



Enhancing Teachers' Pedagogical Competence in 3T Regions through Canva AI Training for Visual Learning Media

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Abstract:

The advancement of Artificial Intelligence (AI) offers new opportunities to transform teaching and learning, particularly through innovative, visual, and interactive learning media. However, teachers may struggle to integrate AI into pedagogically meaningful practices because of limited technological experience and professional training. This study aims to analyze how Canva AI training accelerates teachers' pedagogical competence in developing visual learning media and integrating AI into instructional practices. The study employed a qualitative approach with a case study design. Data were collected through in-depth interviews, observations, and documentation and analyzed using the Miles, Huberman, and Saldaña framework, comprising data condensation, data display, and conclusion drawing and verification. The findings indicate that Canva AI training supports teachers in designing instruction, developing more creative and interactive visual learning media, and aligning AI-supported media with learning objectives. The training also encourages a shift toward more learner-centered instructional practices and greater student engagement. These findings imply that contextually grounded AI training can strengthen pedagogical competence while supporting sustainable digital transformation and professional development in education.

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INTRODUCTION

Artificial Intelligence (AI) is increasingly reshaping education by enabling teachers to design more adaptive, interactive, and visually engaging learning experiences. Its importance extends beyond technological innovation because teacher capacity to use AI influences how effectively digital tools become meaningful classroom practices. Research on AI-supported teacher development indicates that professional development can strengthen teachers' digital competence, self-efficacy, and capacity to integrate emerging technologies into instruction (Li et al., 2025; Shi et al., 2025; Candra, 2025; Utamimah & Hussen, 2024). Thus, AI integration should not be understood simply as providing new applications. It requires pedagogical capacity to connect technology with learning objectives, content, and students' needs. Strengthening teachers' pedagogical

competence through practical AI training is therefore important for promoting equitable digital transformation and ensuring that technological advancement contributes to improved teaching practices.

Despite AI's potential, many teachers struggle to integrate emerging technologies into meaningful learning. These difficulties include limited digital competence, insufficient professional development, uncertainty about AI-supported teaching, and inadequate institutional support. Studies emphasize that effective AI integration depends on sustained professional learning, teacher confidence, and opportunities to apply technology in authentic instructional contexts (Fakhar et al., 2024; Roshan et al., 2024; Fahriansyah et al., 2025; Ilmi, 2024). Teacher development therefore cannot rely solely on technical demonstrations or access to digital platforms. It must also address how teachers select, design, and implement technology according to pedagogical purposes. Without this integration, AI may remain an isolated technological resource rather than part of instructional practice. This problem highlights the need for contextualized professional development that strengthens technological skills and pedagogical decision-making, particularly where teachers have limited prior AI experience.

This challenge is evident at SMP Negeri 1 Kotaanyar, where initial observations and interviews indicated that teachers commonly relied on textbooks, basic PowerPoint presentations, and unmodified internet images when preparing visual learning materials. Difficulties stemmed from limited exposure to AI-based educational tools, uneven digital literacy, and unstable internet access rather than a lack of willingness to innovate. Classroom activities also remained relatively teacher-centered, limiting opportunities for visual and interactive learning experiences. Canva AI offers features that can help teachers generate and adapt visual materials efficiently. However, teachers had not used these features optimally because they had limited knowledge and training in AI-supported instructional design. This setting therefore provides a context for examining how practical Canva AI training may support changes in teachers' pedagogical competence and visual media development.

Previous studies have established that digital and AI-supported professional development can strengthen teachers' technological and pedagogical capacities. Li et al. (2025) identified professional development as an important pathway for integrating AI into teaching, while Sun et al. (2023) demonstrated the value of TPACK-oriented professional development for developing AI teaching competencies. Shi et al. (2025) similarly linked digital pedagogy development with teacher competence and self-efficacy. Research on visual learning media also indicates that technology-supported design can enrich instructional presentation and learner engagement (Amallia et al., 2025; Rahim et al., 2022; Putra & Soma, 2025). However, much existing evidence examines general AI integration, digital pedagogy, or visual media separately. Less attention has focused on how practical Canva AI training connects visual media development with teachers' pedagogical competence in an authentic school context.

