Improving teacher competence through digital learning media training at Santo Fransiskus III elementary school, Jakarta

Tunjung Riski Prasetiyo [1], Murniati Agustian [1*]

[1] Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia, 12930

Article info	Abstract
Keywords digital media, teacher competences	Learning media is one of the essential learning tools that play a crucial role in the learning process. Therefore, a teacher must be able to design and use learning media effectively. Teachers must understand the various types of learning media, as well as the advantages and disadvantages of each media. Teachers must also be able to select the appropriate learning media based on the learning objectives, subject matter, and characteristics of the students. This study aims to improve teachers' competence in using digital media at SD Santo Fransiskus III Jakarta. The participants were six teachers with various subject expertise. This study employed an action research method, consisting of two series of cycles, and examined two digital media platforms: Canva and Quizizz. The first cycle focused on enhancing teachers' digital media skills, particularly on Canva and Quizizz, to improve learner knowledge and learning outcomes. The second cycle focuses on enhancing teachers' ability to utilise digital media in the attitudinal aspects of learning. The results showed that teachers' competence in designing and applying digital media had increased after participating in this action research. This improvement is evident in the results of the teacher knowledge and skills test, as well as the observations of the learning process conducted by the teacher.

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1. Introduction

Technology has become an essential part of human life in the modern era. It has made technology a daily necessity for people to lead their lives. Technology knows no age or social status boundaries; everyone can use technology to meet their needs. The advancement of information technology has had a positive impact on various aspects of human life, including the economy, culture, society, and, in particular, the field of education. This development has made access to information easier, as it can now be obtained directly via the internet, without being limited to traditional media such as television, newspapers, or radio. In this fast-paced era of globalization, the influence of information technology in education is inevitable. Therefore, the education sector must continually adapt and keep pace with technological developments to enhance the quality of learning, particularly by optimising the use of information and communication technology in the teaching and learning process (Agustian & Salsabila, 2021). Zahwa and Syafi'i (2022) also emphasise that in the field of education, the utilisation of information technology must be applied in the learning process, such as through the use of the internet, mobile devices, laptops, and other technological tools.

By utilising technology and digitally based learning media, teachers can deliver material more interactively and creatively, thereby attracting students' interest and increasing their enthusiasm for learning (Zahwa & Syafi'i, 2022). This opinion is supported by Wahyuningtyas and Sulasmono (2023), who state that learning media play a crucial role in enhancing learning outcomes, as they make the learning process more varied and engaging. As a result, students' interest increases, making them more focused and active in the learning process. Several studies have also demonstrated that the use of digital media in education has a positive impact on students' learning outcomes. According to Susanti (2019), the use of digital media can enhance students' motivation to actively engage in learning and improve their understanding of the subject matter. Additionally, research by Wicaksono and Utama (2020) indicates that teachers who are competent in utilizing digital media tend to create a more engaging and dynamic learning environment.

Several research findings suggest that digital media training for teachers can improve their ability to create effective learning materials. Safitri and Putra (2019) explain in their study that, based on evaluation results, teachers' ability to develop Quizizz-based learning media improved significantly, with the average score increasing from 60% before training to 85% after training. Additionally, teachers also felt more confident in using Quizizz in learning activities. Overall, this study demonstrates that training and mentoring in creating Quizizz learning media can be an effective way to enhance teachers' ability to integrate technology into their teaching practices. Similarly, Idawati et al. (2022) researched the use of Canva as a learning medium and found that teachers' ability to create instructional media improved. Teachers became more innovative and creative in designing learning materials.

However, in reality, some teachers admit that they do not have enough time to create learning media optimally (Anas, 2014). Additionally, some teachers are still unable to develop interactive digital learning media. According to Purnamasari (2021), several teachers face difficulties in understanding technology, limited access to digital devices, and a lack of training in utilising digital media effectively. This study also highlights the need for support and training to enhance teachers' competencies in this area.

