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Enhancing Early Childhood Educators' Learning Media Design Skills through Canva-Based Training: Evidence from Indonesian Preschool Settings

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ABSTRACT

Background of the study: Digital learning media competencies have become increasingly important for early childhood educators in creating engaging and interactive learning environments. However, many preschool educators still experience limitations in designing visually appealing and pedagogically appropriate instructional media. Canva-based training has emerged as a practical strategy to strengthen educators' digital media design competencies, particularly in early childhood education settings with limited technological resources.

Aims and scope of paper: This study aimed to examine the effect of Canva-based learning media training on the learning media design skills of educators at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten, Jember, Indonesia.

Methods: This study employed a pre-experimental method using a one-group pretest–posttest design. The participants consisted of 14 educators, including three educators from Nuris Playgroup and eleven educators from Bina Anaprasa Nuris Kindergarten. Data were collected through pretest and posttest assessments of educators' learning media design skills following the implementation of Canva training. Data analysis was conducted using the Wilcoxon Signed-Rank Test with SPSS version 27 to determine the significance of changes before and after the intervention.

Results: The findings revealed a significant improvement in educators' learning media design skills after participating in the Canva-based training program. The Wilcoxon Signed-Rank Test showed a significance value of 0.001, which was lower than the threshold of 0.05, indicating that the intervention had a statistically significant positive effect on educators' competencies in designing digital learning media. The training also enhanced educators' creativity, confidence, and ability to develop more visually engaging instructional materials for early childhood learning activities.

Contribution: This study contributes to the growing literature on digital competency development in early childhood education by demonstrating the effectiveness of Canva-based training in improving educators' instructional media design skills. The findings highlight the potential of accessible digital platforms to support teacher professional development and promote more innovative and interactive learning experiences in preschool education contexts.

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INTRODUCTION

The rapid advancement of digital technology has substantially transformed educational practices, particularly in the development and utilization of instructional media in early childhood education settings. The integration of technology into teaching and learning processes is increasingly recognized as an essential component of teacher professionalism and pedagogical competence in the twenty-first century (Falloon, 2020; Mishra & Koehler, 2006). Digital technology enables educators to design more interactive, engaging, and developmentally appropriate learning environments that support children's cognitive, social, and creative development (UNESCO, 2023). In Indonesia, the importance of integrating information and communication technology (ICT) into educational practices is formally emphasized in the Regulation of the Minister of National Education of the Republic of Indonesia Number 16 of 2007 concerning Academic Qualification Standards and Teacher Competencies, which identifies technological competence as a core component of pedagogical professionalism. However, despite the increasing accessibility of digital platforms, many educators continue to experience difficulties in designing and implementing technology-based learning media effectively (Silalahi, 2024; Yuliana & Sofyan, 2023).

The integration of digital learning media has become increasingly important in supporting meaningful and engaging learning experiences for young children. Previous studies have demonstrated that technology-assisted instruction can improve student motivation, creativity, participation, and learning engagement while facilitating more authentic and interactive educational experiences (Miasari et al., 2022; Anggraeni, 2018). In early childhood education contexts, visually attractive and interactive learning media are particularly important because young learners tend to respond positively to colorful, image-based, and activity-oriented instructional materials (Cahyadi, 2019). Nevertheless, the successful implementation of digital learning media largely depends on educators' digital literacy, technological competence, and pedagogical readiness (Chai et al., 2013; Tondeur et al., 2020). In many preschool institutions, teachers still rely heavily on conventional instructional materials such as worksheets, printed magazines, and teacher-centered instructional methods due to limited technological skills and insufficient professional development opportunities (Arifin et al., 2024).

