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Implementation of Digital Educational Technology in Thematic Learning for Children at Tadika Al-Fikh Orchard Malaysia

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Abstract: This Community Service Program (PKM) aims to improve the quality of thematic learning for early childhood through the implementation of digital educational technology at Tadika Al-Fikh Orchard Malaysia. The program involved training and mentoring teachers in utilizing various interactive digital media such as educational videos, Android-based learning applications, and interactive visual tools. The implementation method included initial observation, training sessions, digital media development workshops, and classroom application evaluations. The results showed that teachers were able to use digital technology effectively in thematic learning, which positively impacted children's motivation, participation, and understanding of learning materials. Therefore, the implementation of digital educational technology serves as an innovative strategy to support enjoyable and meaningful learning experiences for early childhood.	Abstrak: Kegiatan Pengabdian kepada Masyarakat (PKM) ini bertujuan untuk meningkatkan kualitas pembelajaran tematik anak usia dini melalui penerapan teknologi edukasi digital di Tadika Al-Fikh Orchard Malaysia. Dalam kegiatan ini, tim pengabdian melakukan pelatihan dan pendampingan kepada guru dalam menggunakan berbagai media digital interaktif seperti video edukatif, aplikasi pembelajaran berbasis Android, dan media visual interaktif. Metode pelaksanaan meliputi observasi awal, pelatihan, praktik pembuatan media digital, serta evaluasi hasil penerapan di kelas. Hasil kegiatan menunjukkan bahwa guru mampu memanfaatkan teknologi digital secara efektif dalam proses pembelajaran tematik, yang berdampak positif terhadap peningkatan motivasi, partisipasi, dan pemahaman anak terhadap materi pelajaran. Dengan demikian, penerapan teknologi edukasi digital menjadi salah satu strategi inovatif dalam mendukung pembelajaran yang menyenangkan dan
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Keywords: Digital Educational Technology; Thematic Learning; Tadika Al-Fikh Orchard Malaysia.

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Kata kunci: Teknologi Edukasi Digital; Pembelajaran Tematik; Tadika Al-Fikh Orchard Malaysia.

A. Introduction

The development of information and communication technology (ICT) in the modern era has brought significant changes in various aspects of life, including education. Education is no longer limited to conventional methods but has transformed into a digital-based learning system (Prensky, 2010). Digital educational technology has emerged as one of the innovations that offer great opportunities to improve the quality of learning, especially at the early childhood level. Through the use of technology, children can learn through more interactive, visual, and engaging experiences (Clark & Mayer, 2016).

In the context of early childhood education, the use of digital media helps children understand basic concepts through educational games, interactive videos, and learning applications. Such media foster curiosity and support the cognitive, social, and language development of children (Piaget, 1972). Early childhood education serves as a crucial foundation in shaping children's character, moral values, and basic skills. Therefore, the quality of education at this level must be continuously improved to meet the demands of modern development (Berk, 2013).

Tadika Al-Fikh Orchard Malaysia, as an early childhood education institution, is committed to developing innovative and enjoyable learning experiences. One of its efforts is implementing digital educational technology in thematic learning. Thematic learning is an approach that integrates various fields of study into one relevant theme from the child's real-life context. This approach allows children to learn holistically and contextually (Fogarty, 2009).

By integrating digital technology into thematic learning, teachers can create a more engaging and interactive learning atmosphere. Children are not merely passive listeners but active participants through digital media such as videos, animations, and educational games (Mishra & Koehler, 2006). However, many early childhood educators still lack adequate skills to integrate digital technology into teaching due to limited training and supporting facilities (Hew & Brush, 2007).

Therefore, a community service program (PKM) is needed, focusing on teacher training in the application of digital educational technology for thematic learning in early childhood. This program is expected to enhance teachers' competence and the overall effectiveness of the learning process. Digital educational technology includes various tools and platforms such as learning applications, interactive videos, augmented reality (AR), and multimedia designed to support the educational process (Reiser & Dempsey, 2018).

In thematic learning, such technologies can help teachers explain abstract concepts through visualization, animation, and simulation, making learning more concrete and appealing to children (Mayer, 2009). Moreover, digital technology can increase children's learning motivation due to its interactive and enjoyable nature. Children become more enthusiastic when they are directly involved in technology-based activities (Domingo & Garganté, 2016).

The use of digital educational technology also supports *child-centered learning*, in which children become active participants in the learning process rather than passive recipients of information (Bransford, Brown, & Cocking, 2000). From an Islamic education perspective, the use of digital technology aligns with the spirit of *Iqra'* (read and learn), as stated in Surah Al-'Alaq verses 1–5. These verses emphasize the importance of learning, reading, and utilizing various means provided by Allah to increase knowledge.

