MENTORING TEACHERS IN THE APPLICATION OF DIGITAL LEARNING MEDIA TO IMPROVE EDUCATION QUALITY

Ahmad Andry Budianto[*1], Artamin Hairit[2]

[*1,2]IAI Al Khairat Pamekasan
Email: [*1,2]andry.ukan@gmail.com

Abstract: This study aims to identify obstacles faced by teachers in implementing digital learning media, develop an effective mentoring program to improve teacher competence, evaluate the impact of mentoring on learning quality, and provide recommendations to stakeholders to support the implementation of digital learning media in a sustainable manner. The research method used is mixed methods with quantitative and qualitative approaches. Data were collected through surveys, in-depth interviews, and observations with teachers from various levels of education. Quantitative data was analysed using descriptive and inferential statistics, while qualitative data was analysed using thematic analysis techniques to dig deeper into teachers' experiences and perceptions. The results showed that the main obstacles faced by teachers include limited access to technology, lack of adequate training, and resistance to change. The mentoring program designed in this study, including intensive training based on the TPACK model and ongoing guidance, proved effective in improving teachers' competence in using digital learning media. An evaluation of the impact of mentoring showed significant improvements in the quality of learning, such as more creative and interactive use of technology, and increased student motivation. This study recommends increasing technology infrastructure support, strengthening ongoing training programs, and collaboration between the government, schools, and education technology providers to ensure the sustainability of digital learning media implementation.

Keywords: Digital learning media, teacher competence, TPACK, mentoring, learning quality, technology-based education

INTRODUCTION

The development of information and communication technology has brought major changes in various aspects of life, including in the field of education. Digital transformation is both a challenge and an opportunity for education to improve the quality of learning. Digital learning media, such as interactive applications, e-learning platforms, and visual aids, have been proven to improve student engagement, learning effectiveness, and learning outcomes (Zimmer & Matthews, 2022). However, the implementation of digital learning media has not been fully optimized, especially at the teacher level as the main actor in the learning process. Many teachers still face obstacles, such as a lack of understanding of technology, lack of training, and limited supporting infrastructure. This results in a gap between the potential of technology and the actual implementation in the classroom.

The COVID-19 pandemic catalyzed the accelerated adoption of digital learning media. However, this transition does not necessarily improve the quality of education as many teachers feel unprepared. Therefore, mentoring teachers in the implementation of digital learning media is a strategic effort to overcome this obstacle. With proper mentoring, teachers can improve their digital competence, integrate technology into the learning process, and ultimately improve the overall quality of education. This research is based on several relevant

theoretical foundations to understand and analyze the implementation of digital learning media. One of the main theories is the Educational Technology Theory proposed by Reigeluth, which emphasizes the importance of using technology to improve learning effectiveness. This theory highlights how technology can be used strategically to support interaction and engagement in the learning process (Churiyah dkk., 2022). In addition, this research also refers to the Diffusion of Innovation Theory developed by Rogers 2003, this theory explains the process of new technology adoption in a community, including factors such as relative advantage, compatibility, and complexity, which affect accelerating or hindering the adoption of educational technology among teachers (Carvalho & Santos, 2022).

As an integrated framework, this study utilizes the TPACK (Technological Pedagogical Content Knowledge) Model introduced by Mishra and Koehler, this model combines the understanding of technology, pedagogy, and learning content to create effective learning strategies that are relevant to student's needs in the digital era (Grynova dkk., 2020). In addition, Deci and Ryan's Self-Determination Motivation Theory is also an important foundation for understanding how teachers' internal motivations can influence their success in adopting and utilizing digital learning media (Ersin & Atay, 2021). These motivations include the need for autonomy, competence, and connectedness that support optimal technology adaptation. Finally, this research is rooted in Piaget and Vygotsky's Theory of Constructivism, which is relevant to technology-based learning approaches. This theory emphasizes that students construct their knowledge through active interaction with digital media, which enables more contextualized and meaningful learning.