Observations conducted over two semesters in several classes at St. Fransiskus III Elementary School in Jakarta revealed that teachers tend to use simple learning media, such as PowerPoint presentations with less engaging designs, which can make students easily bored and less interested in the learning process. During lesson preparation, teachers often create learning materials by simply taking screenshots from YouTube videos, which typically consist of lengthy paragraphs and low-quality visuals. Based on these observations and discussions with the principal of St.

Fransiskus III Elementary School in Jakarta, a study is needed to improve teachers' competencies in planning and using digital learning media. Despite numerous studies on digital media in education, few focus on structured training interventions specifically targeting the competencies of elementary school teachers across cognitive, skill, and affective learning dimensions. This study addresses that gap by designing an action research program aimed not only at knowledge enhancement but also at attitude formation in digital media usage for teaching. Given the issues described above, the researcher is interested in conducting action research to enhance teachers' competencies in using digital learning media in the classroom. The research question is: How can teachers' competencies in utilizing digital learning media be improved at St. Fransiskus III Elementary School in Jakarta?

2. Literature Review

According to Pianda (2018), teacher competence refers to a teacher's ability to carry out their duties and responsibilities effectively. This view is further clarified by Febriana (2021), who states that teacher competence is the ability possessed by teachers to perform their duties and responsibilities professionally. Based on these definitions, the researcher concludes that teacher competence encompasses both the effectiveness of fulfilling responsibilities and the level of professionalism in performing the role of an educator. According to Government Regulation No. 57 of 2021 on National Education Standards, a teacher must possess four competencies, two of which are pedagogical competence and professional competence. According to Lubis (2018), pedagogical competence is a fundamental skill that every professional teacher must have. This competence encompasses the knowledge, skills, and attitudes required for teachers to understand and support students in achieving learning objectives. Akbar (2021) further elaborates that pedagogical competence refers to a teacher's ability to understand and develop students to achieve educational goals. It encompasses the knowledge, skills, and attitudes necessary for teachers to fulfil their roles and responsibilities in the learning process.

Meanwhile, professional competence refers to a teacher's ability to master subject matter, plan and implement lessons, assess learning outcomes, and develop their professionalism (Nahdi et al., 2020). According to Hamidulloh Ibda (2017), professional competence for elementary school (SD/MI) teachers includes a deep understanding of subject matter. Teachers must master the subject content, the elementary education curriculum, specific subjects, and the scientific foundations underlying the material. Additionally, they should have a firm grasp of the structure and methodology of the disciplines related to their subject matter.

It is essential for teachers to understand and master competencies. By doing so, they can better assist students in the learning process. Research by Krisnawati et al. (2022) suggests that teachers' professional and pedagogical competencies have a simultaneously positive and significant impact on students' learning motivation. It means that the higher the professional and pedagogical competence of a teacher, the higher the students' motivation to learn.

One implementation of these two competencies is preparing the learning process, including instructional materials. Learning media are defined as anything that serves as an intermediary tool between teachers, who deliver information, and students, who receive it. The goal is to provide stimuli that can enhance students' motivation to learn, allowing them to engage in a comprehensive and meaningful learning process (Hasan et al., 2021). Delivering material to students can be facilitated using various tools to help them better understand and absorb knowledge from teachers. Based on expert opinions, learning media can be defined as intermediary tools used by educators to deliver instructional content effectively.

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The primary purpose of using these media is to enhance students' learning motivation and capture their attention, encouraging greater engagement in the learning process (Pakpahan et al., 2020). Canva and Quizizz are two digital learning tools that can support the learning process. Canva can be used to create various engaging and interactive instructional materials, while Quizizz serves as a quiz- and game-based learning platform that can boost students' motivation. Training on the use of Canva and Quizizz-based digital media can enhance teachers' pedagogical and professional competencies in utilising these tools effectively. Through this training, it is expected that teachers' pedagogical and professional competencies will improve, enabling them to effectively integrate Canva and Quizizz as digital learning media in the classroom.