One digital platform that has gained significant attention in educational settings is Canva, an online graphic design application that enables users to create visually appealing instructional materials in a simple, accessible, and collaborative manner. Canva provides various templates, design elements, illustrations, fonts, animations, and multimedia features that support educators in developing creative learning media without requiring advanced graphic design expertise (Kharissidqi & Firmansyah, 2022). Previous research has indicated that Canva-based instructional media can enhance teachers' creativity and improve the quality of classroom instruction by facilitating more interactive and visually engaging learning experiences (Lestari et al., 2024; Justicia et al., 2023). Furthermore, Canva has been widely recognized as a practical digital platform for supporting educational innovation because it is user-friendly, accessible through multiple devices, and adaptable to diverse instructional needs (Falloon, 2020).

Despite these advantages, the effective utilization of Canva in educational settings still requires adequate training and pedagogical guidance, particularly for educators with limited experience in educational technology. Teacher training programs have been identified as one of the most effective strategies for improving professional competence and instructional innovation (Afwiyah, 2023). Training activities provide educators with practical experiences that can strengthen technological knowledge, pedagogical understanding, and instructional creativity (Koehler et al., 2013). Several studies have reported that Canva-based training programs positively contribute to educators' ability to develop technology-based learning media and improve classroom instruction quality (Bakri, 2024; Ayunia Lestari et al., 2022). However, empirical studies specifically examining the effectiveness of Canva learning media training within early childhood education contexts remain relatively limited, particularly in Indonesian playgroup and kindergarten institutions. Existing studies generally focus on primary or secondary

education contexts, while research addressing educators in preschool settings is still underexplored.

Preliminary observations conducted in September 2024 at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten in Jember Regency revealed that technology integration in classroom learning was still relatively limited. Educational technology was primarily used only for playing YouTube videos during commemorative events or project-based learning activities. Interviews with educators indicated that many teachers lacked confidence and competence in designing technology-based learning media independently. Consequently, classroom instruction continued to rely predominantly on worksheets and conventional teaching approaches, which often resulted in less interactive and less engaging learning environments for children. These findings indicate the existence of a practical gap between the increasing demand for digital pedagogical competence and the actual technological capabilities of educators in early childhood education institutions.

Considering these challenges, there is a critical need for accessible and practice-oriented professional development programs that can enhance educators' digital pedagogical competencies. Therefore, this study investigates the effect of Canva learning media training on educators' learning media design skills at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten, Jember. Using a pre-experimental one-group pretest–posttest design, this study seeks to evaluate whether structured Canva training can significantly improve educators' ability to design creative, visually appropriate, and technology-based learning media for early childhood education. The findings of this study are expected to contribute theoretically to the growing body of literature on teacher digital competency development and practically to the implementation of technology-based professional development programs in preschool educational settings, particularly within developing country contexts.

METHOD

Research Design

This study employed a quantitative approach using a pre-experimental research design with a one-group pretest–posttest format (Creswell & Creswell, 2018). Experimental research is designed to examine the effect of a specific treatment or intervention on changes in participants' outcomes (Sugiyono, 2022). The one-group pretest–posttest design was selected because the study involved a single experimental group without a control group comparison (Fraenkel et al., 2019). In this design, participants' learning media design skills were measured before and after the implementation of the Canva learning media training program to identify the effectiveness of the intervention.

The study was conducted at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten, Jember, Indonesia. The intervention consisted of structured Canva learning media training sessions focused on developing educators' competencies in creating technology-based instructional media, particularly digital flashcards for early childhood learning activities. Practical technology-based training is considered effective in improving educators' digital competencies and instructional creativity (Koehler & Mishra, 2009).

Participants

The participants of this study were educators from Nuris Playgroup and Bina Anaprasa Nuris Kindergarten in Jember Regency. A total sampling technique was employed because the population size was relatively small and accessible (Etikan & Bala, 2017). Consequently, all educators within the institutions were included as research participants. The final sample consisted of 14 educators, including 3 educators from Nuris Playgroup and 11 educators from Bina Anaprasa Nuris Kindergarten.

The participants were selected based on their active involvement in classroom teaching and their participation in the Canva training program. Most participants had limited prior experience in designing technology-based learning media, particularly using digital graphic design platforms.