The literature also suggests a shift from viewing AI as a technical tool toward understanding it as part of teachers' pedagogical knowledge. Mishra et al. (2023) emphasized the implications of generative AI for TPACK, while Dogan (2026) and Younas and Noor (2026) extended this discussion toward AI-oriented teacher knowledge. Other studies highlight experiential learning, contextual application, and pedagogical reasoning as ways to strengthen teachers' digital competence (Pasmala et al., 2025; Priyanda et al., 2025; Fikriyah & Prahasti, 2026; Prahasti et al., 2026). Nevertheless, existing research provides limited empirical explanation of how teachers move from technological unfamiliarity to purposeful use of AI-generated visual media. Evidence from resource-

constrained school contexts is also limited. This gap matters because effective AI integration depends not only on access to technology but also on teachers' ability to translate AI capabilities into appropriate instructional decisions.

This study addresses the gap by positioning Canva AI training as a bridge between technological learning and pedagogical practice. Its novelty lies in examining how teachers progress from limited experience with AI-supported media toward purposeful visual learning design, instructional alignment, and classroom application. Rather than treating Canva AI merely as a graphic-design application, the study examines it as a pedagogical resource within real instructional practices. It also adds context by examining this process in the middle school, where technological access and prior AI experience create practical constraints. By tracing changes across training, media development, and classroom implementation, the study seeks to provide an integrated understanding of AI-supported teacher development. This perspective is important for designing professional development that is practical, pedagogically grounded, and responsive to contextual conditions.

The research problem concerns how Canva AI training can accelerate teachers' pedagogical competence in developing visual learning media in middle school. The study argues that meaningful competency development occurs when AI knowledge is connected with pedagogical reasoning, including identifying learning objectives, selecting visual strategies, and applying media in classroom interaction. Accordingly, the study analyzes teachers' initial pedagogical competence, changes following Canva AI training, their ability to develop AI-supported visual learning media, and implications for classroom practice. Its contribution is an empirical account of how technology-focused training can become pedagogically meaningful through practice and contextual application. Scientifically, the study connects generative AI use with pedagogical competence. Practically, it provides evidence for designing contextualized professional development that supports sustainable digital transformation in schools with limited AI experience.

RESEARCH METHOD

This study used a qualitative case study design to explore how Canva AI training accelerated teachers' pedagogical competence in an authentic educational context. A qualitative approach was selected because the study sought to understand teachers' experiences, perceptions, competency development, and instructional practices rather than test relationships between predetermined variables. The case study design was appropriate because the investigation focused on a bounded case, namely the implementation of Canva AI training at SMP Negeri 1 Kotaanyar. Case study research enables researchers to examine a phenomenon comprehensively within its real-life context by integrating multiple sources of evidence (Miller et al., 2023; Viera, 2023). The design therefore supported an in-depth examination of teachers' initial competencies, training experiences, development of visual learning media, and subsequent pedagogical practices.

The study was conducted at SMP Negeri 1 Kotaanyar, Probolinggo Regency, East Java, Indonesia. The site was purposively selected because it hosted Canva AI training to help teachers develop visual learning media. The school also represented a relevant context for examining technology-supported professional development because teachers demonstrated different levels of familiarity with Artificial Intelligence applications for instructional purposes. Purposive selection allows researchers to deliberately identify settings and participants that can provide information relevant to the research objectives (Ahmad & Wilkins, 2025; Magnone & Yeziarski, 2024).

Accordingly, the selected setting enabled the researchers to examine how teachers experienced and applied Canva AI within their actual instructional environment. The site provided contextual evidence concerning pedagogical competency development, technological adaptation, and the practical integration of AI-supported visual media.

Data were collected through semi-structured interviews, participant observation, and document analysis. Interviews were conducted with teacher participants, the school principal, and the training facilitator to explore teachers' initial pedagogical competence, training experiences, perceived changes in competency, and application of Canva AI in instructional activities. The study used participant observation to examine teachers' processes for designing and using Canva AI-supported visual learning media and to document classroom interactions during implementation. The study also examined relevant documents, including lesson plans, teacher-developed learning media, training documentation, and photographs, to complement interview and observational evidence. Combining interviews, observations, and documents enabled methodological triangulation and strengthened the depth of qualitative evidence (Chand, 2025; Da Costa et al., 2024; Elhamma, 2024). These multiple sources provided complementary perspectives on the phenomenon investigated.

Data were analyzed using an interactive qualitative analysis process consisting of data condensation, data display, and conclusion drawing and verification. During data condensation, the researchers selected, coded, focused, simplified, and categorized interview transcripts, observation notes, and documents according to the research objectives. The researchers then displayed the condensed data through narrative descriptions, matrices, and tables to identify recurring patterns and relationships across data sources. The researchers then drew provisional conclusions and continuously verified them by comparing evidence from different participants, techniques, and documents. This iterative process continued until consistent patterns were identified and the interpretation adequately represented the case. Systematic case study analysis requires organized data management and iterative interpretation to establish credible findings (Alam, 2021; Miller et al., 2023). Triangulation across sources and techniques was therefore used to strengthen the credibility of conclusions regarding teachers' pedagogical competency development through Canva AI training.

