



Exploring the Integration of Digital Media in Islamic Early Childhood Education: Evidence from Kindergartens in Pontianak City

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Abstract

Purpose – This study aims to analyze the integration of digital media in Islamic education in early childhood in kindergarten in Pontianak City, West Kalimantan Province by highlighting that teachers currently still have challenges in using technology.

Design/methods/approach – This study uses qualitative research with a case study approach through observation, interviews, and documentation. This research was conducted in the city of Pontianak, West Kalimantan Province from September 11 to September 20, 2024. Data analysis includes data collection, condensation, presentation, and conclusion.

Findings – The findings of this study in integrating digital media in Islamic education are still difficult for teachers so that in classroom learning activities they still use conventional methods in educating early childhood in kindergarten. In the learning process, the educational environment does not support the use of technology in learning and play activities in kindergarten. However, there is an opportunity to realize the integration of digital media in Islamic education in kindergarten because teachers consider this integration very important in learning in kindergarten.

Research implications/limitations – Technology in Islamic education has a significant impact on the learning process for early childhood in kindergarten. This study is still limited to qualitative research, so other methods are needed to add to the findings related to technology in early childhood.

Practical implications – This study shows that the integration of digital media in early childhood education in kindergarten still has challenges in using technology. teachers still experience difficulties, so that in classroom learning activities they still use conventional methods in educating early childhood in kindergarten. In addition, in the learning process, the educational environment does not support the use of technology in learning and playing activities in kindergarten.

Originality/value – This research serves as an initial foundation for the development of a digital-based curriculum that is relevant to Islamic values and the characteristics of early childhood development. This research provides a new perspective on the utilization of digital media in Islamic education to improve the quality of learning and the relevance of teaching methods in kindergarten.

Keywords Islamic education, Digital media, Early childhood education

Paper type Case study

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1. Introduction

Early childhood is a period of critical development that shapes children's long-term social, emotional, and physical health (Sun et al., 2024). Stimulating developmental aspects are not only carried out by parents but also influenced by the community and school. The education system, both parents, schools, and the community, affects aspects of early childhood development to adulthood. The early childhood environment plays an important role in a child's long-term success (Prusinski et al., 2023). In the family, parents have a great role and responsibility for the development and growth of early childhood. The family environment is the main scope for children to undergo the process of development and learning. In the family environment, children will learn about values, attitudes, norms, and cultural beliefs, as well as habits in the family, so that children will grow up to be human beings who have a positive and noble attitude in acting in a wider environment (Anwar et al., 2024; Arin & Sa'dun Akbar, 2023; Sapendi & Suratman, 2024; Utami, 2021).

Meanwhile, in society, it has a role in early childhood that has an impact on the internalization of aesthetic and ethical values in building children's character. This is because the conditions of culture, customs, religion, and demographics also affect aspects of early childhood development (Asrori et al., 2025; Jaya et al., 2025; Zahroh & Na'imah, 2020). The role of schools in the developmental aspect is to increase children's creativity through play and learning in kindergarten. Early childhood education must be integrated between parents, the community, and schools to support aspects of early childhood development. However, the development of technology is a new media that also affects aspects of early childhood development. The development of technology also helps parents and teachers in schools in stimulating aspects of early childhood development. However, technology also has an impact on social changes that also affect culture, religion, social, economic, and the education system. Thus, knowledge is needed for parents, teachers, and the community in adapting educational practices in early childhood.

In the digital era, the role of Islamic education is very important by integrating it through technology. The use of technology in educating children to stimulate aspects of moral and religious development must be carried out by parents, teachers, and the community. However, the use of technology must be balanced, especially parents' knowledge in responding to the benefits of technology in early childhood education practices. Various challenges faced in early childhood education in the digital era are the lack of skills to choose and carry out children's literacy activities that meet the needs of early childhood (Hamzah et al., 2023; Hasanah, 2023; Oktavia et al., 2024; Sit et al., 2024). Several studies show that parents are not always aware of the benefits of children using technology compared to the risk of exposure to content that does not correspond to the stages of early childhood development (Murcia et al., 2018).