This condition reflects previous findings indicating that many early childhood educators still encounter difficulties in integrating digital technology into classroom instruction (Tondeur et al., 2017).

Data Collection

Data were collected through structured observation and assessment of educators' learning media design skills before and after the training intervention. Observation was used to identify participants' competencies in utilizing digital technology for instructional media development (Cohen et al., 2018). The assessment focused on several indicators, including creativity in media design, visual organization, suitability of learning content, technological utilization, and attractiveness of the learning media produced using Canva.

The training program was conducted in three sessions, during which participants received guidance and practical experience in designing educational flashcards using Canva. The themes used in the training activities included animals, fruits, and transportation, which are commonly used in early childhood education contexts. Hands-on and practice-oriented digital training activities have been reported to improve teachers' confidence and digital pedagogical competencies (Instefjord & Munthe, 2017).

Data Analysis

The data analysis employed quantitative statistical techniques to examine differences between pretest and posttest scores. The collected data were first organized and tabulated to identify changes in participants' learning media design skills following the intervention.

Because the sample size was relatively small and the data were non-parametric, the Wilcoxon Signed Rank Test was used to analyze the significance of differences between pretest and posttest results (Pallant, 2020). Statistical analysis was conducted using SPSS version 27 with a significance level of 0.05. The test was used to determine whether the Canva learning media training had a statistically significant effect on educators' learning media design skills.

RESULTS

Pretest Results

The study began with a pretest activity aimed at identifying educators' initial abilities in designing learning media. During the pretest, participants were instructed to create flashcard learning media using Microsoft Word with an animal theme. The assessment was conducted based on four indicators: material visualization, language use, visual attractiveness, and content suitability.

The findings indicated that many educators still experienced difficulties in designing effective learning media. In the material visualization aspect, several participants had difficulty selecting and inserting appropriate images for instructional purposes. Some flashcards used low-quality images and visually distracting backgrounds. In the language use indicator, the selected font types, sizes, and colors were not yet suitable for early childhood learning contexts. Furthermore, the visual appearance of the flashcards remained relatively simple, with limited use of attractive color combinations and layouts. In terms of content selection, some educators had not fully adapted the learning materials to children's developmental characteristics and learning needs.

Based on the pretest assessment, most participants demonstrated moderate levels of learning media design skills, while one participant was categorized at a low level. These findings indicate that educators' initial competencies in developing digital learning media were still limited prior to the intervention.

Training Implementation

Following the pretest, participants received Canva learning media training over three sessions. During the training process, educators were introduced to various Canva features and guided through the steps of designing educational flashcards. Participants practiced creating flashcards

using different themes commonly used in early childhood education, including fruits, animals, and vehicles.

Throughout the training sessions, educators showed gradual improvement in utilizing Canva features for instructional design. In the material visualization aspect, participants became more capable of selecting and organizing appropriate images for learning media. In terms of language use, several educators still required assistance in adjusting font types, sizes, and color combinations effectively. However, improvements were observed in the visual attractiveness of the flashcards, as participants began to apply more appealing layouts, color harmonization, and background designs. Additionally, educators increasingly demonstrated the ability to adapt instructional content to children's learning characteristics and classroom activities.

Posttest Results

After completing the three training sessions, participants were asked to complete a posttest activity using the same procedure as the pretest. The posttest results showed substantial improvements across all assessment indicators.

In the material visualization indicator, most educators were able to independently select and insert relevant images into their flashcards. Improvements were also evident in the language use indicator, as participants demonstrated more appropriate choices of font types, sizes, and colors for early childhood learning media. Regarding visual attractiveness, educators were able to create more visually engaging flashcards through better use of layouts, background colors, and design elements. Furthermore, participants showed improved ability to adapt learning content to children's developmental needs and classroom learning objectives.