RESULT AND DISCUSSION

Result

Initial Pedagogical Competence in Visual Media Development

This study operationally defined pedagogical competence as teachers' ability to plan, implement, evaluate, and develop learning activities by selecting and using learning media that match students' characteristics and learning needs. In the field context, this competence is reflected particularly in teachers' ability to integrate digital technology into the development of visual learning media. Before the Canva AI training, the study identified teachers' initial pedagogical competence through interviews, classroom observations, and documentation. The data focused on teachers' digital literacy, prior experience using visual learning media, access to technology-based training, and the infrastructural constraints affecting digital learning implementation.

Interview data from IS 1 indicated that the use of digital learning media was still limited. The informant stated, "During this time, I mostly used simple PowerPoint presentations or pictures taken from the internet. I had never used Canva AI because I did not know how to operate it and had never received training." This statement indicates that the teacher had already recognized the relevance of visual media but had limited

technical knowledge of AI-based design applications. The researcher interpreted this condition as indicating that limited use of digital media was primarily linked to insufficient exposure to relevant training, rather than a lack of awareness of the importance of visual learning media.

A similar condition was identified through the interview with IS 2, who stated, "We want to create more attractive media so that students do not get bored, but the internet connection is often unstable and the school facilities are still limited. In the end, we use simple media because it is easier to prepare." The statement demonstrates that teachers' use of learning media was influenced not only by individual technological competence but also by the availability of supporting infrastructure. The researcher interpreted this finding as evidence that unstable internet access and limited facilities constrained teachers' opportunities to experiment with digital learning innovations, even though teachers intended to provide more engaging learning experiences.

Classroom observations further supported the interview findings. Most teachers were observed using teacher-centered instructional practices supported by textbooks, student worksheets, and PowerPoint presentations containing predominantly textual information. The visual media observed did not yet extensively incorporate interactive design elements, infographics, dynamic illustrations, or AI-supported features. Teachers also appeared less accustomed to using digital applications directly during classroom activities. The researcher interpreted these observations as indicating that teachers had not yet systematically integrated digital technology into their pedagogical practices and that visual media remained primarily supportive rather than an integral component of instructional design.

In restating the overall finding, teachers' initial pedagogical competence in middle school was characterized by limited integration of digital technology into the development and use of visual learning media. Teachers had experience using basic instructional media and recognized the need for more engaging learning materials, but their practices remained constrained by limited technical experience, limited access to training, and infrastructural limitations. Thus, the data describe a gap between teachers' willingness to improve visual learning practices and their existing opportunities and capabilities to implement technology-supported instructional media.

The pattern across interviews, observations, and supporting documentation shows a consistent relationship between teachers' limited digital experience and the conventional use of learning media. The teachers' statements indicate an intention to improve learning media, while observations show that these intentions had not yet translated into extensive use of AI-supported visual media. The recurring pattern therefore consists of awareness and willingness to innovate, combined with limited digital competence, training opportunities, and technological infrastructure. This pattern provided the empirical basis for implementing Canva AI training as an intervention to support teachers' pedagogical development.

Pedagogical Competence Improvement after Canva AI Training

The improvement in pedagogical competence is operationally defined as observable changes in teachers' ability to plan, design, implement, and adapt learning activities after participating in Canva AI training. In the field, the improvement was identified through changes in teachers' understanding of the pedagogical function of learning media, their ability to align learning objectives with instructional media and

strategies, and their capacity to develop visual learning materials using Canva AI. The data were obtained through interviews with teachers, classroom observations, and documentation of instructional materials developed after the training.

IS 1 described a change in her understanding of the role of learning media after participating in the training: “Before participating in the training, I focused more on delivering the material. After learning about Canva AI, I began to understand that learning media should be designed to attract students’ attention and make them more active during the learning process.” This statement indicates a shift in the teacher’s understanding of learning media from a supplementary tool for delivering content toward a component that can support student engagement. The researcher interpreted this change as an indication of developing pedagogical awareness, particularly in recognizing the relationship between visual presentation and the organization of classroom learning activities.

