

Development of Early Childhood Teachers' Competence in Creating Digital Learning Media Using Book Creator: A Qualitative Study

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| Article info | Abstract |
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| <p>Article History</p> <p>Recieved: 25/11/2025</p> <p>Revised: 28/11/2025</p> <p>Accepted: 30/11/2025</p> <p>✉ Corresponding author</p> | <p><i>This study aims to analyze the processes and outcomes of enhancing early childhood teachers' competencies in developing digital learning media using the Book Creator application. Employing a qualitative approach with a descriptive design, the research focuses on exploring teachers' experiences throughout a series of technology competency development activities. Data were collected through observations, semi-structured interviews, and documentation, and were analyzed thematically to identify changes in teachers' skills and perceptions. The findings indicate that the competency development intervention effectively improved teachers' understanding and abilities in designing digital books that integrate text, visuals, audio, and other multimedia elements. Beyond technical skills, the study also revealed an increase in teachers' confidence in producing more creative and relevant learning materials for young children. These results highlight the importance of strengthening technological competence through structured and continuous training as a strategic effort to enhance the quality of early childhood education.</i></p> |

Keywords: Digital Learning Media, Book Creator, Early Childhood Education.

Abstrak

Penelitian ini bertujuan menganalisis proses dan hasil peningkatan kompetensi pendidik anak usia dini dalam mengembangkan media pembelajaran digital menggunakan aplikasi Book Creator. Penelitian menggunakan pendekatan kualitatif dengan desain deskriptif, yang berfokus pada eksplorasi pengalaman guru selama mengikuti rangkaian kegiatan pengembangan kompetensi teknologi. Data dikumpulkan melalui observasi, wawancara semi-terstruktur, dan dokumentasi, kemudian dianalisis secara tematik untuk mengidentifikasi perubahan keterampilan dan persepsi guru. Temuan penelitian menunjukkan bahwa intervensi pengembangan kompetensi tersebut secara efektif meningkatkan pemahaman dan kemampuan guru dalam merancang buku digital yang memadukan teks, visual, audio, serta elemen multimedia lainnya. Selain keterampilan teknis, penelitian juga menemukan peningkatan kepercayaan diri guru dalam menghasilkan materi pembelajaran yang lebih kreatif dan relevan bagi kebutuhan belajar anak usia dini. Hasil ini menegaskan pentingnya penguatan kompetensi teknologi melalui pelatihan terstruktur dan berkelanjutan sebagai bagian dari strategi peningkatan kualitas pembelajaran di PAUD.

Kata Kunci: Media Pembelajaran Digital, Book Creator, PAUD.

INTRODUCTION

Early Childhood Education (PAUD) is an educational program provided to children aged 0 to 6 years through systematic and engaging developmental stimulation (Innes et al., 2023; Lestari & Aryanti, 2024; Sari et al., 2023). PAUD is considered the foundation for child development, given that childhood is a crucial phase that shapes long-term growth and development (Poerwati et al., 2025). Therefore, the PAUD learning process must be designed to be interesting, meaningful, and in accordance with the characteristics of child development. Current advances in digital technology encourage PAUD teachers to be more flexible in designing innovative learning (Bisma et al., 2023; Mahriza et al., 2023; Nurul Qomariyah et al., 2024). The use of technology is no longer just a complement, but has become an integral component in the contemporary learning process. The use of digital learning media in PAUD provides various benefits that can enhance children's collaborative learning" (Nurmalasari et al., 2024). This is in line with digital transformation requires educators to have the ability to make the most of digital devices in the learning process (Rahmawati et al., 2024; Saleha et al., 2022). Thus, mastery of technology is a key competency for PAUD teachers.