The quantitative analysis revealed an increase in the average score from 11.00 in the pretest to 14.71 in the posttest. The improvement indicates that the Canva training program positively contributed to educators' learning media design skills. Variations in participants' improvement levels were influenced by differences in prior experience with digital applications. Educators who were already familiar with Canva tended to adapt more quickly and actively engage during the training process, while participants with limited technological experience required more intensive guidance.

Hypothesis Testing

The effectiveness of the Canva learning media training was further analyzed using the Wilcoxon Signed Rank Test. The statistical analysis produced a significance value of 0.001, which was lower than the significance threshold of 0.05. Therefore, the null hypothesis (H0) was rejected and the alternative hypothesis (H1) was accepted.

These findings indicate that the Canva learning media training had a significant positive effect on educators' learning media design skills at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten, Jember.

Table 1. Results of the Wilcoxon Signed Rank Test

Variable	Mean Score	N	Significance
Pretest	11.00	14	0.001
Posttest	14.71	14	

DISCUSSION

The findings of this study demonstrate that Canva learning media training had a significant positive effect on educators' learning media design skills at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten, Jember. The improvement observed between the pretest and posttest scores indicates that structured digital media training can strengthen educators' competencies in designing visually engaging and pedagogically appropriate learning materials for early childhood education contexts. Previous studies have similarly emphasized that continuous professional

development programs contribute significantly to improving teachers' digital pedagogical competencies and instructional creativity (Arifin et al., 2024; Bakri, 2024; Falloon, 2020).

The use of Canva enabled educators to develop digital flashcards by utilizing various design features, including templates, image selection tools, font customization, color adjustments, and visual layouts. These findings align with Lubis (2021), who emphasized that effective digital learning media design involves several important indicators, including material visualization, media selection principles, visual attractiveness, and content suitability. Similarly, Kharissidqi and Firmansyah (2022) explained that Canva provides practical and user-friendly features that simplify the process of developing visually attractive learning materials. Additional studies also reported that Canva-based media can enhance creativity, instructional clarity, and student engagement in classroom activities (Lestari et al., 2024; Wahyuningsih & Sulastri, 2023).

The findings also support previous studies highlighting the importance of technology integration in improving educational quality. Miasari et al. (2022) argued that technology-based learning media can provide more authentic, interactive, and meaningful learning experiences for students. In the context of early childhood education, digital learning media also support multimodal learning experiences that stimulate children's visual attention and motivation (Hapsari & Zulherman, 2021). However, the successful implementation of educational technology is strongly influenced by educators' digital competencies and readiness to adopt technology in classroom practices (Tondeur et al., 2017). In this study, many participants initially demonstrated limited abilities in utilizing digital media applications, particularly in selecting appropriate visual elements and designing attractive instructional content. After participating in the training sessions, educators showed notable improvements in both technical and pedagogical aspects of learning media design.

Furthermore, the results are consistent with previous research conducted by Lestari et al. (2022), which found that Canva training effectively improved educators' confidence and ability to create digital learning media. Similar findings were reported by Rahmatullah et al. (2020), who stated that Canva-based learning media training can enhance teachers' creativity, motivation, and instructional innovation. The current study extends these findings by demonstrating that practical and guided training activities can positively influence educators in early childhood education settings, particularly those with limited prior experience in digital media development. These results also reinforce the argument that hands-on digital workshops are more effective when accompanied by direct mentoring and collaborative practice sessions (Koehler & Mishra, 2009).

An important finding of this study is that participants' prior technological experience influenced their adaptation during the training process. Educators who were already familiar with Canva or other digital applications adapted more quickly and produced more visually organized learning media. In contrast, participants with limited technological experience required more intensive assistance in understanding Canva features and design principles. This finding indicates that educators' readiness and digital literacy levels play an important role in determining the effectiveness of technology-based professional development programs. This result supports the findings of Instefjord and Munthe (2017), who emphasized that teachers' digital competence significantly affects their confidence and effectiveness in integrating technology into learning activities.