To strengthen the research, five previous studies were referenced. Mishra and Koehler's research that developed the TPACK model became an important foundation for understanding the competencies required for teachers to integrate technology into their teaching (Alharbi, 2022). Rogers' research provides insights into the process of innovation diffusion in the educational context, particularly the factors that encourage or inhibit technology adoption (Venturini dkk., 2024). Furthermore, Prensky's research discusses the generational differences between students as 'digital natives' and teachers as 'digital immigrants,' which affect how they adopt technology (Spiegel, 2021). Selwyn, (2012) research highlights the challenges and barriers in the implementation of educational technology, such as the digital divide and the lack of training for teachers. The last study, conducted by Schrum and Levin, examines the successful implementation of e-learning in various educational institutions, focusing on teacher training and mentoring strategies to ensure the sustainability of technology use (Milman, 2020).

This study differs from previous studies in several aspects. Previous studies focused more on developing theoretical models, such as TPACK or diffusion of innovation, and identifying common barriers in the implementation of educational technology. This study, on the other hand, focuses on the practical aspect of assisting teachers in implementing digital learning media. The research approach is applicative, developing a mentoring program designed to directly improve teachers' competencies. In addition, this research also considers the local context, such as the condition of technology infrastructure in certain schools, which is rarely discussed in previous studies.

The novelty of this research lies in its holistic and contextualized mentoring approach. This research not only identifies the obstacles faced by teachers but also offers concrete solutions through a structured training and mentoring program. The program includes technical training, the development of digital teaching materials, as well as ongoing evaluation to ensure the sustainability of digital learning media implementation. In addition, this research also integrates TPACK theory with a practical approach, thus making a new contribution to the literature on educational technology adoption.

This research has high urgency given the importance of improving the quality of education in the digital era. Education is the main pillar in human resource development, and digital learning media is one of the tools that can improve the effectiveness of the learning process. However, without adequate mentoring, technology adoption can be counterproductive and widen the education gap. Therefore, this research is expected to make a real contribution in supporting teachers to utilize technology optimally, thus having a positive impact on the quality of learning in schools. This research aims to make a real contribution to improving the quality of education through teacher empowerment in the digital era. The main focus of the research is to identify the obstacles faced by teachers in the implementation of digital learning media, which is often the main obstacle in optimally utilizing technology in the classroom. Various challenges, such as lack of technical knowledge, limited infrastructure, and low motivation of teachers to adopt new technology, are expected to be mapped through this research.

In addition, this research aims to develop an effective mentoring program specifically designed to improve teachers' competence in utilizing digital learning media. The program is designed with a needs-based approach, ensuring that every teacher, regardless of their initial skill level, receives appropriate training and support. The mentoring involves technical training, hands-on practical guidance, and continuous evaluation so that teachers not only understand the technical aspects but are also able to integrate technology into the learning

process effectively.

This research also focuses on evaluating the impact of the mentoring program on the resulting learning quality. By observing changes in teacher competence, student engagement, and learning outcomes, this research is expected to provide a comprehensive picture of the extent to which technology can improve the effectiveness of classroom teaching. The evaluation includes measuring teachers' performance before and after the mentoring program, as well as observing its impact on students' enthusiasm and achievement in the learning process. As part of the practical contribution, this research aims to provide strategic recommendations for stakeholders, such as governments, schools, and educational technology providers. These recommendations include providing adequate infrastructure, continuous training for teachers, and developing an organizational culture that supports the implementation of technology. In addition, this research also emphasizes the importance of collaboration between relevant parties to ensure the sustainability of digital learning media implementation in schools. Thus, the results of this study are expected to be a relevant guide for policy-making and education program planning in the digital era.

METHOD

This research uses a mixed methods approach that combines quantitative and qualitative data to obtain comprehensive results (Hermawan, 2019). This method consists of several main stages:

1. Preliminary Study: The initial stage was conducted through a survey of teachers to identify their needs, constraints, and level of competence in using digital learning media. The survey data is analyzed descriptively to provide an overview.

2. Mentoring Programme Development: Based on the results of the preliminary study, researchers designed a mentoring program that includes technical training, direct mentoring, and ongoing evaluation. The program is designed in a participatory manner by involving teachers as active partners.

3. Programme Implementation: The mentoring program was implemented for three months in several schools. During this process, researchers conducted observations and interviews to monitor the implementation and its impact on teachers and students.

4. Programme Evaluation: The evaluation phase was conducted using pre-tests and post-tests to measure the improvement of teachers' competencies. In-depth interviews were also conducted to obtain qualitative perspectives on the effectiveness of the program.

