teachers in designing effective character education lessons. Nevertheless, these benefits still depend on teachers' ability to select, adapt, and develop the resources provided by Gemini to align with educational objectives. Therefore, artificial intelligence technology does not replace the role of teachers but rather serves as a tool that strengthens teachers' competencies in creating character education that is of higher quality, engaging, and relevant to the times.

CONCLUSION

This study shows that the implementation of the Gemini app in character education in Early Childhood Education has been integrated into the planning, implementation, and development stages of learning materials. The use of Gemini does not serve as a substitute for teachers but rather as a supporting technology that helps teachers generate ideas, materials, Islamic stories, media, and a wider variety of learning activities. Although it utilizes artificial intelligence, the quality of learning remains determined by the teacher's ability to select, adapt, and develop materials in accordance with the characteristics and developmental needs of young children. Thus, the implementation of Gemini strengthens the moral education learning process without diminishing the teacher's central role as the maker of pedagogical decisions. This study also demonstrates that the use of Gemini provides tangible benefits, such as easier access to learning resources, increased efficiency in lesson preparation, and enhanced teacher creativity in designing more engaging, contextual, and meaningful methods, media, and activities for moral education. These findings indicate that the judicious use of artificial intelligence can support improvements in the quality of character education while strengthening teachers' professional competencies in meeting the demands of education in the digital age.

The results of this study contribute to enriching the literature on the use of artificial intelligence in early childhood education, particularly in character education, and provide practical implications for early childhood education institutions to integrate the Gemini application as a tool to support learning planning and development, while still implementing a selection and validation process by teachers. In the future, similar research could be expanded to broader levels of education or utilize various other artificial intelligence platforms to evaluate their effectiveness in enhancing teacher competencies and fostering students' character development.