In addition, improvements in educators' learning media design skills were also influenced by supporting factors such as access to technological resources, stable internet connectivity, and the availability of digital devices. This finding supports Khaerunnisa et al. (2025), who emphasized that adequate technological infrastructure significantly contributes to the successful implementation of digital learning innovation in educational settings. Similar studies also noted that institutional support, infrastructure readiness, and access to digital resources are essential factors influencing successful technology integration in schools (Ertmer & Ottenbreit-Leftwich, 2010; Hew & Brush, 2007). Therefore, sustainable institutional support is necessary to ensure that digital media training programs can produce long-term improvements in educators' professional competencies.

Implications

The findings of this study have important practical implications for teacher professional development in early childhood education. The success of the Canva training program indicates that practice-oriented digital media workshops can effectively strengthen educators' technological and pedagogical competencies. Schools and educational institutions should therefore provide continuous training opportunities that focus on practical digital media design skills relevant to classroom learning needs.

In addition, this study highlights the importance of integrating digital literacy development into teacher competency programs, particularly in early childhood education settings where conventional instructional methods are still dominant. Strengthening educators' abilities to design engaging digital learning media may contribute to more interactive, creative, and child-centered learning environments.

Research Contribution

This study contributes to the growing literature on digital competency development in early childhood education by providing empirical evidence regarding the effectiveness of Canva-based training programs for educators. Unlike previous studies that mainly focused on general technology integration, this research specifically examines how practical Canva training can improve educators' learning media design skills within playgroup and kindergarten contexts.

Moreover, this study offers practical contributions through the development of a structured training model that may serve as a reference for schools and educational institutions implementing similar digital media training programs. The findings also enrich discussions regarding the role of digital design platforms in supporting innovative instructional practices in early childhood education.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the study employed a one-group pretest–posttest design without a control group, which limits the ability to attribute improvements exclusively to the intervention. External factors beyond the training activities may have influenced participants' performance during the posttest.

Second, the sample size was relatively small and limited to educators from one educational institution in Jember, which restricts the generalizability of the findings to broader educational contexts. Third, the study focused primarily on educators' learning media design skills and did not examine the long-term impact of Canva-based learning media on children's learning outcomes or classroom engagement.

Suggestions

Based on the findings and limitations of this study, future research is recommended to employ experimental designs involving control groups to strengthen the validity of the findings. Researchers are also encouraged to involve larger and more diverse participant groups from different educational settings to improve generalizability.

In addition, future studies may explore the long-term effects of digital learning media training on instructional quality, classroom interaction, and children's learning outcomes. Further research could also examine the integration of other digital platforms and multimedia applications in early childhood education to identify more effective strategies for enhancing educators' digital pedagogical competencies.

CONCLUSION

This study demonstrates that Canva-based training significantly improved early childhood educators' learning media design skills at Nuris Playgroup and Bina Anaprasa Nuris Kindergarten. The findings revealed substantial improvements in educators' abilities to design visually engaging and pedagogically appropriate learning media following participation in the

training program. Statistical analysis using the Wilcoxon Signed Rank Test showed a significance value of 0.001 ($p < .05$), confirming that the training intervention had a positive and significant effect on educators' media design competencies.

The results further indicated that all participants experienced positive score improvements after the intervention, with no decline identified among the educators. The training contributed to enhancing educators' competencies in material visualization, visual presentation, language use, and content selection through the practical use of the Canva platform. These findings suggest that Canva-based professional development programs can serve as an effective and accessible strategy for strengthening digital pedagogical competencies among early childhood educators, particularly in preschool settings with limited experience in technology-integrated learning practices.

AUTHOR CONTRIBUTION STATEMENT

Indah Widya Ningrum: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft, Visualization, Project Administration.
Laily Nur Aisiyah: Supervision, Validation, Methodology, Writing – Review & Editing, Resources, Funding Acquisition.

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