3. Method

This study employs an action research approach. It follows a series of disciplined research processes to take action (Stringer, 2013). This method helps in understanding how habits are formed and changed—in this case, shifting from the use of simple learning media to interactive digital learning media. The participants in this study were six educators from St. Fransiskus III Elementary School in Jakarta, each responsible for different subject areas. They had diverse educational backgrounds: one held a master's degree (S2), one a diploma (D3), and four had bachelor's degrees (S1). Their teaching experience ranged from ten months to nine years. The subjects they taught included Arts, Culture, and Handicrafts; Religious and Moral Education; Computer Studies; English; and Mathematics. One participant was a librarian who actively supported teachers in preparing learning materials. This diversity in educational qualifications and teaching roles enriched the perspectives gathered in the study. The selection of these six teachers was coordinated by the research team in collaboration with the principal. The researcher adopts the Kemmis & Taggart (2005) model, as cited in Susilo et al. (2022), which consists of four stages: 1) Planning Stage; 2) Action Stage; 3) Observation Stage; 4) Reflection Stage.
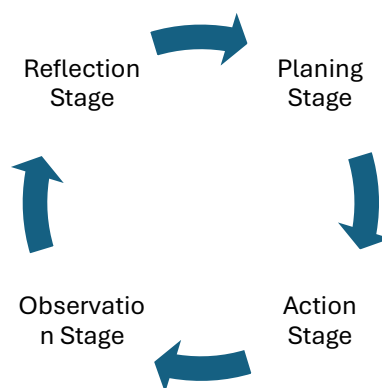

Figure 1. Kemmis & Taggart Model

This study was conducted in two cycles. In the first cycle, a pre-cycle stage was added before the planning phase—this additional step extends beyond the four stages proposed by Kemmis & Taggart. During this stage, problem identification, problem analysis, and the formulation of an action hypothesis were carried out. Data was collected through observations and interviews. Based on the findings from the pre-cycle stage, training materials for digital media were designed, and pre-test and post-test instruments were developed to measure participants' understanding of the material. During the action stage, training sessions were conducted to enhance teachers' competencies in creating digital learning media. The training process included registration, completion of a pre-test,

ice-breaking activities, digital media training, practice sessions, and a post-test. Observations were conducted throughout the training, and further observations took place when participants implemented digital media in their classrooms to assess whether they could effectively apply the knowledge and skills acquired. In the reflection stage, feedback was analyzed, and achievements, challenges, and areas for improvement were identified for the second cycle. The second cycle was designed based on the reflections from the first cycle, following the same four stages: planning, action, observation, and reflection. A post-test was conducted after the training was completed to measure the effectiveness of the training.

The instruments used included pre- and post-tests conducted via Quizizz and Kahoot platforms to assess participants' knowledge and skills in using digital media. The test items were essay-type and multiple-choice questions tailored to evaluate teachers' comprehension of Canva and Quizizz usage. Observation sheets were used to record the classroom integration of digital media, and semi-structured interviews were conducted to explore teachers' experiences, difficulties, and perceptions. The validity of the test instruments was ensured through expert review by two instructional technology specialists.

4. Results

The research subjects consisted of six participants with varying educational backgrounds: one held a master's degree (S2), one had a diploma degree (D3), and four had a bachelor's degree (S1). Their teaching experience ranged from ten months to nine years. The subjects taught included Arts, Culture, and Handicrafts; Religious and Moral Education; Computer Studies; English; and Mathematics. One of the participants was a librarian who frequently assisted teachers in preparing learning materials.

Based on the pre-cycle observations, it was found that the implementation of learning media, particularly digital learning media, was still not optimal and remained monotonous. Many teachers created and designed their learning media simply by taking screenshots from videos found on YouTube. As a result, the media primarily consisted of lengthy text, making it unclear and unappealing to students. It had a significant impact on the learning process, as students became distracted, engaged in other activities, and lost interest due to the uninspiring learning materials provided by teachers. This finding aligns with Sadiman's (2018) opinion, who stated that unengaging learning media can cause students to feel bored and unmotivated to learn. Suparman (2014) further emphasized that even the best teaching methods or tools can create a monotonous and dull atmosphere if used repeatedly without variation.

