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Utilization of Artificial Intelligence-Based Learning Videos: Enhancing Learning Interest in Early Childhood Moral Education

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Abstract
A common challenge in early childhood moral education is the low level of engagement and interest when using traditional storytelling methods. This study examines the implementation and utilization of artificial intelligence (AI)--based learning videos to enhance early childhood moral education at RA Hj. Sri Musiyarti, Semarang, Indonesia. With a qualitative case study approach, the research involved 20 children aged 4 to 5 years, with data collected through observations, semi-structured interviews with teachers, and documentation. The study focuses on the impact of AI-based videos on children's interest in moral learning, a shift from traditional storytelling methods to video-based learning. Findings reveal that AI-based learning videos significantly increase children's interest and engagement, promoting active participation in the classroom. The videos facilitated cognitive development and emotional engagement, making moral learning more enjoyable and effective. The reliability and validity of the findings were ensured through methodological triangulation and peer debriefing. The study concludes that AI-based learning videos are a powerful tool in fostering intellectual and emotional growth in early childhood, supporting innovative and exciting teaching approaches in moral education. The results suggest that AI technologies can enhance early childhood education, with future research needed to expand the scope of AI in education and to explore strategies for teacher training to ensure the effective implementation of AI technologies.

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Introduction

Low interest in learning caused by learning media has become a big problem in the digital era. One of the leading causes is the lack of diversity and interactivity in the learning media used (Sahyan et al., 2021). Many digital learning content tends to be monotonous and uninteresting, making children lose interest and concentration (Khauro et al., 2020). In addition, if there are too many distractions in the form of advertisements or off-topic content on online learning media, it can reduce children's concentration and interest in learning because the primary key to learning interest is the concentration of children's focus on the content explained (Rusmiati, 2017).

The quality of digital learning content is an essential factor affecting children's interest in learning. The teacher's mastery in integrating the methods, curriculum, resources, and learning media prepared by the teacher is essential for children. Uninteresting and irrelevant content can reduce children's interest in learning (Rahayu & Fanreza, 2024; Zaki Al Fuad & Zuraini, 2016). In addition, the lack of supervision and guidance from parents or educators can expose children to less helpful content, ultimately hampering their interest in learning. Therefore, it is essential for learning media developers and parents to ensure that the content offered is suitable for children's needs and for early childhood education teachers to develop competencies in designing learning environments that are interesting and effective for children (Boysen et al., 2022).

Learning media has become one of the crucial factors in increasing children's interest in learning. Various learning platforms and applications offer engaging content relevant to children's development. Creative and informative learning materials can trigger children's interest in learning by presenting educational materials that are visually appealing and easy to understand (Lestari & Wirasty, 2019). Technology can be a practical support in preparing learning materials (Seo et al., 2021) such as Artificial Intelligence (AI) has become one of the most dynamic and exciting fields in computer science and information technology. Artificial Intelligence considers how to compile, build, and evaluate systems called artificial systems (Ida, 2023). Artificial Intelligence is related to how humans think, which can process modeling records, imitate, and modify automatically (Putri Supriadi et al., 2022).

Using Artificial Intelligence technology in learning can provide children with opportunities for self-learning, effective feedback, following their own learning pace, and discovering their interests and talents in various fields (Kisno et al., 2023). Artificial Intelligence-based learning is also recommended as one of the methods that can be used in early childhood education because it is exciting and can encourage critical and creative thinking (Noviyanti et al., 2023). Artificial intelligence-based technology can potentially improve the quality of education and support each individual in reaching their developmental level. (Jayawardana & Sugiarto, 2023; Joo & Park, 2024; Su & Yang, 2022). Artificial Intelligence-based learning has been well implemented from primary to high school, while early childhood education focuses on Artificial Intelligence learning through games. It is recommended to try Artificial Intelligence technology design for children (Joo & Park, 2022; Su & Zhong, 2022). This utilization can enrich early childhood learning (Yang, 2022).

In addition, learning media also encourages children to learn actively through direct interaction with learning materials. Various learning apps and games allow children to learn while playing, thus creating a fun and engaging learning experience. For example, video-based learning (VBL) is often referred to by Technology-Enhanced Learning (TEL) researchers as a learning resource that is emphasized in online teaching activities (Yousef et al., 2014). Through interactive learning media in the form of videos, children are allowed to explore learning topics in an exciting and fun way, which in turn can increase their interest in exploring science and broadening their horizons in various fields (Hasriadi, 2022; Nurfadhillah, 2023), Indirectly, the video presentation makes children's understanding more constructive because it is concrete (Astriya & Kuntoro, 2015; Wisada et al., 2019) children are more focused in the process of remembering information (Hudain et al., 2023).