In the application of technology, many early childhood teachers still need guidance to understand how to use digital applications effectively. Teachers still need intensive assistance in creating digital media that is appropriate for the characteristics of early childhood (Dewi et al., 2024). Similarly, Teachers' readiness in using digital applications still varies, so training needs to be structured in stages (Fitriyani, F. 2024). Therefore, efforts to increase teacher capacity through training are very important. One application that is relevant for early childhood teachers in developing learning media is Book Creator. This application allows the creation of interactive digital books that integrate text, images, audio, and video. Teachers have been able to understand and produce digital books according to their needs and creativity after participating in the training (Jojo, Maranatha et al., 2024). The training can improve teachers' skills in designing Book Creator media based on the PBL model (Reinita et al., 2025). Thus, Book Creator serves as a tool that facilitates teachers in creating interesting and creative learning media.

The use of digital media in early childhood education not only makes it easier for teachers, but also provides a more enjoyable learning experience for children. Creating digital books can increase the variety of material delivery so that children are more interested in learning activities (Aima et al., 2024). Digital-based media can stimulate the imagination and exploration of early childhood through rich visual displays (Syahwa, 2024). Digital media such as Book Creator helps teachers deliver material in a more interactive way, so that children are more involved in the learning process. The success of Book Creator training can also be measured by the level of participant satisfaction. "81% of participants were very satisfied and 19% were satisfied with the implementation of Book Creator training" (Pujiani et al., 2023). In addition, the

results of the study show that hands-on training makes teachers more confident in producing digital media (Bisma et al., 2023; Ghufroon et al., 2023; Warmansyah, Mudinillah, et al., 2024). This shows that a hands-on training approach has a positive impact on teachers' motivation and confidence.

The effectiveness of training is greatly influenced by the methods applied in the learning process. Training methods are carried out in practice by all participants so that skills are truly formed (Esilvita, 2023). "The mentoring-based approach makes it easier for teachers to understand the technical steps of media production" (Herlina, 2023). Thus, training that uses a practical and mentoring approach is more effective in optimally improving teachers' abilities. In the context of continuity, technology training for early childhood teachers needs to be carried out in stages and tailored to the needs of each school. Their training can be replicated in other early childhood education schools with some adjustments to suit the context and needs of early childhood education schools (Putri et al., 2024). Digital literacy improvement programs must be carried out continuously so that teachers' competencies do not stagnate (Fauziah et al., 2024). Therefore, Book Creator training needs to be developed as a sustainable program.

Based on these findings, training in the development of digital learning media using Book Creator is an important strategy for improving the quality of early childhood education. This training not only improves teachers' digital competencies, but also their creativity in delivering engaging learning materials. In line with the notion that "digital media provides opportunities for teachers to deliver more engaging and meaningful learning experiences (Sabariah et al., 2024). Book Creator training is expected to contribute significantly to the quality of early childhood education.

Although studies on digital media training for early childhood teachers continue to grow, most existing research focuses only on skill acquisition or teacher satisfaction, leaving a gap regarding how such training contributes to long-term competence development, instructional creativity, and meaningful media production aligned with early childhood characteristics. Moreover, limited studies specifically examine Book Creator as a digital tool within the context of Indonesian PAUD, where digital literacy levels vary widely. This study offers novelty by analyzing not only the outcomes of Book Creator training but also the developmental processes experienced by teachers, highlighting how digital competencies evolve through hands-on, reflective engagement.

Accordingly, the purpose of this study is to analyze the process and outcomes of developing teachers' digital media design competencies using Book Creator, while identifying how such training influences their confidence, creativity, and readiness to design interactive learning materials. This research is important because strengthening teachers' digital competencies is a critical component in enhancing the quality of early childhood education, particularly in responding to the demands of digital-era instructional practices.

METHODS

Research Design and Participants

This study uses a qualitative approach with a descriptive design combined with a service-based learning model, which consists of preparation, service, and reflection stages to describe in depth the training process in developing digital learning media using Book Creator for early childhood education teachers. This design was chosen because it allowed researchers to observe phenomena naturally without manipulation, while reflecting the participants' experiences during training. The preparation stage was carried out through an analysis of teachers' needs related to digital learning media, followed by a service stage in the form of workshops and direct guidance in creating digital books, and a reflection stage involving joint evaluation between researchers and teachers regarding the effectiveness of using Book Creator.