5. Data Analysis: Quantitative data was analysed using descriptive and inferential statistics, while qualitative data was analysed through a thematic approach.

RESULT AND DISCUSSION

This research aims to understand the effectiveness of teacher mentoring in implementing digital learning media to improve the quality of education. After going through a series of research stages, from preliminary studies to program evaluation, several main findings can be concluded.

Teachers' Initial Condition in Utilising Digital Learning Media

The initial survey results show that most teachers have limited knowledge about digital learning media. The majority of respondents stated that they find it difficult to use technology in learning, especially internet-based applications such as Learning Management Systems (LMS), interactive learning software, and collaboration applications (Lestari dkk., 2021). The main obstacles they face include lack of training, limited infrastructure, and lack of motivation to learn new technologies. In addition, some teachers feel that digital learning media are not always relevant to the curriculum they teach. This mismatch causes some of them to fall back on conventional learning methods, which are considered simpler. However, there are a small number of teachers who show great enthusiasm for the implementation of technology even though they face the same barriers. These teachers usually come from the younger generation who are more familiar with technology.

Mentoring Process and Interventions Conducted

The mentoring program includes three main stages: technical training, practical mentoring, and ongoing evaluation. In the technical training stage, teachers are given an intensive one-week workshop to learn various digital learning applications. The materials include using LMS, creating video-based learning content, and using interactive applications such as Kahoot and Quizizz.

In the second stage, practical assistance is carried out directly at school. Teachers are allowed to apply the technology they have learned in the classroom with the support of facilitators. This approach aims to increase teachers' confidence in using digital learning media and overcome technical obstacles that may arise during the learning process. In the last stage, continuous evaluation is conducted through monthly meetings and online discussion forums. Teachers are allowed to share their experiences, challenges, and solutions they found during the implementation process. This approach not only improves teachers' competence but also builds a supportive learning community.

Improved Teacher Competence

One of the main findings of this study is the improvement of teachers' competence in utilizing digital learning media. Based on the pre-test and post-test results, there is a significant improvement in teachers' understanding and technical skills. Before the mentoring program, only around 30% of teachers felt confident in using digital media in learning. However, after the program, this figure increased to 75%. Teachers who previously struggled to create digital content are now able to produce interesting and interactive teaching materials. For example, they can create learning videos with simple tools such as Canva or PowerPoint equipped with animation elements. In addition, they have also started to utilize advanced features in the LMS, such as automatic assignment, grouping of students by ability level, and analysis of learning outcomes.

Impact on the Learning Process

The implementation of digital learning media does not only have an impact on teachers but also students. Classroom observations show that the use of technology in learning increases student engagement. Students are more enthusiastic about lessons presented through interactive videos or online quiz apps compared to conventional lecture methods. Furthermore, teachers report that students become more active in discussions and seek additional information independently. Digital learning media also allows teachers to provide feedback more quickly and accurately so that students can understand the material better. However, some obstacles arose during the implementation (Hennessy dkk., 2022). For example, some students from low-income families face difficulties accessing devices or the internet. This is an additional challenge for teachers to ensure inclusivity in the learning process.

Barriers Faced by Teachers

Despite the positive results of the mentoring program, this study also identified some barriers faced by teachers. One of the main barriers is the limited infrastructure in some schools, such as slow internet connection and lack of technology devices such as computers or projectors. In addition, organizational culture in some schools also affected the success of the mentoring program. Some senior teachers were reluctant to change their teaching methods, while principals lacked full support for technology implementation.

Recommendations for Programme Improvement

Based on the above findings, this study provides several recommendations to improve the effectiveness of mentoring programs in the future. Firstly, there needs to be collaboration between schools, government, and the private sector to provide adequate infrastructure. Secondly, the mentoring program should be conducted on an ongoing basis by involving

teachers in decision-making regarding the technology used. Third, a personalized approach to mentoring needs to be applied to accommodate the different levels of ability and needs of each teacher. Fourth, the government could consider incentives for teachers who successfully integrate technology into learning, such as special awards or allowances.

CONCLUSION

The findings from this study show that mentoring teachers in the application of digital learning media has a significant impact on improving teacher competence and learning quality. Although there are still obstacles, the positive results achieved show that this approach is feasible to be applied more widely. With adequate support, digital learning media can be an effective tool to create more inclusive and quality education.

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