Learning video media can be referred to as media that can stimulate children's thoughts, feelings, and willingness to learn from visual information messages (Yuliani et al., 2017). Learning videos can be an introduction to information teachers provide children (Ali, 2022). Learning video media is relevant for early childhood use because it has characteristics such as video conceptualization that contain educational and enjoyable elements (Masykuroh & Khairunnisa, 2022). Therefore, learning video media has great potential to be an effective way to increase interest in learning and attract attention because children can observe properly when learning videos are shown (Mardhian Ningrum et al., 2021; Sihotang, R. et al., 2021).

The results of previous research on "Utilization of Artificial Intelligence-based Learning Video Media on Learning Interest in Early Childhood Moral Material" can be categorized into 3 trends. First, using artificial intelligence-based learning videos to increase interest in learning (Gusliati et al., 2019; Ningsih et al., 2023; Oktavianus et al., 2023). Secondly, using YouTube media is of learning interest (Azizan et al., 2020; Mujianto, 2019; Yulistian et al., 2023). Third, online learning media affect learning interest (Maharani, 2023; Sababalat et al., 2021; Sunami & Aslam, 2021). Fourth, the use of LCD projector media has a positive effect on the achievement of learning akidah akhlak (Maryono et al., 2022). Fifth, YouTube media attracts students so that they can increase their interest in learning moral subjects (Azizan et al., 2020).

Previous research has not discussed learning interest in early childhood moral material. However, in its development, artificial intelligence technology has been widely used. However,

it is still limited in the context of artificial intelligence-based learning specifically designed to teach early childhood moral values. Therefore, this article aims to strengthen and find new research results on using artificial intelligence. The problems found in previous research on artificial intelligence-based learning for early childhood are the lack of knowledge and curriculum design, which are challenges in practicing artificial intelligence literacy in early childhood education. In the research at the selected institution, some problems arise due to teachers' lack of knowledge and ability to apply learning materials in practical technology such as artificial intelligence.

The increased use of digital media in learning can also help children develop technology skills essential in the digital age. By getting used to technology, children can utilize various digital resources to support their learning process. This increases their interest in learning and prepares them for the demands and competition in an increasingly digitally connected world. Artificial intelligence learning can provide an opportunity to foster children's literacy in terms of understanding artificial intelligence concepts, implementation, and perspectives (Su et al., 2023). Therefore, educators and parents need to use digital media wisely as an effective tool to increase children's interest in learning and help them reach their full potential in education (Asmawati, 2021). What is essential in this research is to equip teachers to teach moral values effectively and practically packaged in content that is easily understood by early childhood and can be an alternative to active learning for children.

Methods

This research employed a qualitative case study approach to explore early childhood students' perceptions, experiences, and responses regarding using Artificial Intelligence (AI)-based learning videos in moral education. A case study was deemed appropriate as it allowed for an in-depth examination of internalizing moral values and children's interaction with AI-based videos in an educational setting (Creswell, 2014). The study was conducted at RA HJ. Sri Musiyarti, Semarang City, with a focus on children aged 4 to 5 years in group category A, comprising 20 participants.

The data collection procedures included observation, semi-structured interviews, and documentation. First, observations were conducted to assess the children's willingness, attention, emotional responses, and awareness during the video sessions. This method was chosen to capture nuanced behaviors and interactions that may not be easily quantifiable. Second, semi-structured interviews were conducted with teachers to gain deeper insights into the moral development and behavioral changes observed in the children. Finally, documentation was collected through photographs of learning activities and teacher records.

The tools used for this research included video recordings of AI-based educational content, which were integrated into the learning environment, as well as observational checklists and interview protocols designed to gather qualitative data. Data analysis followed three primary steps: reduction, display, and verification. Data reduction involved recording significant behaviors and classroom dynamics related to the children’s engagement with the AI videos—data display involved organizing this information systematically for analysis, allowing patterns to emerge. Finally, verification was conducted by triangulating the observational data with interview insights and documented evidence to ensure accuracy and comprehensiveness in concluding. Reliability and validity were addressed through methodological triangulation and peer debriefing. Triangulation of multiple data sources, such as observations, interviews, and documentation, ensured that a single method did not bias findings. Additionally, peer debriefing involved discussing the data with colleagues to minimize researcher bias and validate the interpretation of the results.