The research participants consisted of two active teachers at Mentari Purwakarta Kindergarten, located at Jl. Asteur No.7 RT.19 RW.10, Purwakarta District, Purwakarta Regency, West Java, with activities carried out on Thursday, November 6, 2025. Participants were selected using purposive sampling because only teachers who were relevant and directly involved in the use of digital media were included in the study. Ethical aspects were protected through institutional and participant consent, as well as confidentiality of identities not mentioned in the research report.

Instruments and Data Collection Procedures

The research instruments used in this service learning activity included observation sheets, semi-structured interview guidelines, and documentation sheets to collect data during the provision of services to early childhood teachers. Observations recorded the activities, participation, and technical skills of teachers in Book Creator training, while interviews explored their views on the benefits, challenges, and prospects of applying digital media. These instruments are reinforced with triangulation and member checks to ensure data validity. The data collection procedure begins with identifying the needs of partners, followed by training that includes an introduction to features and exercises in creating digital books, documentation of activities, post-training interviews, and the collection of evidence such as photos, notes, and digital products created by teachers.

Data Analysis Techniques and Ethical Considerations

The data was analyzed using a thematic approach through the stages of data collection, coding, grouping, and drawing out main themes to describe the teachers' experiences in depth. The validity of the data was strengthened through triangulation, participant verification, and discussions with peers, and supported by documentation of the results of Book Creator as visual data. Ethical considerations were strictly applied, including obtaining permission from Mentari Purwakarta Kindergarten, written consent from participants, identity credentials, and the use of data solely for research purposes,

without disrupting children's learning schedules or teachers' personal time. All of these procedures followed academic ethical standards.

RESULTS AND DISCUSSION

Results

The results of the study show that the implementation of training activities on the use of the Book Creator application for teachers ran smoothly and in accordance with the stages planned in the research method. The activity began with a presentation on the concept of digital books and their potential use in 21st-century learning. The teachers appeared enthusiastic about the facilitator's explanation, as evidenced by their full attention to the slides and interactive discussions that took place during the introductory session. The activity documents show that the training atmosphere was conducive and participatory.



Figure 1. Opening Remarks

Then the training team guided the teachers in hands-on practice by accessing the Book Creator application through their respective laptops. The training team provided structured step-by-step instructions, starting from the process of logging into the application, selecting the appropriate template, to adding multimedia elements such as text, images, and audio to the digital book pages. Photographic documentation shows that all participants were actively and focusedly exploring and trying out the basic features of the application, demonstrating their deep engagement in the learning process. In this session, participants learned about various tools and features of the book creator application, including adding text, images, videos, audio, links, and page layout settings, with the aim of making them feel comfortable and familiar with the book creation process. Participants had the opportunity to ask questions and discuss with the workshop team to deepen their understanding, while the team was ready to help overcome any obstacles that arose during the activity.



Figure 2. Explanation of how to use the book creator application



Figure 3. The training team provides direct assistance to teachers

During the practice process, teachers were seen working independently and collaboratively, discussing intensively the visual aspects, story development, and the most effective layout design to use in digital learning books. The training team also provided direct and personal assistance to participants who experienced technical difficulties, such as page layout or media selection, with a friendly, patient, and effective approach to ensure optimal understanding. Documentation shows that this assistance process ran smoothly and successfully boosted participants' confidence in overcoming technical challenges.

In the final session of the activity, teachers were given the opportunity to interpret the preliminary results of the digital books they had created, where several participants were already able to integrate various multimedia elements such as engaging narrative texts, creative visual illustrations, and voice recordings to enrich the content of the books. This shows that the training has significantly improved the participants' basic digital skills. Photos of the activity show participants focusing on their work in front of their laptops while following the instructions displayed on the television screen in the classroom, reflecting a serious and productive learning atmosphere.



Figure 4. Teachers work on digital book projects based on instructions from the training team

At the end of the training, the room was filled with satisfaction and pride, reflected in the participants' enthusiasm for the activities and the Book Creator works they produced. Participants successfully created their own digital books, gaining new knowledge and skills for future creativity. This experience was personally rewarding and provided valuable tools for work and daily life. The training team delivered conclusions and suggestions for applying the knowledge, and the event closed with words of thanks to the participants.