This study seeks to analyze the social changes that occur in the practice of education in early childhood, especially in the digital era, in stimulating aspects of the development of moral and religious values, especially for families, communities, and Islamic-based kindergartens. This study provides suggestions for early childhood education practices in the digital era in stimulating aspects of moral and religious development. Several studies that discuss education in the digital era in early childhood discuss at least three things. *First*, the use of technology in learning in kindergarten (Purnama et al., 2022; Rahiem, 2021; Rustan et al., 2023; Turbill, 2001). *Second*, the use of digital parenting in the family (Konok et al., 2020; Modecki et al., 2022; Pratiwi et al., 2022). *Third*, the impact of technology on aspects of early childhood development (Blackwell et al., 2014; Su et al., 2023; Weber & Greiff, 2023).

This study has a distinction from other studies that focus on Islamic education in early childhood in the digital age. This study aims to analyze the practice of early childhood education in families, communities, and schools in stimulating aspects of moral and religious development in the digital era. This research is important to be carried out because there are still many parents, teachers, and the community who do not understand the importance of technology in stimulating developmental aspects and its impact, both positive and negative, on early childhood development. The findings of this study at least make an academic contribution in the field of early childhood education, especially Islamic education for early childhood.

2. Methods

2.1. Research Design

This study was conducted using a qualitative research design aimed at understanding the experiences and perspectives of early childhood education teachers regarding the integration of digital media in Islamic education. The qualitative approach was chosen to capture in-depth insights within the natural settings of kindergarten classrooms, where digital tools are applied in religious instruction. The research was carried out in Pontianak City, West Kalimantan Province, from September 1 to September 20, 2024. This design allowed the researcher to explore contextual realities and complexities that may not be observable through quantitative methods. The focus was placed on how digital media influences the delivery of Islamic values to early childhood learners. The approach is considered suitable for uncovering subjective meanings and pedagogical patterns that emerge in authentic educational environments.

2.2. Participants and Sampling Technique

Participants in this study were 12 kindergarten teachers selected from five different kindergarten and playgroup institutions in Pontianak City. The selection process employed purposive sampling to identify individuals who are actively involved in early childhood Islamic education and have relevant experience in using digital media within their teaching. This was further supported by snowball sampling to reach additional informants through referrals from initial participants. The inclusion criteria consisted of teachers who were currently active in kindergarten teaching and had experience in delivering Islamic education. The use of purposive and snowball techniques ensured a diverse and representative group of informants who could provide varied insights into the opportunities and challenges of integrating digital media in this context. These sampling methods were aimed at obtaining depth rather than breadth, consistent with the qualitative paradigm.

2.3. Data Collection

Data collection was carried out through observation, interviews, and documentation, enabling the researcher to capture a rich array of qualitative data. Observations were conducted in classrooms across five kindergarten and playgroup institutions, focusing on how teachers incorporated digital tools in their Islamic instruction. The observations aimed to document real-life practices, teacher-student interactions, and the learning environment. In-depth unstructured interviews were then conducted with selected teachers to gather their personal experiences, reflections, and pedagogical considerations. Additionally, documentation was collected in the form of lesson plans, teaching materials, and institutional records that related to Islamic education practices. These three data sources complemented one another, facilitating triangulation and reinforcing the validity of the findings.

2.4. Data Analysis

The analysis of research data followed the interactive model proposed by Miles, Huberman, and Saldana, consisting of four interconnected phases: data collection, data condensation, data display, and conclusion drawing and verification (Miles et al., 2020). During data condensation, the researcher systematically selected and coded relevant portions of interview transcripts, field notes, and documents. These condensed data were then organized and displayed in thematic categories to facilitate further interpretation. From this process, meaningful patterns and relationships were identified, which were then synthesized into comprehensive conclusions. The interactive model was chosen because of its adaptability to various types of qualitative data and its iterative nature, which allows constant reflection and refinement throughout the analysis process. This method enabled the researcher to derive insights that were both grounded in empirical evidence and theoretically informed.