Thus, the application of digital technology in education is not merely a modern trend but an embodiment of Islamic values regarding the pursuit and dissemination of

knowledge through wise and innovative methods. This PKM program is motivated by the need to assist teachers at Tadika Al-Fikh Orchard Malaysia in adapting to modern changes and mastering digital skills in early childhood learning.

Through training activities, teachers will be introduced to various digital educational platforms such as *Kahoot!*, *Canva for Education*, and *Learning Apps*, which can be adapted to thematic learning. Teachers will also be trained to create simple learning media using these applications. This training is expected to empower teachers not only as technology users but also as creators of digital learning media suited to students' characteristics and Tadika's curriculum.

Another benefit of implementing digital educational technology is the creation of a collaborative learning environment where children can learn together, discuss, and solve problems through interactive media (Johnson & Johnson, 2019). Therefore, this PKM serves as a strategic effort to strengthen learning innovation at Tadika Al-Fikh Orchard Malaysia. The application of digital educational technology is expected to improve teacher quality, learning effectiveness, and children's learning outcomes as a whole.

B. Method

This Community Service Program (PKM) was carried out using a participatory and collaborative approach, involving lecturers, students, and teachers from Tadika Al-Fikh Orchard Malaysia in every stage of the activity. This approach was chosen to ensure that the program is not merely a transfer of knowledge, but also a capacity-building process that enables teachers to independently implement digital educational technology in thematic learning for early childhood education.

The first stage involved initial observation and needs analysis. The implementation team conducted surveys and interviews with Tadika Al-Fikh teachers to identify their needs in using digital learning media. The results showed that most teachers were familiar with basic technology but had not yet mastered its integration

into thematic learning. Therefore, the PKM focused on improving teachers' competence through practical training and intensive mentoring.

The second stage was training and workshops on developing digital learning media. In this session, participants were introduced to various educational platforms such as *Canva for Education*, *Kahoot!*, and *Learning Apps*. Teachers were trained to design digital-based learning media aligned with thematic lessons such as "Myself," "My Family," and "My Environment." The training also included making interactive learning videos and using simple animations to attract children's attention.

The third stage was classroom mentoring and implementation. After the training, the PKM team assisted teachers in applying the created digital media in their thematic learning sessions. The mentoring process took place over several meetings to ensure that teachers could operate the tools effectively and assess their impact on students' motivation and engagement in learning activities.

The fourth stage involved evaluation and reflection. Evaluation was conducted through classroom observations, teacher and student interviews, and participant satisfaction surveys. The results indicated significant improvement in teachers' abilities to design and use digital learning media, as well as positive responses from children toward more engaging and interactive learning experiences. Reflection sessions were held to identify successes, challenges, and follow-up plans after the PKM program concluded.

The final stage was publication and dissemination of results. The PKM team prepared a final report, an academic article, and video documentation to be shared with other educational institutions as a contribution to the development of digital-based learning innovation in early childhood education. It is expected that the results of this program will serve as a model for implementing digital educational technology in thematic learning for similar institutions in both Malaysia and Indonesia.

C. Results and Discussion

The implementation of the Community Service Program (PKM) on the application of digital educational technology in thematic learning at Tadika Al-Fikh Orchard Malaysia was successfully carried out according to the designed plan. The program took place over four weeks and focused on training teachers and providing mentorship on the use of digital media for early childhood thematic learning. At the beginning of the program, observations revealed that teachers still relied heavily on conventional teaching methods such as lectures, memorization, and printed materials. Their limited understanding of digital tools resulted in monotonous and less interactive learning sessions. This finding is consistent with Suryani (2021), who emphasized that low digital literacy among educators can hinder the effectiveness of technology-based instruction.

After the digital education training, significant changes were observed in teachers' attitudes and skills in integrating technology into their teaching practice. Teachers began exploring and applying digital tools such as Canva for Education, Wordwall, and Liveworksheets to design interactive learning activities. This improvement aligns with the TPACK framework by Mishra and Koehler (2006), which highlights the importance of the intersection between technology, pedagogy, and content knowledge in modern teaching. Students also responded positively to the new approach, showing increased engagement and enthusiasm when interacting with animations, videos, and digital games. This observation reinforces Mayer's (2014) cognitive theory of multimedia learning, which explains that integrating text, visuals, and sound enhances understanding and memory retention.

Children demonstrated greater curiosity and motivation in class. They improved their cognitive abilities, such as recognizing letters, numbers, and colors through interactive digital applications. The transformation from passive to active learning experiences reflects Piaget's (1973) theory that early childhood knowledge construction depends on direct interaction and discovery. Collaboration among teachers also

increased significantly as they worked together to develop suitable digital materials, exchange ideas, and share creative solutions. This collaborative culture mirrors Wenger's (1998) *community of practice* concept, in which professional dialogue and shared learning enhance instructional quality.