Based on the pre-cycle results, the planning for the first cycle was structured into three stages: preliminary activities, core activities, and closing activities. In the preliminary stage, participants were required to register, complete a personal data form, and take a pre-test, followed by an ice-breaking session. During the core activities, the training began with a brief explanation of digital media, an introduction to Canva and its functions, and a discussion on its application in learning. Participants then engaged in hands-on practice in creating learning materials using Canva. In the closing session, participants discussed any difficulties or challenges encountered during the practice session. They were then asked to complete a post-test to assess their understanding of the material covered during the training. Additionally, training materials, including a PowerPoint presentation on Canva usage, were prepared as supporting resources.

The actions were carried out according to the planned stages. The pre-test, conducted using Quizizz, revealed that participants already had a basic understanding of digital media, particularly Canva, with an average score of 77%. The participants demonstrated a good grasp of the steps involved in uploading media files (such as photos, videos, and audio) from their devices to Canva.

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Following a discussion, participants proceeded to create digital learning media. They were given the freedom to choose the type of media they wanted to develop, including videos, presentations, infographics, posters, or other formats. During this session, they were encouraged to use available templates to facilitate the creation process. The results indicated that participants possessed basic skills in developing digital learning materials using Canva and Quizizz. However, further guidance was still needed regarding element and text layout, colour selection, and font usage. This guidance was provided through explanations, demonstrations, and hands-on practice. In the closing session, participants completed a post-test using Kahoot. The results showed an increase in understanding, with the average score rising to 84%. This improvement aligns with Wibowo's (2016) argument that continued guidance and mentoring in training programs are essential, as they help participants overcome difficulties in applying the training materials. The observed enhancement in participants' understanding and skills in creating and utilizing digital learning media also supports the perspective of Sudjana & Rivai (2018), who stated that media training can improve teachers' competencies in lesson planning, implementation, and evaluation.

The results of classroom observation during the implementation phase showed that the training participants could effectively integrate digital learning media into their teaching. The digital learning media used in the learning process successfully covered two out of three key aspects: students' knowledge and skills. However, this finding contrasts with the perspective of Hasan et al. (2021), who define learning media as any tool that serves as an intermediary between teachers, as the source of information, and students, as the recipients. The primary goal of learning media is to stimulate students' motivation, enabling them to engage in the learning process in a comprehensive and meaningful way. According to this view, effective learning media should encompass three essential aspects: understanding, skills, and attitudes.

At the end of cycle I, a reflection was conducted. The results showed that the implementation of digital media in learning increased students' interest in studying. It was evident from their greater enthusiasm and active participation when digital media was used in the classroom. Digital media helped students understand the learning material more easily and in-depth, as it presented information visually and audiovisually, enhancing their memory retention and comprehension. Additionally, digital media played a role in developing students' critical thinking skills by providing diverse and challenging learning materials that encouraged independent problem-solving. However, some participants faced difficulties during the media creation process, particularly in tasks such as cutting and pasting images or arranging compositions. In Cycle I, the use of digital media primarily focused on knowledge and skills development. Therefore, in Cycle II, the researcher aimed to deepen the training by focusing on the aspect of attitude in the implementation of digital learning media.

Cycle II was conducted in five stages: planning, action, observation, reflection, and implementation, with a focus on observing training results. The training materials emphasized several tips for designing effective instructional media, including (1) designing media simply so that students can easily understand it, (2) ensuring that the media aligns with the material being taught, (3) making sure the media does not complicate the learning process for students, and (4) incorporating images, diagrams, or models that correspond to the material and are easy for students to grasp. These tips were easily adapted to the Canva and Quizizz platforms, which are user-friendly, accessible for students, and equipped with features that allow the direct integration of images, diagrams, and models into learning media (Supriyono, 2018). The results of cycle II showed that training participants had become proficient in using Canva. It was demonstrated by their ability to create digital media with more diverse types and concepts compared to the previous cycle. The instructional media produced integrated various forms of information, including text, photos/images, audio, and video. It aligns with the advantages of digital learning media, one of

which is its multimedia capability, where learning materials are presented in multiple formats—text, images, video, and audio—making the learning process more engaging and easier to understand (Arsyad, 2017). Additionally, the digital learning media created by participants were highly effective, particularly in addressing the attitude aspect of learning. The researcher provided constructive feedback to enhance the quality of the digital media training participants received.