2.5. Research Ethics

Ethical considerations were strictly observed throughout the research process to ensure the protection of participants' rights and the integrity of the study. All informants were given clear explanations about the research objectives, procedures, and their rights, including the right to withdraw at any stage without penalty. Informed consent was obtained verbally and in writing before any data collection activity took place. The confidentiality of participants' identities and the information they provided was maintained by using pseudonyms and securely storing all data. To enhance the credibility and trustworthiness of the findings, triangulation was employed by cross-checking data from interviews, observations, and documents. Member checking was also applied by sharing initial interpretations with participants and inviting feedback to confirm or refine the analysis. These ethical practices were implemented to ensure that the research upheld professional standards and respected the voices of those involved.

3. Result

3.1. Teachers' Obstacles in Using Technology in Play and Learning Activities in Kindergarten

Based on the results of interviews with teachers in kindergartens in West Kalimantan, it shows that teachers still do not understand the use of technology in the learning process in kindergartens. In integrating technology and learning in kindergarten, teachers feel difficulties so that in classroom learning activities, teachers tend to use conventional methods in educating early childhood in kindergarten. This was confirmed in teacher interviews in West Kalimantan, as follows:

"Indeed, we have not used technology, especially educating children at school. Because we do not understand the use of technology, we also feel the difficulty of what material can be done with technology" (Based on the results of the RH interview, September 15, 2024).

In addition to the teacher's knowledge that does not understand the importance of technology, the teacher also revealed that in the learning process, the teacher revealed that the educational environment is not supportive for the use of technology in learning and play activities in kindergarten. In learning activities at school, teachers lack support because the facilities in schools cannot support the use of technology. Several of the facility obstacles, such as the absence of LCD projectors in kindergarten, educational game equipment, educational videos, laptops, and others. The lack of adequate facilities in digital-based or technology-based learning makes teachers teach early childhood through conventional methods. This is based on the results of interviews with teachers as follows:

"The existing facilities are still lacking to use technology in schools. For example, we do not have LCD projectors, so it is difficult, for example, to invite children to watch animated videos or educational videos on children" (Based on the results of the LD interview, September 15, 2024).

"Indeed, for facilities, we still do not support the use of technology in stimulating aspects of child development. Although the use of technology is partly what we use, such as speakers to listen to songs in children, in my opinion it is still not classified as technology" (Based on the results of the MA interview, September 13, 2024).

Based on the results of the interview, it shows that the facility does not support the use of technology in play and learning activities in kindergarten. In addition, teachers also have difficulty buying digital-based learning equipment for early childhood considering the cost of buying them is relatively expensive. Lack of means to support the use of technology due to lack of funding in kindergartens. This is an obstacle in implementing digital for early childhood in stimulating developmental aspects. Although in the interviews conducted by the researcher, kindergartens that have facilities but still use minimal technology in the learning process. This is because teachers do not understand integrating technology and learning materials in kindergarten. Teachers consider that the lack of guidance in the use of technology also has an impact on the lack of technology use for kindergarten teachers. The results of the interviews with teachers are as follows:

"We do have facilities to support learning using technology, but indeed we here rarely use technology because we are confused about applying it in learning at school. We should get guidance regarding the use of technology in learning in kindergarten. In addition, there is no obligation to use technology making us use conventional learning more often" (Based on the results of the GT interview, September 17, 2024).

The findings show that not all teachers use technology in kindergartens, even though they have technology facilities. This is because there is no guidance on the use of technology for kindergarten teachers. In addition, teachers argue that there is no obligation to use technology in early childhood learning. In fact, if teachers use technology, it will have an impact on the quality of learning in ensuring the wide range of aspects of early childhood development. In the digital era, teachers should use technology in play and learning activities in kindergarten.

3.2. The Opportunities for Using Technology in Kindergarten

Although there are obstacles in the use of technology for kindergarten teachers in West Kalimantan, teachers have hopes or opportunities to use technology in learning and play activities. For teachers, the use of technology is very important to do, especially in the digital era. Early childhood in kindergarten already knows and even plays technology such as gadgets. The use of technology in learning in kindergarten not only makes it easier for teachers to educate early childhood but also learns to adapt to the digital era. Teachers must be able to adapt to changes, such as using technology in all learning activities. The results of the interviews with kindergarten teachers are as follows:

"Actually, it is very important to use technology in learning in kindergarten, I am very aware of this, especially since children are now used to gadgets, so teachers must also adjust learning to the characteristics of technology in the current children's era" (Based on the results of the MA interview, September 13, 2024).