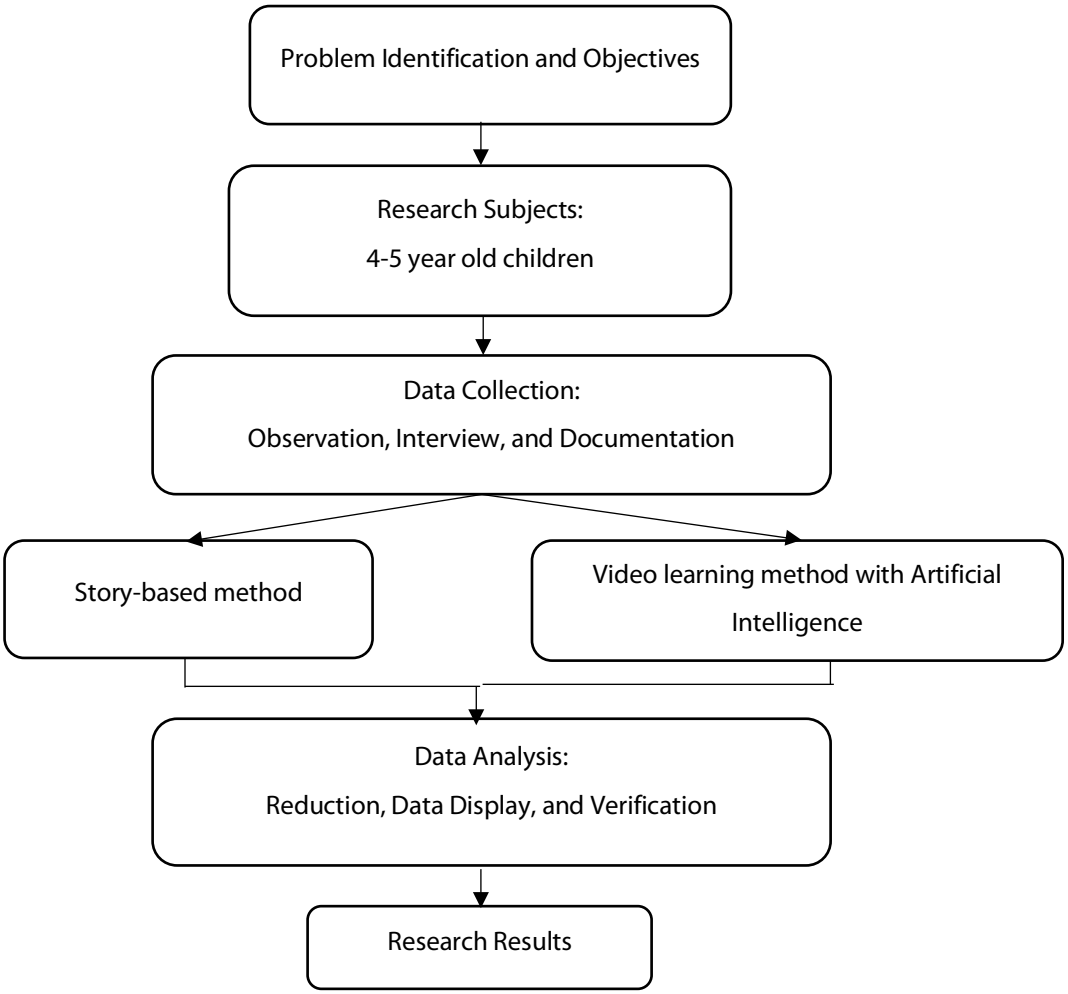

Figure 1. Research Design

Result

The results of this study focus on evaluating the effectiveness of Artificial Intelligence (AI)--based learning videos in enhancing early childhood moral education at RA Hj. Sri Musiyarti, Semarang, Indonesia. This section will present the key findings, supported by the raw data collected, and provide an analysis of the impact of AI-based videos compared to traditional teaching methods.