REFERENCES

- Abidin, M. A. (2023). Implementasi Teknologi Artificial Intelligence (AI) untuk Mendukung Pembelajaran Siswa di Madrasah Ibtidaiyah Kecamatan Krembung Sidoarjo. *Jurnal Madrasah Ibtidaiyah*, 2(1), 80–95. <https://doi.org/https://journal.unusida.ac.id/index.php/jmi/article/view/1112>
- Akem, U., Hamdan, N. M., Iskandar, M., Efendi, Y., & Halimahturrafiah, E. (2025). Digital Technology in Quranic Learning: Opportunities and Challenges. *Journal of Quranic Teaching and Learning*, 1(2), 49–64. <https://joqer.intischolar.id/index.php/joqer/index>
- Amalia, A., Husnah, N., Setiaji, D., & Faradhillah. Nadia. (2024). *Pemanfaatan Media Pembelajaran Berbasis Artificial Intelligence (AI) Di Sekolah*.
- Apriliani, E. I., Nashir, M. J., & Mukhlisah, I. (2024). Pendidikan Karakter pada Anak Usia Dini Melalui Kisah Para Nabi di Raudhatul Athfal Chairunnisa Sukoharjo. *Asghar: Journal of Children Studies*, 4(2), 104–117. <https://doi.org/10.28918/asghar.v4i2.8695>
- Ariansyah, A. D. (2023). the Relevance of Lev Vygotsky'S Constructivist Theory To the Islamic Religious Education Learning System in Indonesia. *MUDIR: Jurnal Manajemen Pendidikan*, 5(1), 217–223. <https://doi.org/https://eprints.umm.ac.id/id/eprint/731>
- Arisanti, I., Rasmita, R., Kasim, M., Mardikawati, B., & Murthada, M. (2024). Peran Aplikasi Artificial Intelligences AI Dalam Mengembangkan Dan Meningkatkan Kompetensi Profesional Dan Kreatifitas Pendidik di Era Cybernatics 4.0. *INNOVATIVE: Journal Of Social Science Research*, 4(1), 5195–5205. <https://doi.org/10.31004/innovative.v4i1.8455>
- Aryasutha, R., Azizah Ria Kusriani, N., Nurul Ulya, J., & Syamsiah Septiani, N. (2025). Opportunities and Challenges for Islamic Education Teachers in Using Artificial Intelligence in Learning. *Muaddib.Intischolar.Id*, 2(1), 43. <https://muaddib.intischolar.id/index.php/muaddib/article/view/6>
- Aziz, C. I., Latif, I. R., Fahlevi, R., Rizki, J., Najamudin, Kurniawan, P., Arta, K. H., Abrar, H., & Haikal, M. (2025). Dari Kelas Konvensional ke Pembelajaran Digital: Penguatan Kapasitas Guru melalui Pemanfaatan Artificial intelligence dalam Pembelajaran. *Jurnal Pengabdian Masyarakat Dan Riset Pendidikan*, 4(2), 11176–11182. <https://doi.org/10.31004/jerkin.v4i2.3447>
- Basyiroh, S. (2026). Pendidikan Agama Islam Kontemporer: Transformasi Kurikulum, Moderasi Beragama. *Dan Inovasi Pembelajaran Di Era Digital*.
- Cahyana, Y., & Faisal, S. (2024). Peningkatan Kompetensi Guru RA/TK Melalui Pemanfaatan Teknologi Digital Dalam Menunjang Kegiatan Pembelajaran Di Kelas. *SELAPARANG: Jurnal Pengabdian Masyarakat Berkemajuan*, 8, 3907–3914.
- Efendi, E., Jaafar, A., & Engkizar, E. (2026). Muslim Women's Leadership in Conflict Management in Higher Education. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, 11(2), 826–838. <https://doi.org/https://doi.org/10.24042/tadris.v11i2.30474>
- Engkizar, E., Jaafar, A., Alias, M. F. B., Guspita, R., & Albizar, A. (2025). Utilisation of Artificial Intelligence in Qur'anic Learning: Innovation or Threat? *Journal of Quranic Teaching and Learning*, 1(2), 1–17. <https://joqer.intischolar.id/index.php/joqer/index>
- Engkizar, E., Jaafar, A., Hamzah, M. I., Syafril, S., Febriani, A., Oktavia, G., & Satrial, A. (2026). Quran Teachers' Skills as Pedagogical Foundations: Conceptual and Practical Insights into Nine Competencies. *Muaddib:*

