



Utilization of Digital Media to Improve the Learning Performance of High School Teachers in North Lampung Regency

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ABSTRACT

The digital era requires teachers to optimize the use of technology in order to improve quality and effective learning performance. This research uses a descriptive qualitative approach with data collection techniques through participant observation, in-depth interviews and documentation. The research location was carried out at two high schools in North Lampung Regency, namely SMAN 1 Abung Barat and SMAN 1 Tanjung Raja. The results of the research show that the use of digital media has been proven to improve teacher learning performance in both schools, where teachers have been able to use various digital media proficiently and proficiently. YouTube, WhatsApp, and Kahoot, with supporting factors in the form of adequate infrastructure and support from school leadership, but faces the obstacles of teachers' technical limitations in complex applications. SMAN 1 Tanjung Raja shows a more developed level of sophistication with the adoption of Google Classroom, Google Forms, and Canva, but faces problems with unstable internet networks. Research suggestions include the continued development of teacher digital competence, improving school technology infrastructure, and developing research with a broader scope for better generalization.

INTRODUCTION

In today's digital era, the transformation of information technology has brought significant changes across various sectors of life, including the field of education. One of the primary challenges faced by teachers is how to adapt learning to be effective and relevant to students' needs through the utilization of digital technology.

Digital literacy is one of the most vital forms of new literacy in the current era of information technology transformation. According to the Ministry of Education and Culture (2020), digital literacy is defined as an individual's ability to use information and communication technology to search for, evaluate, utilize, create, and deliver information in a wise, healthy, intelligent, and responsible manner. This definition emphasizes the importance of ethics and responsibility in the use of digital media.

The study by Sari and Widiastuti (2023), which focused on high school teachers in Sumatra, found that the use of digital media by teachers was still limited to basic tools such as Microsoft Office and WhatsApp for communication. Only 23% of teachers used interactive learning platforms such as Google Classroom, Moodle, or gamification-based learning applications. These findings indicate a significant gap between the potential of digital technology and its implementation in the learning context.

A national survey conducted by the Indonesian Information Technology Teachers Association (2024) involving 8,500 teachers revealed that 78% acknowledged the importance of digital literacy, yet only 31% felt confident in integrating technology into teaching. The survey also disclosed that teachers with high levels of digital literacy were able to increase student engagement by up to 45% and improve academic performance by an average of 28%.

A longitudinal study conducted by the University of Indonesia (2023–2024) on the implementation of digital literacy in 120 secondary schools showed a strong positive correlation between teachers' digital literacy skills and the improvement of learning performance. Educators with higher digital literacy demonstrated stronger abilities in designing student-centered learning, applying diverse teaching techniques, and conducting comprehensive learning evaluations.

An interesting finding from Kusuma et al. (2024) revealed that digital literacy training integrated with learning performance development had a more significant impact compared to standalone technology training. Teachers who participated in integrated training showed improvements in managing digital classrooms, developing interactive learning materials, and conducting technology-based assessments.

A qualitative study by Handayani and Suherman (2023), conducted through ethnographic research in 12 secondary schools in West Java, uncovered interesting phenomena regarding teachers' resistance to digital technology. Through participant observation and in-depth interviews, the study revealed that the main obstacles were not only technical aspects but also psychological dimensions and the school's organizational culture. Senior teachers tended to

experience “technology anxiety,” which led them to avoid using digital media in their teaching.

Unlike previous studies that mostly emphasized the impact of technology on students or the technical aspects of using digital tools, this research holds novelty value as it specifically focuses on teachers’ learning performance as the primary emphasis. This study contributes to the growing body of literature on improving teachers’ learning performance in the digital era, particularly in the context of senior high schools in non-metropolitan areas such as North Lampung Regency.

Based on initial observations conducted in October 2024 at two senior high schools in North Lampung Regency, namely SMAN 1 Abung Barat and SMAN 1 Tanjung Raja, it was found that some teachers were still not optimizing the use of digital media or digital platforms in teaching. The observations revealed that the teachers observed were still limited in accessing, understanding, and applying digital resources in their teaching. The majority still relied on conventional methods that are no longer relevant to students’ current needs. This has resulted in limited learning innovation and low technology integration in pedagogical processes, which directly affects teachers’ learning performance.

Therefore, it is essential to conduct research on the use of digital media in enhancing teachers’ learning performance. This study is expected to provide a realistic picture of the extent to which teachers utilize digital media, as well as the influencing factors, so that it can serve as a reference for evaluating and formulating future teacher competency development.

Given this urgency, it is important to conduct an in-depth study on “*The Utilization of Digital Media in Improving Senior High School Teachers’ Learning Performance in North Lampung Regency.*” This study is expected to present a realistic overview of the extent to which teachers utilize digital media, the influencing factors, and effective strategies for optimizing digital literacy in improving teachers’ learning performance, thereby serving as input for policymaking in future teacher competency development.