Utilization of Artificial Intelligence-based Learning Video for Early Childhood

In its utilization, the learning video designed with Artificial Intelligence-based technology has helped the process of children's learning activities at RA HJ. Sri Musiyarti Semarang City. Such learning supports effectiveness and innovation in early childhood education. The video-based learning method based on Artificial Intelligence is more effective in implementing early childhood moral values than the story method because it can present interactivity, personalization, and interesting visualization, is concrete, and can provide active responses in early childhood. The video provides an authentic experience for children, thus making learning fun for children and strengthening their understanding of moral values in early childhood. In addition, it can provide active involvement for children personally or in groups that make children more enthusiastic and motivated to learn. For example, the benefits of these activities can stimulate children's skills from the language and cognitive aspects; namely, children who were previously passive become active and can express their impression of the story's content. The Artificial Intelligence learning video presents a story idea suitable for children at the developmental level, making it easy to understand and attract children's attention. The video

has been designed in an interactive way, which can invite children to participate or respond actively to learning.

The story presented in the video is themed "Morals of Self and Others in the Neighborhood." In the video, the story in the first episode describes a young child who is not yet confident to play with his friends. Therefore, one of his friends tries to persuade him to play by calling friends to come into his yard. Finally, the little boy dared to come out and play with his friends. The second episode tells the story of siblings who visit their grandparents' house; the aim is to visit and release childhood memories at the grandparents' house. When in the yard, the siblings see many cats; they both feed the cats and play with affection. Making videos collaborates with several Artificial Intelligence-based applications available from the website in the form of Chat GPT, Leonardo AI, Runwayml, and video merging using the Cap Cut application.

Implementation in early childhood learning at RA Hj. Sri Musiyarti Semarang City, namely group A children aged 4-5 years, totaling 20 children, has become a research subject about using Artificial Intelligence-based learning videos. Group A children's learning activities begin with the habituation of prayer, reading short letters, and *asmaul husna.* These are followed by activities that impact children's physical motor skills, namely gymnastics. After that, the core activities are delivered as learning themes.

The core activity is filled with the delivery of the learning theme, namely "*morals of self and others in the surrounding environment*." During the first session, the teacher delivered learning materials using the story method to children, starting from conditioning children by clapping, children paying attention to what the teacher says, the teacher's direction supporting children's focus on absorbing the material, children's awareness in active participation in the learning space. Children are willing to participate in learning with the environment and conditions in the learning room by listening to the teacher tell stories, and children are quite capable of following the learning until the time. During the second session, the teacher delivered learning materials with the theme of "*morals of self and others in the surrounding environment*." The teacher's teaching strategy uses technology in the form of sound, projectors, and Artificial Intelligence-based learning videos. In the video, children look enthusiastic when participating in learning activities using this method, with exciting songs and the stages of preparation in the learning room. Then, children who have been conditioned can pay attention well when showing the video. Children are happy when they see the characters they watch look attractive, and children's willingness to ask questions occurs in interactions in the learning space.

Figure 2. Learning Activities

Utilization of Artificial Intelligence-based Video on Early Childhood Morals Learning Interest

The use of Artificial Intelligence-based learning videos has an impact on the interest in learning early childhood morals at RA HJ. Sri Musiyarti Semarang City. Artificial Intelligence-based videos present moral values through stories, visualizations, and fun interactions for children. The

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content of this video simulates how moral values can be practiced in everyday life so that it can be meaningful learning for children. The material displayed in the video has been designed to suit the needs and development levels of children aged 4-5 years in the group A category; this aims to achieve the results of children's learning goals.

Interest in learning early childhood morals at RA HJ. Sri Musiyarti Semarang City has been achieved through the assessment results on the specified indicators: willingness, attention, feelings, and awareness in learning activities. Artificial intelligence has become a learning method to instill moral values through exciting media. The concrete context can help children learn meaningfully. The focus of observation is learning activities taking place either before or after watching the video. Before using the Artificial Intelligence-based video, the teacher taught moral values using lectures and modeling methods. The result is that children can grasp, but not quickly and effectively because it takes time and has limitations in creativity and visualization. During the learning process, the children's positive response was shown when they smiled and laughed. After watching the artificial intelligence video, in practice, the children looked enthusiastic about participating in the activity, supported by the songs given to them, which attracted the children's attention.

Indicator	Achievements	
	Before Using AI After Using AI	**After Using AI After Using AI**
Willpower	Children have low curiosity Engagement looks ordinary in learning	Children have high curiosity Active engagement in learning
Attention	Focus on monotonous child learning activities Positive response	Focus on directed learning activities More positive responses
Feelings	Less expressed emotional reactions Satisfaction with the child's self is sufficient	Emotional reactions are widely expressed. Satisfaction with the child's self is maximized.
Awareness	Sufficient self-understanding and reflection o discussion or stories with friends and teachers	Self-understanding and reflection developed Discussion by telling stories to friends and teachers

Table 1. Interest in Early Childhood Moral Learning

The learning atmosphere in the classroom shows children's satisfaction in watching the video, so there is a desire to play it repeatedly—children's enthusiastic attitudes, such as impatiently waiting and wondering what will be shown. The children's reaction to the video was to mimic the expressions. The teacher revealed that "children look curious until some feel impressed; it can be seen that some children imitate sad and happy expressions when watching the video." Children's verbal responses have been conveyed through responses related to the moral values contained in the video and answers to questions submitted by children.