IS 2 reported a change in the way learning materials were planned: “Now it is easier for me to prepare learning materials because before creating the media, I determine the learning objectives first, then choose the design and Canva AI features that are most appropriate for the material.” The statement demonstrates that the teacher began to consider learning objectives before selecting visual media and technological features. The researcher interpreted this finding as evidence of greater alignment between instructional objectives, learning content, media selection, and instructional strategies. Rather than selecting media solely on the basis of its visual attractiveness, the teacher reported beginning with the intended learning outcomes and then determining the appropriate digital media.

Table 1. Interview Findings on the Improvement of Teachers’ Pedagogical Competence

Interview Excerpt	Indicator	Informant
“Before participating in the training, I focused more on delivering the material. After learning about Canva AI, I began to understand that learning media should be designed to attract students’ attention and make them more active during the learning process.”	Change in pedagogical understanding toward student-centered learning through the use of visual learning media	IS 1
“Now it is easier for me to prepare learning materials because before creating the media, I determine the learning objectives first, then choose the design and Canva AI features that are most appropriate for the material.”	Ability to align learning objectives, learning media, and instructional strategies (constructive alignment)	IS 2

Classroom observations provided supporting evidence of the changes described by the informants. Teachers were observed preparing more systematically organized instructional materials and using visual presentations, infographics, illustrations, simple animations, and Canva AI-supported features to present learning content. The visual materials were generally connected to the topics being taught and were used during the explanation and discussion of learning materials. Students were also observed looking at the visual materials, asking questions, and responding to teacher explanations during classroom activities. The researcher interpreted these observations as evidence that the knowledge gained through the training had begun to be translated into classroom practice through the integration of visual digital media into instructional activities.

In restating the findings, the Canva AI training was associated with changes in teachers’ pedagogical practices beyond the acquisition of technical skills. IS 1 described a change in how the pedagogical function of media was understood, while IS 2

demonstrated a change in the planning process through the consideration of learning objectives before media selection. The observation data further showed that these reported changes were reflected in the use of more varied visual media during instruction. Taken together, the findings indicate a movement from simply using media to support content delivery toward using media as part of a more deliberately planned learning process.

The pattern of data demonstrates a progression from pedagogical awareness to instructional planning and classroom implementation. First, teachers developed a greater understanding of the pedagogical role of visual media. Second, they reported considering learning objectives before selecting Canva AI features and visual designs. Third, classroom observations showed that visual media were subsequently incorporated into instructional activities. This pattern suggests that the training was reflected not only in teachers' technical familiarity with Canva AI but also in changes in how they conceptualized, planned, and implemented technology-supported learning.

Implications of Canva AI Training for Learning Practices

The implications of Canva AI training are operationally defined as changes in teachers' classroom practices following the training, particularly in the actual use of AI-supported visual learning media, the organization of learning activities, students' observable participation during lessons, and teachers' perceived need for continued technological development. The implications were examined through interviews with teachers and the school principal, classroom observations, and documentation of visual learning materials produced and used after the training. Thus, the field-based implication was identified not merely from teachers' ability to operate Canva AI but from the extent to which the acquired skills were translated into actual instructional practices.

IS 1 reported that the skills obtained during the training had been applied directly in classroom instruction: "After the training, I started using interactive presentations, infographics, and images created through Canva AI. The students seemed more enthusiastic because the material became easier to understand and the presentation was more attractive than before." This statement indicates that Canva AI skills were transferred from the training context into actual classroom practice. The researcher interpreted the finding as evidence that the training had practical implications for the way teachers presented instructional content, particularly through the increased use of visual and interactive materials.

IS 2 emphasized the need to continue developing the competencies gained through the training: "We hope that training like this can be conducted continuously because technology continues to develop. It would be better if there were further training on the latest AI features and assistance when teachers begin implementing them in the classroom." This statement indicates that teachers perceived technological competence as an ongoing learning process rather than a skill acquired through a single training session. The researcher interpreted the finding as demonstrating the importance of continued professional development, mentoring, and institutional support in sustaining the use of AI-based learning technologies after the initial training.

The classroom observations showed that teachers had begun incorporating Canva AI-supported visual materials into learning activities. The observed media included visual presentations, infographics, illustrations generated or supported by AI features, and other visual materials adapted to the learning content. During lessons, students were observed paying attention to the displayed materials, asking questions, and participating

in discussions. Teachers also appeared more confident when explaining concepts with the support of the visual materials. The researcher interpreted these observations as evidence that the training had been translated into classroom practices and had altered the form of teacher–student interaction by providing additional visual resources for explaining and discussing learning content.