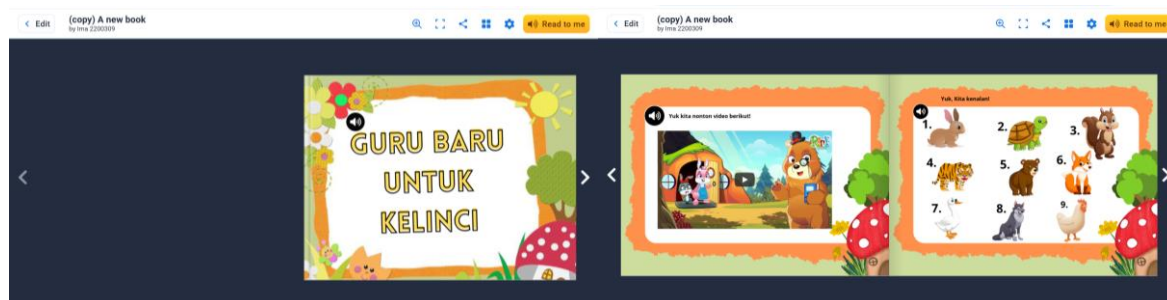


Figure 5. Results from one participant's book creator

Discussion

Book Creator training through the service learning model has proven effective in accelerating the mastery of technical skills among early childhood teachers, by integrating the needs for analysis, hands-on practice, and joint reflection, so that learning is relevant to real challenges in the classroom (Nabila et al., 2024). This approach allows teachers to learn while serving the school community, making the transfer of skills more meaningful than theoretical training. This is in line with the practical digital literacy needs for professional tasks: teachers need computer literacy skills with the ability to search and manage data digitally and operate computers. (Khotimah & Reza, 2022).

The implementation of training places practice at the core of activities, allowing teachers to experiment directly with Book Creator features such as adding text, images, audio, and interactive layouts, thereby increasing pedagogical creativity; teachers not only master the buttons, but also compile thematic material that is appropriate for the world of children. This impact demonstrates Book Creator's ability to facilitate teachers in designing contextual interactive media: Book Creator's digital-based learning media innovation facilitates teachers in designing interactive learning media that is engaging and contextually relevant (Faridha et al., 2025).

The enthusiasm of participants during the practical sessions demonstrated a high level of acceptance of skills-based training, which had a direct impact on teachers' willingness to adopt and adapt digital media in their lesson plans. Quantitative data from the study showed high participant satisfaction, indicating that the likelihood of adoption would increase if supported by follow-up: "81% of participants were very satisfied and 19% were satisfied with the training on using Book Creator." (Pujiani et al., 2023).

The reflection stage in the service learning model reinforces the internalization of practices, where teachers, together with researchers or students, disseminate products and implement strategies, then formulate improvements (Heras-Colàs et al., 2023). This dialogic process builds a sense of ownership of digital products and encourages planning for integration into daily routines. This approach is in line with recommendations for professional learning practices through collective reflection to explore innovation: "These workshop activities can be replicated in other early childhood education schools to improve the quality of learning" (Halimah et al., 2023). The reflection stage in the service learning model reinforces the internalization of practices, where teachers, together with researchers or students, present products and strategy implementations, then formulate improvements. This dialogic process builds a sense of ownership of digital products and encourages planning for integration into daily routines; this approach is in line with professional learning practice recommendations through collective reflection for the sake of innovation this workshop activity can be replicated in other early childhood education schools to improve the quality of learning (Mardiyah & Krisdiana, 2023).

Although the improvement in competency was evident, infrastructure constraints-such as a limited number of devices and unstable internet connections-were the main obstacles to optimal implementation. These challenges prevented some teachers from completing their digital products during the short workshop sessions. These findings are consistent with service-learning research that notes technical constraints as a factor hindering the implementation of technology in early childhood education. The training was carried out even though some participants experienced technical difficulties in using the application due to device limitations. (Adi et al., 2022).