After the learning is over, the children look relaxed when discussing with their friends by retelling the phrase of one of the children: "Later, after going home, I want to go to my grandparents' house because I saw the video earlier." Then, the teacher asked the children to come forward and tell the video from what had been seen. Children have confidence in themselves by daring to tell stories in front of the class and actively asking questions. Children are interested in discussing the story of the video they watched with their friends and teachers. Through this process, children's understanding of morals is obtained through responses during the teacher's recalling activities to children. Some children's responses to the video were happy because they saw an exciting visualization of the story. Furthermore, the teacher commented that "this learning is not only educational, interesting, and suitable for children, previously some children had shyness and lack of confidence, especially children who had looked passive but were able to show their participation after the video was played by daring to convey the impression and content of the story briefly."

Table 2. Childen's Interest in Learning Before Using Artificial Intelligence

Percentage	Willingness	Attention	Feeling	Awareness
0%-25%	2	1	1	2
26%-50%	3	2	1	1
51%-75%	6	5	3	3
76%-100%	9	12	15	14

Table 3. Childen's Interest in Learning After Using Artificial Intelligence

Percentage	Willingness	Attention	Feeling	Awareness
0%-25%	1	2	1	2
26%-50%	4	3	5	5
51%-75%	6	7	8	6
76%-100%	9	8	6	7

These tables reflect an overall increase in children's engagement and interest when AI-based learning videos were incorporated into the teaching process.

The data were analyzed using descriptive statistics, focusing on changes in children's engagement across the four indicators: willpower, attention, feelings, and awareness. Before using AI-based learning videos, children exhibited lower levels of engagement, with fewer showing active participation. After introducing AI-based videos, there was a significant improvement in all indicators, particularly in feelings and awareness. The increased engagement can be attributed to the videos' interactive and visually stimulating nature, which captivated the children's attention and fostered a more dynamic learning environment.

The most notable findings are as follows:

- **Willpower**: After using AI-based videos, the number of children who desire to engage in the learning process significantly increased.
- **Attention**: Children's focus ability improved during learning sessions, shifting from passive observation during traditional methods to active engagement in video-based sessions.
- **Feelings**: Emotional reactions were more expressive during and after the AI-based sessions, with children showing increased excitement and happiness.
- **Awareness**: Children's ability to reflect on and understand the moral values presented markedly improved, with some children actively discussing the content with their peers and teachers.

The results indicate that AI-based learning videos offer significant advantages over traditional storytelling methods in early childhood education. The videos' interactive nature helps maintain children's focus and enthusiasm, while the personalized and engaging content enhances their understanding of moral values. The videos provide concrete, relatable experiences, enabling children to grasp complex moral concepts in a fun and engaging way. The increased positive emotional responses and improved classroom participation suggest that AI-based learning could be valuable in early childhood education, particularly in teaching abstract concepts like morality.

While the results show promising outcomes, a larger sample size could strengthen the study's validity. Potential limitations such as prior exposure to technology, teacher-student interaction during sessions, and children's varying familiarity with AI-based tools were not controlled for. These factors may have influenced the findings and should be acknowledged in future studies.

The introduction of AI-based learning videos has demonstrated clear benefits in enhancing early childhood moral education, as evidenced by increased engagement, emotional expression, and understanding of moral values. However, further studies with more controlled variables and larger sample sizes are recommended to confirm these results and explore their broader applicability in early childhood education contexts.

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Discussion

This study explored how AI-based learning videos can teach moral values to young children and the effect of this technology on their interest in learning. Previous research has shown that AI in education, especially for early childhood, can create engaging and interactive learning environments (Ambarwati et al., 2021; Seo et al., 2020). AI tools are known for personalizing learning experiences, making them more effective for young learners who benefit from interaction and active participation (Crescenzi-Lanna, 2023; Zhang & Chen, 2022). In this research, children aged 4-5 years at RA Hj. Sri Musiyarti Semarang City was observed, focusing on their learning interest before and after introducing AI-based videos. These findings build on the growing evidence that AI can make learning more meaningful, particularly in moral education (Dongming et al., 2020; Ha et al., 2015).