5.   Discussion

This study began with the implementation of Cycle I, which commenced with a pre-cycle stage involving observation. This stage was conducted outside the core four stages to identify and analyze problems as a basis for implementing cycle I. This aligns with the opinion of Kemmis and Taggart (as cited in Susilo, 2022), which states that the pre-cycle stage is crucial for developing a deep understanding of the issues to be studied. It can be done by collecting preliminary data through observation, interviews, or questionnaires. The learning media had an impact on the students' learning process. Students became unfocused and engaged in other activities because they felt bored and less interested in the learning media used by the teacher. This aligns with Sadiman's (2018) opinion, who explained that unengaging learning media can lead students to feel bored and unmotivated to learn.

This opinion is also supported by the study of Susanti et al. (2024), which found that the use of less varied and less innovative learning media tends to decrease students' attention and engagement in the learning process, thereby hindering the achievement of learning objectives. Through the series of training sessions in cycle I and cycle II, it was evident that there was an improvement in teachers' competencies in using digital media, as shown in Table 1. Students' learning interest also increased, as they were more enthusiastic and actively engaged in lessons when digital learning media were used. It aligns with one of the functions of instructional media, which states that game-based and technology-integrated learning media can attract students' interest and stimulate their cognitive understanding during the learning process (Kemp & Dayton in Hasan et al., 2021). It is also supported by Arsyad (2017), who states that one of the advantages of digital learning media is its entertainment aspect, allowing lessons to be presented in an engaging and enjoyable manner to enhance students' learning motivation.

Table 1. Improvement of training participants' competence in the use of digital media

Competence Aspect	Cycle I	Cycle II
Mastering the material, structure, concepts, and scientific thinking patterns that support the subject being studied.	Training participants already have basic knowledge and understanding of digital media training materials, specifically Canva and Quizizz.	The training participants already have extensive and in-depth knowledge and understanding of digital media training materials, specifically Canva and Quizizz.
Mastering the competency standards and basic competencies of the subjects/fields of development being taught.	Training participants have demonstrated an understanding of the competency standards and basic competencies in the subjects/fields of development they teach. They are also able to connect lesson plans with learning objectives, particularly in the domains of comprehension and skills.	Training participants have demonstrated an understanding of the competency standards and basic competencies in the subjects/fields of development they teach. They are also able to connect lesson plans with learning objectives, particularly in the affective or attitude domain.

Competence Aspect	Cycle I	Cycle II
Training participants can develop the learning materials they teach in a creative manner.	Training participants can develop the learning materials they teach in a creative and innovative manner. Additionally, the learning process has become engaging and meaningful for students.	Training participants can develop the learning materials they teach in a creative and innovative manner. Additionally, the learning process has become more meaningful and engaging for students.
Develop professionalism continuously through reflective actions.	The training participants have developed their professionalism by participating in the entire training series from start to finish. Teachers have been able to enhance their knowledge and skills in creating and designing digital learning media, particularly in the domains of knowledge and skills.	The training participants have developed their professionalism by participating in the entire training series from start to finish. Teachers have been able to enhance their knowledge and skills in creating and designing digital learning media, particularly in the affective domain or attitude.

The training on the use of digital media is closely related to pedagogical and professional competencies. These two competencies are interconnected and cannot be considered in isolation (Daryanto, 2013). Pedagogical competence is a core competency that teachers must possess, while professional competence is a supporting competency that teachers should also have. Pedagogical competence is the key to a teacher's success in educating students, encompassing the knowledge and skills required to understand and develop students' comprehension. By mastering this competence, teachers can create a conducive learning environment, design practical lessons, and objectively evaluate student learning outcomes (Akbar, 2021). Professional competence, on the other hand, refers to a teacher's ability to master subject matter, plan and implement learning, assess learning outcomes, and develop professionalism (Nahdi et al., 2020).