- Journal of Islamic Teaching and Learning*, 2(1), 22–38.
<https://muaddib.intischolar.id/index.php/muaddib/article/view/31>
- Engkizar, E., Jaafar, A., Hamzah, M. I., Syafril, S., Oktavia, G., Febriani, A., & Albizar, A. (2026). Tartil Method as an Effective Strategy for Transforming Students' Positive Attitudes in Learning the Qur'an. *Journal of Quranic Teaching and Learning*, 2(1), 50–63.
<https://joqer.intischolar.id/index.php/joqer/article/view/21>
- Engkizar, E., Jaafar, A., Taufan, M., Rahman, I., Oktavia, G., & Guspita, R. (2023). Quran Teacher: Future Profession or Devotion to the Ummah? *International Journal of Multidisciplinary of Higher Education (IJMURHICA)*, 6(4), 633–644. <https://doi.org/10.24036/ijmurhica.v6i4.321>
- Fauziddin, M., & Agustin, M. (2024). Symantic Literature Review: Manfaat Artificial Intelligence (AI) pada Pendidikan Anak Usia Dini di Indonesia. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 8(6), 1475–1488.
<https://doi.org/10.31004/obsesi.v8i6.6236>
- Gagné, E. D., Yekovich, C. W., & Yekovich, F. R. (1993). *The cognitive psychology of school learning (2nd edition)*. Little, Brown and Company.
- Hasanah, I. (2024). Pendidikan Karakter pada Anak Usia Dini: Fondasi Penting dalam Pembentukan Pribadi. *ABATATSA: Jurnal Pendidikan Islam Anak Usia Dini*, 1(2), 42–54.
<https://doi.org/10.54625/abts.v1i02.91>
- Judijanto, L., Selviana, R., & Emi Rahmawati, Lena Magdalena, Ika Kartika Amilia, Muhammad Zainal Fanani, Adnan Yusufi, I Gede Iwan Sudipa, Didit Prasetyo, Ardi Azhar Nampira, B. P. P. P. (2025). *Optimalisasi ChatGPT: Panduan dan Penerapan untuk Belajar, Mengajar, dan Membuat Konten Tanpa Batas*. PT. Green Pustaka Indonesia.
- Karyadi, B. (2023). Pemanfaatan Kecerdasan Buatan Dalam Mendukung Pembelajaran Mandiri. *Educate: Jurnal Teknologi Pendidikan*, 8(2), 253–258.
<https://doi.org/10.32832/educate.v8i02.14843>
- Kasheem, M., Yahya, N., Shalghoum, N., Masuwd, M., Alriteemi, A., Abdullah, M., Alsaeh, F., & Alrumayh, S. (2025). Artificial Intelligence in Academic Research: Adoption, Opportunities, and Barriers among Faculty in Libya Higher Education. *Multidisciplinary Journal of Thought and Research*, 1(3), 109–127.
<https://mujoter.intischolar.id/index.php/mujoter>
- Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In *Handbook of Research on Educational Communications and Technology: Fourth Edition* (Fourth, pp. 101–111). https://doi.org/10.1007/978-1-4614-3185-5_9
- Kurniawijaya, A., Yudityastri, A., & Zuama, A. P. C. (2021). Pendayagunaan Artificial Intelligence Dalam Perancangan Kontrak Serta Dampaknya Bagi Sektor Hukum Di Indonesia. *Khatulistiwa Law Review*, 2(1), 260–279.
<https://doi.org/10.24260/klr.v2i1.108>
- Mahande, R. D., Budiarti, N. A. E., Zulfikar, M. I., Masni, M., & Malago, J. D. (2025). Pemberdayaan guru melalui ai generatif untuk pembelajaran inovatif dan efisiensi administrasi. *Teknovokasi: Jurnal Pengabdian Masyarakat*, 3(3), 219–223.
<https://doi.org/10.59562/teknovokasi.v3i3.10624>
- Maryani, I. (2025). *Artificial intelligence dalam pendidikan : sebuah bunga rampai - Ika Maryani - Google Buku*.
- Masoud, M., & Almajri, S. (2025). The use of artificial intelligence-based translation tools for language department students. *Journal of Arabic*