The results showed a significant improvement in the children's engagement and enthusiasm after using AI-based learning videos. Before the videos were introduced, the children's involvement was moderate; they displayed some curiosity but lacked the excitement or deep engagement required for active learning. Once AI technology was incorporated, their attention levels increased, and they were more emotionally and socially responsive, actively asking questions and sharing their thoughts (Anggraini et al., 2024; Hasmiza & Humaidi, 2023). The videos captured their attention and helped them more confidently express their understanding of moral concepts. This supports the idea that AI can make abstract lessons, like moral values, more concrete and relatable to young children.

Compared to other studies, the findings of this research align well with previous literature that suggests AI can make learning more interactive and practical (Prentzas, 2013; Williams et al., 2019). AI technology has proven to be an excellent tool for creating engaging learning environments, especially when combined with storytelling and visuals, which are particularly effective for young children (Wulandari & Nisrina, 2020; Zhang & Chen, 2022). However, this research shows that AI-based videos can significantly boost cognitive engagement and emotional and social interaction. Traditional methods, such as storytelling without technology, often fail to achieve this level of engagement, making AI-based tools a more dynamic option for teaching morals.

Interestingly, this study adds a new layer of understanding to the existing body of research. While earlier studies emphasized the challenges of passive learning with video-based content (Seo et al., 2020), this research demonstrates that AI can transform video learning into an interactive experience that promotes critical thinking and reflection. The children did not just passively absorb the information. They actively participated by discussing the videos with their peers and teachers, reinforcing their understanding of moral values through social interaction (Dongming et al., 2020; Ha et al., 2015). This finding is crucial because it highlights AI's potential to go beyond surface-level learning and engage children in deeper cognitive and emotional processes.

These results hold significant implications for the future of early childhood education. AI-based learning tools offer an innovative and effective method for teaching young children, especially in areas like moral education, where abstract concepts must be made more tangible and relatable (Hudain et al., 2023; Shukla, 2021). The interactive nature of AI allows for more meaningful learning experiences, helping children grasp moral values through cognitive and emotional engagement. Traditional methods, such as lectures or static storytelling, cannot compete with the dynamic, personalized learning environment that AI creates (Crescenzi-Lanna, 2023; Samawi, 2023). As AI technology continues to evolve, its role in education will likely expand, offering new ways to engage young learners.

However, it is essential to approach these findings with some caution. This study focused on a small group of children within a specific cultural context, which may limit its generalizability. Additionally, while the immediate benefits of AI-based learning were evident, it remains unclear whether these effects will have long-term impacts on moral understanding and behavior (Anggraini et al., 2024; Williams et al., 2019). Future research should explore how

AI-based learning influences long-term retention of moral values and whether it can be effectively scaled to different educational settings.

AI-based learning videos have proven to be a powerful tool in early childhood education, especially for teaching moral values. This study has shown that AI technology enhances cognitive and emotional engagement, making learning more dynamic and meaningful. As educators and curriculum developers look for innovative teaching methods, AI offers a promising avenue for creating more engaging, effective, and personalized learning experiences for young children (Hasmiza & Humaidi, 2023; Zhang et al., 2022). The continued integration of AI in early education is not just a trend but a necessary evolution that could transform how we approach teaching and learning.

Conclusion

This study explored the impact of Artificial Intelligence (AI)--based learning videos on early childhood education, particularly in enhancing children's interest in learning moral values. The findings reveal that AI-based learning videos significantly improve the effectiveness of moral education for young learners. Compared to traditional storytelling methods, AI-based videos offer a more interactive, engaging, and personalized learning experience. Children showed increased enthusiasm, active participation, and improved comprehension of moral concepts, effectively illustrated through the video content. The integration of Artificial Intelligence (AI)--based technology should be leveraged as a valuable tool to support teachers in creating an engaging and effective learning environment. One such application is AI-based learning videos, which have been shown to foster innovation by making learning more engaging, active, and efficient. Specifically, AI-based learning videos enhance early childhood understanding of moral education, facilitating the meaningful internalization of these values. Such videos increase children's interest in moral learning and encourage them to apply these values in real-life situations. AI technology and thoughtful instructional design equip teachers with more practical and impactful learning experiences. Future research could focus on teacher training in using AI for education and developing diverse video content that aligns with the moral development goals of early childhood education.

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