"Of course, we as teachers have hopes in the future in learning using technology such as LCD Projectors in singing lessons, educational videos, demonstration learning and others. We are also willing to continue to innovate if the facilities in our kindergarten are complete in terms of technology" (Based on the results of the LD interview, September 15, 2024).

The results of the interview show that at least teachers have a desire to use technology in the kindergarten where the teacher works. If the school facilities where teachers work have complete facilities, especially learning media, then digital or technology-based learning will be easy for teachers to do. In addition, the researcher also conducted interviews with teachers regarding ideal learning that will be carried out using technology in early childhood. The results of the researcher's interviews with the teachers are as follows:

"In my opinion, as a teacher, if I apply technology to students in learning in kindergarten, I will apply it in Islamic education, especially using media that can teach children to know their religion, namely Islam. I can also teach children to learn worship practices such as prayer, reciting Quran, ablution, and other worship practices" (based on the results of the AD interview, September 18, 2024).

"Using technology is very important in playing and learning activities in children. If you use technology, you can internalize moral and religious values in children. At least what can be exemplified in children such as manners of making friends, interacting with parents, manners to teachers, and examples of good behavior in interaction in society by providing educational videos to children, for example through digital-based learning" (Based on the results of the FT interview, September 13, 2024).

In addition, the use of technology in early childhood education carried out by teachers aims to internalize moral and religious values in kindergarten. Teachers realize that the use of technology is very beneficial in aspects of children's development, especially moral and religious values. Through educational videos, children can learn from what they watch and the explanation given by the teacher about the material from the spectacle. In fact, some teachers point out that

animated videos can help teachers to internalize moral and religious values in early childhood. The results of the interview with the teacher are as follows:

“In my opinion, watching animated videos that teach Islamic values is very important to stimulate aspects of children’s development. Through technology, we can, for example, watch animations that teach Islamic values so that children can practice these values in their lives, both in society and in the family” (Based on the results of the SA interview, September 15, 2024).

“if we hope that in the future there will be a mini cinema for children in kindergarten. Through mini cinemas we can teach Islamic education to children through animated videos, cartoons, and videos such as movies that are appropriate for their age. So technology is actually very important to stimulate the development of children’s moral and religious values” (Based on the results of the ZS interview, September 17, 2024).

Based on the results of interviews with teachers in West Kalimantan, it shows that teachers have hopes to use technology in kindergarten. One of the learnings that teachers want to do in early childhood through technology is Islamic education in kindergarten. Through technology, teachers want to internalize Islamic values in early childhood, such as the practice of worship, manners of interacting with others, instilling character in early childhood, and applying Islamic values in social life both in the community and family. Therefore, the integration of technology with Islamic education in kindergarten still has opportunities in West Kalimantan, especially since the majority of teachers already understand the importance of technology in learning in kindergarten.

4. Discussion

4.1. *Integration of Digital Media in Islamic Education in Kindergarten*

In several countries in Europe, such as Norway, kindergartens are a means of promoting democracy, diversity, mutual respect, equality, sustainable development, life skills, and others (Kimathi & Nilsen, 2023). Meanwhile, in Indonesia, kindergartens focus more on learning religious education because the majority of the Indonesian population is Muslim. Many kindergarten institutions focus on internalizing Islamic values in learning (Isom et al., 2021; Maftuhah & Raswan, 2024; Mubiar et al., 2020; Rohmah & Sulong, 2023). Although many kindergartens focus on Islamic education, it is still not effective in stimulating aspects of moral and religious development. Therefore, an effective learning model is needed to assist teachers in the learning process of Islamic education for early childhood (Istiyani et al., 2024; Kosim et al., 2023; Masdul et al., 2024; Mustakim et al., 2022).