THEORETICAL STUDY

Educational Human Resource Management

Human resource management in education is a process that involves planning, organizing, directing, and controlling the procurement, development, compensation, integration, maintenance, and management of educators and educational staff. This process aims to achieve educational goals effectively and efficiently. According to Hasibuan (2017), human resource management is the science and art of regulating relationships and the roles of the workforce so that they can work effectively and efficiently in supporting the achievement of organizational goals. In the context of education, human resource management relates to managing educators, such as teachers and educational staff.

Teacher Competency Development as Part of Educational HRM
Teacher competency development is one of the vital aspects of managing human resources in education. According to Mulyasa (2020), teacher competency

development is a systematic effort to enhance teachers' abilities in carrying out their professional duties. In this context, improving learning performance through digital literacy becomes highly strategic in facing the era of technology-based education.

Sulistyorini (2021) emphasized that teacher competency development needs to be carried out in a continuous and planned manner. At least three main aspects are involved in teacher competency development: (1) increasing knowledge, (2) developing skills, and (3) fostering professional attitudes.

The Use of Digital Technology Media in Learning Digital technology media in education refers to all types and forms of tools, applications, or platforms that use digital technology to support the learning process, ranging from content delivery, learning interaction, to learning outcome evaluation (Munir, 2020:45). This definition highlights the functional role of technology as a mediator in the educational process.

Arsyad (2019:29) defined digital learning media as supporting tools in learning activities both inside and outside the classroom that utilize information and communication technology with interactive and multimedia capabilities. The main characteristics of digital media lie in their ability to present information in various forms (e.g., text, images, audio, video) in an integrated manner.

Organizational Culture and the Cultivation of Digital Media Organizational culture is a system of shared meanings held by members of the organization, which distinguishes it from other organizations (Robbins & Judge, 2019:512). In the educational context, school organizational culture encompasses the values, beliefs, norms, and practices shared by the school community that influence how they interact, work, and make decisions.

Schein (2020:18) explained that an organization is a pattern of basic assumptions created, discovered, or developed by a certain group. These patterns emerge from external assumptions as well as internal integration processes that have worked well enough to be considered valid. These patterns are then taught to new members as the correct way to perceive, think, and feel about particular issues.

Learning Performance in the Perspective of Educational HRM Teacher performance in learning is one of the competencies that must be possessed by a teacher as part of professional standards for educators. According to Law No. 14 of 2005 concerning Teachers and Lecturers, teachers' learning performance is the result of work in terms of quality and quantity achieved by an employee in carrying out their duties in accordance with the responsibilities assigned to them.

METHODOLOGY

This study employed a qualitative approach with a phenomenological design. The qualitative approach was used because the research aimed to explore and gain an in-depth understanding of the utilization of digital media in enhancing senior high school teachers' learning performance in North Lampung Regency. According to Creswell (2018), the qualitative approach is appropriate

when researchers seek to explore social phenomena in a deep and holistic manner. Meanwhile, the phenomenological method was applied to provide a comprehensive description of the phenomenon under study, based on evidence gathered directly from the field.

RESEARCH FINDINGS AND DISCUSSION

Digital Literacy Level in Enhancing Teachers' Learning Performance

The findings revealed that the level of digital literacy in utilizing digital media within the learning process significantly contributed to improving teachers' learning performance. This aligns with the theory proposed by Koehler and Mishra (2009) regarding knowledge of pedagogical content and technology, which emphasizes the importance of technology integration in teaching to enhance the quality of education through improved teacher performance.

Enhancement of teachers' learning performance through digital media utilization was reflected in several aspects. First, teachers became more imaginative and innovative in lesson planning. The use of digital media allowed teachers to deliver material more attractively and interactively, thus increasing student motivation and participation in learning.

Digital media also helped teachers manage learning more effectively. They were able to organize class time better, monitor students' progress in real-time, and provide more personalized instruction according to individual needs. Furthermore, digital media improved teachers' ability to evaluate learning. Teachers could design more varied assessment instruments and provide more responsive and detailed feedback to students.

Case Study 1: SMA N 1 Abung Barat

The level of digital literacy in utilizing digital media in classroom activities at SMA N 1 Abung Barat was categorized as good. Teachers demonstrated competence and proficiency in using digital media in their teaching practices. This was evident from the variety of media used, which most teachers were able to handle, and from classroom observations conducted by the principal.

Teachers' ability to use PowerPoint and YouTube, as expressed by informant GS/AB/01, showed that teachers possessed solid foundational competencies in using instructional technology. This high level of digital literacy was further reinforced by the principal's observation (KS/AB/02), which indicated that most teachers integrated e-books and conducted material searches via Google in their lessons. These findings suggest that teachers did not merely use technology as a presentation tool but also as a dynamic and up-to-date learning resource.