In restating the findings, the implications of Canva AI training were visible at two interconnected levels. At the teacher level, the training enabled teachers to apply newly acquired digital skills to the production and use of visual learning media. At the classroom level, the media were incorporated into instructional activities and accompanied by observable student participation, including attention, questioning, and discussion. At the institutional level, teachers expressed a need for continued training and mentoring to maintain and expand the use of AI-supported technology. Therefore, the implications extended beyond the ability to operate Canva AI and were reflected in the continuation of technology-supported instructional practices.

The overall pattern shows a progression from training acquisition to classroom implementation and the emergence of a need for sustainability. Teachers first acquired knowledge and skills related to Canva AI, subsequently applied those skills through visual learning materials, and then identified the need for continued training and institutional support. The observation data correspondingly showed the use of more varied visual media during classroom activities. The pattern therefore indicates that the implications of Canva AI training were not limited to individual technical competence but were also associated with changes in classroom practices and the recognition of conditions required to sustain technology-supported learning.

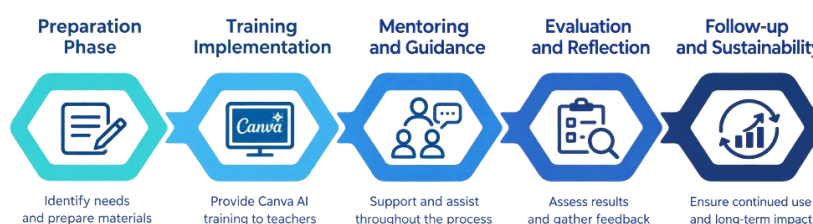


Figure 1. Teachers’ Pedagogical Competence through Canva AI Training

Figure 1 illustrates the process through which Canva AI training was translated into classroom practice. The framework shows the relationship between teacher training, the development of AI-supported visual media, classroom implementation, and changes in learning interaction. Following the training, teachers utilized Canva AI features to develop interactive presentations, infographics, AI-supported illustrations, and other visual materials adapted to instructional content. During classroom implementation, students were observed engaging with the visual materials through attention, questioning, and discussion. Teachers also demonstrated greater confidence in presenting learning content with visual support. The researcher interpreted this process as indicating that Canva AI functioned as a technological support for translating teachers’ newly acquired skills into more varied visual learning practices.

The findings from interviews, observations, and documentation consistently indicate that Canva AI training was followed by changes in teachers’ use of visual learning media. The teachers reported applying the skills obtained from the training, while classroom observations confirmed the use of Canva AI-supported materials during instruction. The documentation further supported the existence of newly developed

visual learning materials. At the same time, teachers identified continued training, mentoring, technological infrastructure, and institutional support as important conditions for sustaining these practices. The resulting pattern indicates that the implications of Canva AI training operated at both the individual level, through teachers' developing pedagogical and digital competence, and the classroom level, through the increased use of visual media in instructional activities.

Discussion

The findings demonstrate that Canva AI training accelerated teachers' pedagogical competence through changes in digital literacy, visual media development, instructional planning, and classroom implementation. This finding is consistent with Aimah et al. (2023), who emphasized that pedagogical competence develops through reflective and practice-oriented professional learning. It also aligns with Wahjusaputri et al. (2022), who identified pedagogical literacy as an important foundation for improving teachers' instructional practices. However, the present study extends these findings by locating competence development specifically within AI-supported visual media production. The teachers did not merely acquire additional technical skills; they increasingly connected learning objectives, instructional strategies, and visual media selection. This pattern corresponds with the TPACK perspective of Mishra et al. (2023), while more specifically illustrating how generative AI can facilitate the integration of technological and pedagogical knowledge in a resource-constrained school context.

The shift from conventional media toward more visual and student-oriented learning practices is also consistent with previous research. Amallia et al. (2025) highlighted the role of visual and digital media in supporting engaging learning experiences, while Aulia et al. (2025) demonstrated how visual learning media can be deliberately designed to support meaningful educational content. Similarly, Rahim et al. (2022) emphasized the importance of interactive media design involving both teachers and students. The present findings correspond with these studies because teachers began using presentations, infographics, illustrations, and other visual materials as integral components of instruction rather than merely supplementary tools. Nevertheless, this study adds a contextual dimension by showing that such transformation can begin through Canva AI training even where teachers previously had limited experience with AI-based applications. Thus, the contribution lies in connecting visual-media innovation with the development of teachers' pedagogical decision-making.