The use of technology is a method that can help teachers in Islamic education in kindergarten. According to Sigit Purnama (2018), technological developments do not have an impact on the use of technology in the field of early childhood education. Technology in education in the learning process aims to create more effective, efficient, and meaningful teaching and learning activities for early childhood. The use of technology in terms of religious and moral values trains children to have a patient attitude. This is because there are stages in using technology in learning so that children must understand that in every process of using technology there are stages that must be passed by children (Munasti et al., 2022). Learning through digital media really helps children to be more focused, enthusiastic, and motivated from the videos watched by children. Thus, children will practice what they learn, such as praying, giving alms, being honest, and having character. In addition, the relationship between teachers and early childhood is very important to build trust in others and themselves (Husin & bin Abdul Aziz, 2022).

The integration of digital media in Islamic education in kindergarten must be carried out in the internalization of religious and moral values in early childhood. Through this integration, teachers not only stimulate the aspects of language, cognitive, art, psychomotor, and social-emotional but also make children intellectually and spiritually competent. The integration of digital media in Islamic education in kindergarten that teachers must do is with an Islamic-based curriculum. Through digital media that is integrated with Islamic education to ensure that Islamic values are taught in kindergarten with holistic education. The integration of digital media in

Islamic education also aims to preserve traditional values while introducing technology to children. Integrating Islamic education into the curriculum of early childhood education is a strategic solution to build a generation that is not only academically intelligent but also has noble character and high morals. Early childhood is a period of character and personality formation. The values of Islamic education that are internalized in children include the values of faith, worship, and morals (Ainnin & Ismail, 2024; Bahri et al., 2024; Jenuri et al., 2025; Latipah et al., 2020; Mohd Asri et al., 2025).

The integration of digital media in Islamic education in kindergarten has several criteria that need to be considered to maintain the effectiveness of the overall learning process for early childhood. The learning process of Islamic education in stimulating aspects of moral and religious values must use visual media to stimulate all aspects of early childhood development. The role of teachers in the integration of digital media with Islamic education is a supporting factor for success in maximizing the right digital media to make active learning and increase early childhood confidence (Huda et al., 2024; Kurniawan et al., 2024; Sholeh et al., 2024).

4.2. The Challenges of Using Digital Media in Islamic Education in Kindergarten

Stimulation of aspects of early childhood development is very important to be carried out, especially by parents and supported by teachers in kindergarten. Parenting practices carried out by parents in children will have an impact on the development and growth of early childhood (Loyola Opiela, 2023; Rahayu et al., 2022). In schools, the role of teachers is also very important in stimulating aspects of child development, so teachers must carry out creative and innovative learning in the learning process in early childhood. In the digital era, early childhood often uses technology in the home environment. Early childhood teachers who teach in kindergartens must integrate digital technology with education in learning. Teachers must convince parents about the nature of using digital technology in kindergarten (Schriever, 2021). The use of technology in the era of digital transformation, namely changes in the process of restructuring through digitalization and technology, is very important in increasing early childhood creativity. Early childhood must have 21st century skills, namely, information management, communication, collaboration, critical thinking, and problem-solving skills (Hollenstein et al., 2022).

However, there are challenges in the use of digital media in Islamic education in early childhood, especially in West Kalimantan. Several of the challenges faced by teachers in using digital media are such as teachers not understanding digital technology-based learning in kindergarten. This is one of the challenges that makes it difficult to integrate digital media in Islamic education (Purnama et al., 2021; Ulfah, 2020; Ulfah et al., 2021; Vidal-Hall et al., 2020). To teach early childhood in the digital era, teachers must consider two sides of interactivity, namely, technology interactivity and interactivity between students, teachers, and technology. Kindergarten teachers need to be trained and given positive examples of how technology is selected, used, integrated, and evaluated in kindergarten classrooms. Teachers need to access online resources and links, videos, and communities that provide examples and applications of technology and digital media to demonstrate, share, and discuss (Munawar et al., 2021).

There are six standards needed for teachers to excel in the digital era, namely: 1) To encourage children's development and learning, teachers must integrate and evaluate technology; 2) Teachers establish family and community partnerships in the form of digital literacy skills because technology affects children's development; 3) observe, document, and assess children's development using technology: various digital devices or applications invite teachers to explore, exchange ideas, and apply learning by doing; 4) use an effective developmental approach: technology brings children together through social interaction rather than isolating children for long periods of time; 5) Building a meaningful curriculum: teachers should provide learning resources for students to explore, create, and practice digital media in the context of academic content and information available for learning in early childhood classrooms and 6) become professional teachers (Munawar et al., 2021).