Case Study 2: SMA N 1 Tanjung Raja

Similarly, the level of digital literacy in SMA N 1 Tanjung Raja was also categorized as good. Teachers demonstrated both competence and proficiency in utilizing digital media in teaching. The ability of teachers to use diverse media, as revealed by informant GBI/TR/03, demonstrated flexibility and adaptability in technology use.

Teachers employed YouTube and PowerPoint in varied ways, showing that they were not limited to one type of medium but could combine multiple digital platforms. Confirmation from the principal (KS/TR/04) through supervision and classroom observation supported the finding that all teachers were capable of using digital media. This indicates that digital literacy at the school was not merely an individual phenomenon but had developed into an integrated learning culture.

Forms of Digital Media Utilization in Learning

Supporting Theory: Multimedia Learning Theory – Richard Mayer (2001). The use of digital media in the form of interactive multimedia combining text, images, audio, video, and animation is strongly supported by Richard Mayer's Multimedia Learning Theory. Mayer explained that humans process information through two separate channels – visual and auditory. When both are optimally engaged through interactive multimedia, information processing capacity increases, and learning becomes more effective. Mayer also developed principles such as the *Contiguity Principle* (related information presented together), the *Modality Principle* (spoken narration is more effective than on-screen text), and the *Redundancy Principle* (avoiding duplicate information), which serve as guidelines for designing interactive multimedia for learning.

- SMA N 1 Abung Barat

Teachers used PowerPoint as the primary presentation tool, YouTube videos for practical visualization (e.g., prayer practices and inheritance law), and WhatsApp for sharing materials. This showed integration between formal instructional media and informal communication tools. Teachers also utilized the internet for reference searches and lesson module preparation (informant GM/AB/06), proving that digital media was used not only in the delivery phase but also in lesson planning. The use of Kahoot demonstrated the adoption of interactive technology to increase student engagement.

- SMA N 1 Tanjung Raja

Teachers demonstrated a more advanced adoption of digital learning platforms. Google Classroom was used for assignments and communication, while Google Forms was utilized for online assessments. This indicated teachers' understanding of blended learning, which integrates offline and digital learning. Additionally, the use of Canva for design purposes (informant GM/TR/07) showed that teachers were not only consumers of digital content but also creators. This reflected a more advanced level of digital literacy, where teachers were able to produce visually engaging learning materials.

Supporting and Inhibiting Factors of Digital Media Utilization

The study identified both supporting factors and obstacles in the use of digital media to enhance teachers' learning performance.

- Supporting Factors included adequate infrastructure (Wi-Fi, projectors), school leadership support, and students' enthusiasm for digital learning, which created a conducive environment.

- Obstacles included teachers' limited technical skills in operating more complex applications and unstable internet connections.

classified supporting factors for teacher competency development into Internal factors (qualifications, teaching experience, ICT use) and external factors (infrastructure, institutional support).

These findings are consistent with the TPACK framework by Koehler and Mishra, which serves as a theoretical foundation for understanding how teachers can effectively integrate digital technology to improve learning performance.

Theoretical and Practical Implications

Theoretically, this study reinforces the concept of technological, pedagogical, and content knowledge within the context of Indonesian education, particularly in rural areas. Digital media utilization not only improved teachers' technological skills but also integrated pedagogical and content aspects in the teaching process.

Practically, the study provides empirical evidence of the importance of technological infrastructure and school facilities in supporting digital media use. It also highlights the necessity of training and professional development programs to strengthen teachers' capacity in applying instructional technology.

Comparison with Previous Studies

This study is consistent with Sulistyarini (2022), who found that the use of teaching materials improved teachers' learning performance. However, this research contributes further by exploring contextual factors influencing digital media utilization in rural high schools. Similarly, Fitria (2022) identified the positive impact of digital media as an innovative teaching aid. Yet, this study provided deeper insights into the process of utilizing digital media throughout various teaching stages – from planning to evaluation.

Research Limitations

This study has several limitations. First, it only involved two schools within the same regency, so the findings may not be generalizable to broader contexts. Second, the study employed a qualitative approach, which is inherently subjective, meaning the results may be influenced by the researchers' perceptions and interpretations.