The findings of this study align with previous research that highlights the positive impact of digital media training on teacher competence. Wahyuni (2023) found that teachers significantly improved their ability to design digital instructional media following ICT-focused training. Similarly, Sari et al. (2021) reported an increase in pedagogical competence among elementary school teachers, rising from 51% to 79% after participating in an interactive training program. In addition, Widhanarto et al. (2024) demonstrated that 75% of participating teachers successfully developed Android-based learning media after undergoing six days of training and structured mentoring. These results indicate that not only short-term training but also sustained support can lead to meaningful improvements in digital media integration in the classroom.

Furthermore, Halimah et al. (2021) reinforced the importance of intensive, even short-duration, workshops. Their study showed that brief yet focused training sessions were effective in enhancing teachers' motivation and knowledge in using interactive learning tools. These findings collectively support the argument that well-structured digital media training can play a significant role in advancing teacher competence and classroom innovation. The study confirms prior findings on the importance of pedagogical and professional competence in enhancing instructional effectiveness (Krisnawati et al., 2022). The increase in post-test scores and successful classroom integration show the effectiveness of hands-on, iterative training models.

Additionally, findings extend existing knowledge by highlighting how digital tools like Canva and Quizizz are not only useful for cognitive and skill development but also practical in addressing students' affective needs when intentionally designed. Compared to previous studies that often focus solely on knowledge acquisition, this study emphasizes the holistic impact of digital media

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across multiple learning domains. Limitations of the study include the small sample size and the focus on only two platforms, which may not be fully generalizable to broader contexts or toolsets.

6.   Conclusion and Implications

Based on the research results, it can be concluded that improving teachers' competence in using digital media at SD Santo Fransiskus III Jakarta can be achieved through various training and workshops directly related to digital media. In this study, the researcher conducted training to enhance digital media skills, specifically using Canva and Quizizz. The researcher adopted the four-stage model proposed by Kemmis & Taggart, which consists of planning, action, observation, and reflection. However, the researcher added a Pre-Cycle stage beyond the four stages outlined by Kemmis & Taggart. This pre-cycle stage is crucial as it serves as a preparatory phase before entering the planning stage, ensuring that the planning aligns with existing needs. The researcher conducted two training cycles. In the first cycle, the researcher provided training on digital media using Canva and Quizizz. The first cycle began with a pre-cycle stage, followed by the planning stage based on the needs and findings from the re-Cycle. During the action stage, the researcher administered pre-tests and post-tests to assess participants' knowledge levels. Additionally, the researcher provided training on the use of digital media, specifically Canva and Quizizz, followed by hands-on practice in creating digital media using these platforms.

After the reflection stage and observing the implementation of digital media in the first cycle, the researcher found that the training and implementation carried out by the participants only covered two of the three learning aspects: knowledge and skills. Therefore, based on these observations and reflections, the second cycle focused on Canva-based learning media, particularly on the aspect of attitude. In this second cycle, the researcher used the same core stages as in the first cycle, starting with planning based on the findings from the reflection and observation of the first cycle's digital media implementation.

The researcher then carried out actions according to the planned design, followed by observations through discussions and one-on-one guidance for training participants during the digital media creation practice. Finally, the researcher conducted a reflection on the implementation of Canva-based digital media, specifically focusing on the attitude aspect.

From the implementation of these two cycle stages, the researcher found an improvement in both understanding and application among the training participants. The increase in understanding was observed through the rise in the average pre-test and post-test scores, from 77% to 84%. Meanwhile, the application improvement was evident during the observation of digital media implementation, where participants demonstrated better and more fluent use of digital media. Initially, they only took screenshots from YouTube videos, but later, they were able to create their media, which proved to be far more engaging and effective.

Credit authorship contribution statement

First Author: Methodology, Formal analysis, Data curation, Conceptualisation, Project Administration. **Second Authors**: Resources, Methodology, Formal analysis, Data curation

Declaration of competing interest

We declare that we have no competing interests.

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Ethical Declaration

This study was conducted with prior approval from the school principal and the consent of the participating teachers.

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