- Literature, Teaching and Learning*, 1(3), 76–92.
<https://jaliter.intischolar.id/index.php/jaliter>
- Masripah, M., Wahyuni, S., & Mulyani, M. (2025). Pendidikan Karakter Islami Berdasarkan Pendidikan Dalam Surah Luqman Ayat 13-19 Ayat-Ayat. *Jurnal Pendidikan Agama Islam*, 04(01), 59.
<https://doi.org/10.52434/jpai.v4i1.42258>
- Maulida, A., Hakim, R., Mardhiyah, A., & Sutiah. (2025). Penerapan Media Pembelajaran Lumio By Smart Pada Pembelajaran Fikih Bab Qurban Kelas IX MTs. *Rabbani: Jurnal Pendidikan Agama Islam*, 6(1), 108–123.
<https://doi.org/10.19105/rjpai.v6i1.16944>
- Moleong, L. J. (2002). Penelitian kualitatif Penelitian kualitatif. In *Bandung: PT. Remaja Rosda Karya* (Issue c). Remaja Rosda karya.
http://www.academia.edu/download/54257684/Tabrani._ZA_2014-Dasar-dasar_Metodologi_Penelitian_Kualitatif.pdf
- Muthohar, S., Filasofa, L. M. K., Azzahra, H. K., Nasikhin, & Nabila, A. F. (2025). Artificial Intelligence untuk pendidikan keguruan perspektif mahasiswa internasional dan implikasi untuk Pendidikan Islam. *Ta'dibuna: Jurnal Pendidikan Islam*, 14(1), 1–24.
<https://doi.org/10.32832/tadibuna.v14i1.18019>
- Nasution, S. A., Zulmi, F., & Putri, R. R. (2025). Penerapan Teknologi dan Inovasi dalam pembelajaran. *Journal Pavaja*, 7(Vol. 7 No. 1 (2025): Januari-Juni 2025), 9–13.
<https://jurnal.staiyaptip.ac.id/index.php/pavaja/issue/view/49>
- Nurhayati, A., Maulana Nurparid, A., Siti Nurafifah, T., Nurhayati, R., Gelar Faisal, M., Dasar Negeri Pasirbanteng, S., Ekonomi, F., & Islam Jakarta, U. (2025). Pelatihan Pemanfaatan Gemini AI dan Quizizz dalam Penyusunan Perangkat dan Evaluasi Pembelajaran: Panduan Praktis untuk Guru di Gugus 2 Citalem. *Jurnal Pendidikan Dan Pengabdian Kepada Masyarakat*, 7(1), 133–144. <https://doi.org/10.36407/berdaya.v7i1.1494>
- Putra, A. E., Rukun, K., Irfan, D., Engkizar, Wirdati, K, M., Usmi, F., & @Ramli, A. J. (2020). Designing and Developing Artificial Intelligence Applications Troubleshooting Computers as Learning Aids. *Asian Social Science and Humanities Research Journal (ASHREJ)*, 2(1), 38–44.
<https://doi.org/10.37698/ashrej.v2i1.22>
- Romadhon, S., & Alatas, M. A. (2026). *Inovasi Media Pembelajaran Sastra Madura Berbasis AI Untuk Guru Madrasah Ibtidaiyah*. Kramantara JS.
- Seels, B. B., & Richey, R. C. (2012). Instructional Technology: The Definition and Domains of the Field. In *Information Age Publishing*. Association for Educational Communications and Technology.
- Sugiyono. (2014). *Metodologi Statistika untuk Penelitian*. Alfabeta.
- Sulastri, I., Novianti, E. M., Astuti, E. Y., & Sholihah, M. A. (2026). Transformasi Digital Dalam Pendidikan Karakter Anak Usia Dini: Eksplorasi Kreativitas Guru Pada Lembaga PAUD Berbasis Islam. *Azzahra: Jurnal Pendidikan Anak Usia Dini*, 8(1), 18–42.
<https://doi.org/https://ejournal.staidarussalamlampung.ac.id/index.php/azzahra/article/view/1060>
- Suwanto, E., & Zainudin. (2025). Pendidikan Karakter Anak Usia Dini Perspektif AL-Quran dan Hadist. *IQRO: Journal of Islamic Education*, 8(1), 405–425. <https://doi.org/10.24256/iqro.v8i1.6909>
- Tarrapa, S., & Al, E. (2025). Perencanaan Pembelajaran. In *Perencanaan Pembelajaran*. PT. Sonpedia Publishing Indonesia.
<https://doi.org/10.52574/syiahkualauniversitypress.270>
- Wahyuni, D., Antoro, B., & Amalia, M. M. (2025). Teknik Pengembangan Tes

Berpikir Kreatif Dalam Pendidikan Menengah. *Deepublish Digital*, 11–12.
Zahiyah, N. (2025). *Pengembangan Nilai-Nilai Keagamaan Pada Anak Usia Dini Di Raudlatul Athfal (Ra) Darul Ulum Gondangwetan Pasuruan*. Universitas Islam Negeri Maulana Malik Ibrahim.

Copyright holder:

© Afrilioni, Y., Alimni, A., Riyadi, D. (2026)

First publication right:

International Journal of Multidisciplinary of Higher Education (IJMURHICA)

This article is licensed under:

CC-BY-SA