CONCLUSION

Based on the results of the research and discussion regarding the utilization of digital media in improving teacher learning performance at SMA N 1 Abung Barat and SMA N 1 Tanjung Raja, several conclusions can be drawn as follows:

1. SMA N 1 Abung Barat

a. Level of digital literacy in the use of digital media in the learning process SMA N 1 Abung Barat demonstrates a good level of digital literacy, where teachers possess competent and proficient skills in utilizing digital media in the learning process. Almost all teachers are able to use various available digital media, as confirmed by school principal observations showing that the majority of teachers have integrated technology into their teaching. Teachers have solid

basic competence in using educational technology, particularly PowerPoint and YouTube, and are also capable of integrating e-books and searching for materials through Google into their teaching activities.

b. Forms of digital media utilization in the learning process
The forms of digital media utilization at this school show good implementation with a variety of media. PowerPoint is used as the main presentation tool, while YouTube videos are utilized for subjects requiring practical visualization, such as prayer practice and jurisprudence. WhatsApp serves as a platform for sharing materials and communication, the internet is used for reference searches and module preparation, and Kahoot is employed as an interactive tool to enhance student engagement. Interestingly, there is an integration between formal learning media and informal communication media, where digital media are used not only during the implementation stage but also in lesson planning.

c. Supporting factors and challenges in improving teacher learning performance
The main supporting factors include the availability of sufficient technological infrastructure such as WiFi and LCD projectors, school leadership support through systematic policies in technology adoption, students' enthusiasm with positive responses toward digital learning, and a conducive environment that fosters technology-based learning. However, the school also faces several challenges, particularly teachers' technical limitations in operating more complex applications. Although digital literacy is categorized as high, there remains a gap in mastering advanced technology, indicating the need for continuous professional development programs.

2. SMA N 1 Tanjung Raja

a. Level of digital literacy in the use of digital media in the learning process
SMA N 1 Tanjung Raja has a high level of digital literacy with similar patterns but more advanced compared to SMA N 1 Abung Barat. Teachers are able to use digital media proficiently, demonstrating flexibility and adaptability in technology use. Their ability to combine various digital platforms such as YouTube and PowerPoint indicates that digital literacy has become an integrated learning culture at the school. Based on the school principal's supervision, all teachers have the ability to use digital media effectively.

b. Forms of digital media utilization in the learning process
The forms of digital media utilization at this school demonstrate a more advanced level with the adoption of more sophisticated learning platforms. Google Classroom is used for assignments and communication, Google Forms for integrated online assessments, Canva for creative learning content design, as well as diverse uses of YouTube and PowerPoint. The adoption of this integrated digital ecosystem reflects teachers' understanding of the blended learning concept, which combines face-to-face with digital learning. Even more interestingly, teachers are not only consumers of digital content but also creators, demonstrating more advanced digital literacy in producing visually engaging learning materials.

c. Supporting factors and challenges in utilizing digital media to improve learning performance

The main supporting factors include adequate facilities and infrastructure, reflecting the school's commitment to digital learning transformation, solid infrastructure as an essential prerequisite for implementing technology-based learning, and systemic school support for educational technology adoption. The main challenge faced is the instability of internet connections, which is a major technical obstacle in digital learning. Although the basic infrastructure is available, the quality and stability of services still need improvement, making learning effectiveness dependent on the stability of the technological system.

Comparison of the two schools Both schools share similarities in having a high level of digital literacy, strong school commitment through leadership support and systematic policies, enthusiasm from both teachers and students, and success in integrating technology into the learning process. However, significant differences exist in the level of sophistication, with SMA N 1 Tanjung Raja demonstrating more advanced and integrated platform usage, wider media diversification, and teachers with stronger abilities as content creators. The main obstacles also differ: SMA N 1 Abung Barat focuses more on teachers' technical challenges, while SMA N 1 Tanjung Raja faces internet infrastructure issues.

The implications of this study show that both schools have successfully proven that the use of digital media can improve teacher learning performance, though with different approaches and challenges. SMA N 1 Tanjung Raja demonstrates a more advanced model in adopting educational technology with a focus on integrating a digital ecosystem, while SMA N 1 Abung Barat shows a solid foundation with broader development potential, especially in improving teachers' technical skills with more complex technologies.

RECOMMENDATIONS

Recommendations for Teachers

Teachers are expected to continuously develop their digital competencies and integrate them into teaching. They need to regularly participate in educational technology training and utilize various online learning resources to enhance their technological skills. Teachers are also expected to be more creative and innovative in designing lessons by leveraging digital media. The use of digital media should be adjusted to the characteristics of students and the intended learning objectives.

Recommendations for Schools

Schools are expected to continuously improve technological infrastructure by providing stable internet facilities, sufficient technological devices, and learning spaces that support digital media use. Schools also need to develop sustainable training programs for teachers in utilizing digital media in teaching.

Recommendations for Future Researchers

Future researchers are encouraged to conduct studies with a broader scope, involving more schools and teachers to achieve better generalization. Further research could also explore other factors influencing digital media utilization in learning, such as school culture, principal leadership, and student characteristics.

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