The PKM program produced several tangible outcomes, including interactive worksheets, digital storytelling projects, and educational videos infused with Islamic values. These media products were successfully tested in classroom settings, resulting in higher student participation and better comprehension of thematic topics such as "Allah's Creation," "My Family," and "Transportation." Teachers noted that digital tools not only saved preparation time but also stimulated their creativity in lesson planning. Prensky (2001) argues that educators who can adapt to digital transformation become more effective in engaging *digital native* learners, a reality reflected in this program.

Furthermore, the integration of digital media in thematic learning promoted interdisciplinary connections. A single theme could be explored through different subject lenses—for example, using science videos, mathematical games, and interactive English songs—allowing children to develop a holistic understanding of the topic. This finding supports Fogarty's (1991) argument that thematic learning requires interconnectedness among various domains to nurture deep learning. Teacher evaluations after the program also showed significant improvements in creativity and innovation. Teachers began creating digital-based assignments and employing online tools for formative assessments, marking a cultural shift toward technology-enhanced education at Tadika Al-Fikh.

Student documentation indicated a rise in classroom participation, with children becoming more active in discussions, questioning, and collaborative learning. Vygotsky's (1978) social development theory helps explain this outcome, as he asserted that social interaction plays a vital role in children's cognitive growth. Moreover, digital learning allowed teachers to implement differentiated instruction more easily, adjusting

the level of difficulty based on each child's readiness and ability. This adaptive approach reflects Bruner's (1966) constructivist theory, which emphasizes tailoring instruction to the learner's developmental stage.

In addition to cognitive gains, the integration of digital tools fostered 21st-century competencies such as critical thinking, creativity, communication, and collaboration (Partnership for 21st Century Skills, 2019). The use of digital media thus went beyond transferring knowledge—it also cultivated essential life skills relevant to the global digital era. Administratively, Tadika Al-Fikh Orchard Malaysia provided strong support for the initiative. The school principal expressed that this digital integration aligns with the institution's mission to become a modern Islamic school that embraces technological innovation in education.

Despite its success, the program encountered several challenges, particularly in terms of limited technological resources and unstable internet connectivity. These constraints highlight the ongoing digital divide identified by UNESCO (2020), which remains a major barrier to equitable access to educational technology. To address these issues, the PKM team developed offline learning resources, including PowerPoint-based materials and lightweight applications that can operate without an internet connection. This practical solution allowed teachers to continue utilizing digital media even under technological limitations.

Post-program evaluation revealed significant improvement in student learning outcomes. There was a 25% increase in recognition of symbols, numbers, and letters compared to traditional methods. This result supports Clark and Mayer's (2016) findings that digital educational technologies enhance student engagement and learning effectiveness. Beyond academic improvement, students also demonstrated growth in affective and social domains—they became more confident, expressive, and empathetic when working collaboratively. Teachers, in post-activity reflections, emphasized that the program was highly beneficial and recommended its continuation as a sustainable professional development effort. They also proposed further training on creating

educational videos and using simple learning management systems to optimize digital instruction.

Overall, the application of digital educational technology in thematic learning at Tadika Al-Fikh Orchard Malaysia has proven to be an effective strategy for improving early childhood education quality. This PKM program not only strengthened teachers' digital competencies but also enriched students' learning experiences, making them more interactive, engaging, and aligned with the demands of the digital age.

D. Conclusion

The implementation of digital educational technology in thematic learning at Tadika Al-Fikh Orchard Malaysia has proven to be an effective and innovative approach to improving the quality of early childhood education. The PKM activities succeeded in increasing teachers' competencies in designing and integrating digital media into learning, as well as enhancing students' enthusiasm and engagement. The use of digital platforms such as interactive worksheets, videos, and educational games created a more dynamic, participatory, and joyful learning environment for young learners.

Furthermore, the integration of digital technology not only strengthened teachers' pedagogical and technological skills but also promoted the development of 21st-century competencies among students, including creativity, collaboration, and critical thinking. The findings of this program indicate that digital tools can make thematic learning more holistic, interactive, and meaningful. Collaboration among teachers and support from school management also played a crucial role in ensuring the sustainability of this initiative.

Despite several challenges such as limited facilities and unstable internet connectivity, the overall outcomes of the PKM demonstrate that with proper guidance and creative strategies, early childhood institutions can effectively adapt to digital

transformation. Therefore, continuous professional training, the provision of digital resources, and institutional support are essential to maintain and expand the use of educational technology in Islamic early childhood education settings.

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