The findings further indicate that pedagogical transformation occurred through a sequence of learning, experimentation, and classroom application. Teachers first developed familiarity with Canva AI features and subsequently incorporated them into instructional planning and classroom activities. This pattern supports Li et al. (2025), who argued that AI integration in teacher professional development requires structured learning processes rather than technology exposure alone. It also corresponds with Pasmala et al. (2025), who emphasized experiential learning in developing digital competence. More specifically, the present study shows that practice-oriented training enabled teachers to connect AI features with actual instructional objectives. This finding is consistent with Sun et al. (2023), who demonstrated the relevance of TPACK-based professional development for developing teachers' AI-related competencies. The novelty of the present study lies in demonstrating this process through Canva AI-supported visual media development, providing empirical evidence of how generative AI can function as a practical bridge between digital competence and pedagogical practice.

The study also identified infrastructure as an important contextual condition affecting the sustainability of AI-supported teaching. Teachers reported unstable internet access and limited technological facilities, which constrained their opportunities to use digital applications consistently. This finding is compatible with Shi et al. (2025), who emphasized that digital pedagogy development depends not only on teacher competence but also on supportive educational conditions. It also complements Nazaretsky et al. (2022), who demonstrated the importance of professional development in building teachers' trust and readiness to use AI-powered educational technologies. However, the present findings show that infrastructure limitations did not eliminate teachers' willingness to experiment with AI when relevant training was provided. This offers a contextual contribution by demonstrating that capacity-building can partially address the practical barriers associated with technology adoption. Nevertheless, the findings do not suggest that training can replace adequate infrastructure; rather, both teacher development and institutional support are necessary for sustained implementation.

From a theoretical perspective, the findings contribute to the ongoing development of TPACK in the context of generative AI. Mishra et al. (2023) argued that the emergence of ChatGPT and generative AI requires reconsideration of teachers' technological, pedagogical, and content-related knowledge, while Dogan (2026) and Younas and Noor (2026) further conceptualized this development through intelligent-TPACK. The present study empirically supports this direction by showing that Canva AI was used not simply as a design application but as a technological resource integrated with pedagogical planning and content presentation. The contribution therefore lies in identifying a practical pathway from AI literacy to visual media development and subsequently to pedagogical implementation. Its novelty is the articulation of this pathway within a school context characterized by limited prior AI experience and infrastructural constraints, thereby extending discussions of AI-integrated teacher competence beyond technologically well-resourced educational settings.

The findings have implications for teacher professional development. The observed changes suggest that AI training should combine technical instruction with pedagogical application, classroom experimentation, mentoring, and opportunities for continued professional learning. This recommendation is consistent with Fakhar et al. (2024), Roshan et al. (2024), and Shezad et al. (2025), who emphasized continuous professional development for sustainable AI integration. Widiyanti et al. (2025) similarly demonstrated the relevance of upskilling teachers in Canva and AI tools. The present study contributes by showing that Canva AI training can serve as an entry point for developing pedagogical competence through visual-media creation, particularly among teachers with limited prior AI experience. Its practical novelty lies in connecting short-term training with longer-term institutional support, including mentoring, infrastructure improvement, and professional learning communities. Accordingly, sustained AI integration requires not only capable teachers but also an institutional environment that enables teachers to continuously apply and refine their newly developed competencies.

CONCLUSION

This study concludes that Canva AI training can accelerate teachers' pedagogical competence by strengthening their ability to design, develop, and implement more innovative, interactive, and student-centered visual learning media. The key lesson is that digital transformation in education depends not only on access to Artificial Intelligence technology but also on teachers' capacity to connect technological tools with pedagogical

purposes and students' learning needs through contextualized, practice-oriented training. The implications of these findings highlight the importance of professional development that integrates AI literacy with pedagogical reasoning and classroom application. Scientifically, this study contributes to the literature on AI-supported teacher development by positioning Canva AI as a pedagogical resource and extending the application of the TPACK perspective to AI-supported visual learning media development. However, the study is limited to one school and relies primarily on qualitative evidence of teachers' experiences and practices. Future research should involve multiple schools and longitudinal or mixed-methods designs to examine sustained implementation and its implications for students' learning outcomes, engagement, creativity, and teachers' professional competence.

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CONFLICT OF INTEREST

The authors declare that they have no financial, professional, or personal interests that could have influenced the objectivity of this study or the preparation of this manuscript.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors used AI (Claude by Anthropic) as a supporting tool during the writing process, particularly to improve language clarity and grammar. The authors remain fully responsible for the content, analysis, and conclusions presented in this article.

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