The timing of training also affects the quality of output; a one-session intensive workshop is sufficient for introduction and prototyping, but is not adequate for product refinement or long-term curriculum integration development (Miller et al., 2022). Therefore, the service learning model should ideally be followed by a coaching and follow-up phase so that teachers can finalize the digital books and apply them in several learning cycles; this suggestion is consistent with previous studies that recommend post-training follow-up. This training can be replicated with some adjustments to suit the context and needs of early childhood education schools (Pinem, 2025).

The impact on children is evident in terms of interest and engagement: media with audio-visual elements trigger higher affective and cognitive responses than print materials alone, so digital books have the potential to enrich early literacy experiences (López-Escribano et al., 2021). These field findings are supported by literature stating that digital media-based learning provides a more realistic learning experience for early childhood, digital media-based learning is needed to provide a realistic learning experience for children (Nurjanah & Mukarromah, 2021). Although it is useful for enriching phonetic, language, and social-emotional skills, excessive use can reduce

human interaction, so guided use with time limits is recommended for balance, making digital media a wise tool for early literacy (Culatta et al., 2021; Gusmita et al., 2025; Syarfina & Warmansyah, 2025; Wulandari et al., 2025).

From a professional development perspective, the training emphasized that improving digital competence is an ongoing necessity for early childhood educators (De Rossi & Ferranti, 2025). Training such as Book Creator bridges the gap between digital policy and classroom practice, as teachers become creators of materials rather than mere users. This reinforces the findings of studies on the need for intensive digital competence among early childhood educators in the post-pandemic era. Early childhood educators' digital competence is intensively used and highly necessary in the implementation of learning (Innes et al., 2023; Mas'ud et al., 2022).

Theoretically, this study develops the discourse of service learning in the context of early childhood education by showing how the preparation-service-reflection phase can facilitate contextual technology transfer (Baumgartner et al., 2020). This contribution is important because service learning in literature focuses more on higher/secondary education, not early childhood education. The systematic series of stages helps explain the mechanism of skill internalization, which can be used as a model for teacher empowerment programs at the regional level.

Challenges of validity and generalization must be acknowledged: the small sample size (two teachers at Mentari Kindergarten) and single setting limit representativeness, while the short duration prevents evaluation of long-term impact on children's developmental outcomes. Planning a broader (multi-site) plan, increasing the frequency of coaching, and including measures of child outcomes (literacy, language) would strengthen effectiveness. Nevertheless, the descriptive depth provides valuable contextual insights for program development.

In practical terms, the recommendations that emerged include: (1) preparing a post-training assistance package, (2) seeking support for infrastructure tools and policies at the school/agency level, and (3) designing a long-term evaluation to assess the effects of learning on children (Lang et al., 2025; Puji & Hakobyan, 2025; Warmansyah, Puja Diandra, et al., 2024; Yulia et al., 2025). Implementing these recommendations will increase the chances of sustainable implementation and maximize the benefits of Pencipta Buku for early childhood education practices.

CONCLUSION

This study concludes that the application of service-based learning methods in early childhood education teacher training to use Book Creator can significantly improve teachers' knowledge, skills, and confidence in developing interactive and engaging digital learning media. All stages from preparation, service implementation, to reflection contribute effectively to deepening teachers' understanding of the urgency of digital media innovation, while providing practical experience in the process of creating interactive books. The research findings show that direct assistance from facilitators

helps teachers overcome various technical obstacles while opening up broad opportunities for technology integration into daily learning activities. In addition, this training also succeeded in strengthening teachers' positive attitudes towards the use of technology as an important component in meaningful learning in early childhood education settings. Although this study has limitations related to the number of participants and the specific location context, the results still provide an important and valuable picture of the effectiveness of the service-based learning training model. For further development, it is recommended to conduct follow-up research involving more participants and comparing various digital applications to create a more comprehensive and sustainable training model in the long term.

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