The impact of using digital media in learning in kindergarten has consequences on children's development. The use of digital media in kindergartens must get support from parents

for their children's learning experiences while at school. Using digital devices in classroom learning, children should get guidance from teachers to avoid time spent with passive media consumption that is not inspiring and only repetitive but also provides an adequate framework that guarantees data protection and privacy (Sziron & Hildt, 2018). Moreover, in practice, the use of technology by early childhood aged 0-8 years tends to be involved with technology for entertainment, learning, creation, and communication (Farrugia & Busuttil, 2021). Therefore, in the learning process using digital media, the role of teachers in kindergarten is needed in guiding early childhood to stimulate early childhood development.

4.3. Research Contribution

This research provides important contributions to the study of early childhood education, especially in the context of integrating digital media into Islamic education in kindergartens. The study positions digital media as a tool that can be applied to stimulate the moral and religious development aspects of young children. However, the challenges of integrating digital media with Islamic education have limitations when infrastructure is limited, and the lack of training for teachers also becomes an obstacle in utilizing digital media for young children. Additionally, this study contributes practically, particularly to policymakers in early childhood education, to provide support in the form of digital infrastructure as well as teacher competencies to realize the integration of digital media in early childhood in kindergartens.

4.4. Limitations

This study has several limitations, particularly in methodology, as it uses qualitative research with a limited number of informants and geographic coverage, making the results contextual, specifically regarding kindergartens in the city of Pontianak, West Kalimantan Province, and they cannot be generalized to the entire population of kindergartens in Indonesia. Moreover, this study is solely based on the perspective of teachers without involving stakeholders such as policymakers in the city of Pontianak. This limits the comprehensive understanding of the factors influencing the integration of digital media in Islamic education for early childhood. The limitations of this research also do not test the effectiveness of using digital media on the moral and religious development of early childhood. Furthermore, the data collection process was conducted within a limited timeframe, which means it did not cover many kindergartens in the city of Pontianak.

4.5. Suggestions

Future research is advised to involve a larger and more geographically diverse number of informants so that the research results can provide a more comprehensive and representative picture of the integration of digital media in Islamic education for early childhood. Furthermore, future research could use a mixed-method approach to measure the impact of digital media usage on early childhood development aspects. Therefore, data collection should not only focus on teachers but also involve stakeholders such as policymakers. Future research could also provide training for Kindergarten teachers using a service learning method regarding digital literacy and the utilization of technology in Islamic education learning in Kindergartens.

5. Conclusion

This study analyzes the integration of digital media in Islamic education in early childhood in kindergarten by highlighting that teachers currently still have challenges in using technology. In integrating digital media in Islamic education, teachers are still having difficulties, so in classroom learning activities they still use conventional methods in educating early childhood in kindergarten. In addition, in the learning process, teachers revealed that the educational environment is not supportive for the use of technology in learning and play activities in kindergarten. In learning activities at school, teachers lack support because the facilities in schools cannot support the use of technology. The findings of this study show that there is an opportunity to realize the integration of digital media in Islamic education in kindergarten because teachers

consider this integration very important in learning in kindergarten. This research is limited to the study of digital media in kindergartens in West Kalimantan, which may not be fully representative of the conditions in other regions in Indonesia. Further research should explore digital media in parents and kindergartens in the use of digital media in early childhood.

Declarations

Author contribution statement

Laili Ramadani conceived the idea and conducted data collection, developed the theory of early childhood and Islamic Education. Juliwis Kardi, Nurul Khairani Ismail, Siti Salina Samaun, and Nur Hamzah performed the analysis. All authors engaged in discussions regarding the findings and made contributions to the final manuscript.

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Data availability statement

The dataset generated and analyzed during the research is available from the corresponding author upon reasonable request.

Declaration of interests statement


All authors declare that they have no financial or personal interests that could influence the work presented in this manuscript.

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