Implementation of Web-Based Teaching Media as an Effort to Utilize Digital Technology in Learning

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Abstract: This study aims to analyze the implementation of web-based teaching media at SDN SN Surgi Mufti 1, Banjarmasin, to improve the quality of education. Qualitative methods with a case study approach are used by involving questions and answers to the principal, teachers, and students. The results show that digital technology in learning can increase student interest, motivation, understanding, and make the learning process more interactive. However, challenges such as funding, time management, and inadequate infrastructure still exist. Policy supports and training for teachers are essential to overcome these obstacles. Research emphasizes that the implementation of web-based teaching media has good potential when creating an interesting and effective learning environment, which is in line with technological developments in the digital era.

Keywords: Challenges and impacts; Digital technology; Web-based teaching media

Introduction

The development of digital technology has transformed the role of humans in education, becoming an essential tool that facilitates learning by providing quick and efficient access to various learning materials. Technology makes the teaching and learning process easier and introduces students to the digital world from an early age. Digital technology operates with minimal human intervention and aims to use automated computer-based systems (Aksenta et al., 2023). Therefore, the use of digital technology in education is not only about enhancing learning efficiency; students must also be equipped with the skills necessary for the digital age. According to multimedia learning theory, the use of media such as text, images, sound, and video can enhance students' understanding and memory. Various student competencies should be developed during the learning process to face Industry 5.0 (Suriansyah et al., 2023).

While digital technology is beneficial in education, dependence on technology can reduce students' ability to think critically and independently. Critical thinking skills, which should be integrated into 21st-century learning, are essential (Agusta & Cholis, 2021). Some educators argue that web-based learning media can distract students due to the numerous distractions available on the internet. According to Ningsih et al. (2023), teachers must continue to innovate by improving education quality through the use of information and communication technology. Supporting this view, Arikarani & Amirudin, (2021) argue that the use of web-based learning media makes content delivery more engaging and interactive. With the right approach, technology can strengthen students' critical thinking skills in this digital era.

According to Government Regulation No. 32 of 2013, Article 20, the importance of an interactive learning environment that motivates students to participate actively is emphasized. Article 21 highlights the use of various learning resources, including information and communication technology media, as well as assessments based on students' core competencies. The National Education System Law No.

20 of 2003 states that education is a conscious and planned effort to provide a learning environment and process that allows students to develop their potential (Daruwati et al., 2024).

The implementation of web-based learning media is still limited, even though many elementary school students are skilled in using technology. However, some teachers still rely on lecturing methods without utilizing relevant media, which leads to monotonous learning and a decline in student motivation. According to Yunus et al. (2023), a combination of face-to-face and web-based learning is more effective in improving students' learning outcomes. Thus, educators must continue to innovate in designing dynamic and adaptive learning. Additionally, Irwan, cited by Sijabat et al. (2024), asserts that teachers must adapt and master technology as an essential skill in the development of teaching and learning.

The implementation of web-based learning media can increase student interest, understanding, and involvement through exploration and collaboration, as well as help passive students become more active. However, challenges such as funding, time management, lack of teacher motivation, technological limitations, inadequate infrastructure, and sometimes slow internet access still pose barriers. SDN SN Surgi Mufti 1 has significant potential to utilize web-based learning media to enhance education quality with complete facilities and technology. With strategic steps, the school can ensure all students benefit from technology while continuing to improve multimedia facilities and provide teacher training. It is hoped that the development of digital technology will overcome barriers and make learning more dynamic and responsive to student needs (Arikarani & Amirudin., 2021).

The researcher conducted observations and interviews with teachers at SDN SN Surgi Mufti 1. During class observations, it was found that some students tended to be passive during lessons due to monotonous teaching methods and difficulty understanding the teacher's explanations. Many students did not actively participate, but when the lessons were conducted using web-based technology supported by an LCD projector, they showed more interest in the learning process. To increase student interest, more engaging learning media are required. However, some teachers struggle to bring equipment like LCD projectors. These findings highlight the need for improvements in the implementation of web-based learning media as a way to utilize digital technology to promote more active learning.

According to Yunus et al. (2023), the application of websites in teaching can be a solution to overcome learning problems. Websites allow students to explore knowledge, foster creativity, and increase their involvement. As technology evolves, the integration of web-based media can encourage students to become more engaged in the learning process. Furthermore, technology enhances the quality of learning and makes it easier for teachers to deliver content (Hartati et al., 2022).

Recent studies support the importance of implementing web-based learning media. For example, research by Kristiani et al. (2019) explains the pedagogical professionalism of teachers and the importance of encouraging the development of knowledge-based disciplines and digital technology. Additionally, Akram et al. (2021) notes that teachers face challenges in its implementation. One barrier teachers face is still using conventional methods, applying the same teaching strategies as those used in kindergarten, lacking innovation, and using uninspiring learning media (Agustina et al., 2021). Furthermore, Akram et al. (2022) emphasizes that teachers need adequate competencies to effectively facilitate students. This is in line with Aslamiah & Suhaimi (2019), who argue that competencies reflect rational performance according to the profession and educational tasks. In this context, teachers' professional knowledge is considered a crucial factor in improving teaching practices (Aslam et al., 2020). Understanding this enables the creation of a more engaging learning environment.

Although much research has been conducted on digital technology in education, this study offers a unique perspective by focusing on the implementation of web-based learning media in elementary schools. This is particularly relevant given the rapid development of digital technology and the changes in the era that impact teaching methods and the interaction between teachers and students. This research is also important for providing new insights into enhancing teachers' ability to effectively use modern websites in the teaching process.

Method

This research applies a qualitative method with a case study approach, utilizing observation and interviews to explore the implementation of web-based learning media as an effort to utilize digital technology in elementary schools. The researcher chose a case study approach because it provides a specific and detailed understanding of the application of digitalization in education, particularly within the school environment and during the classroom learning process. The study was conducted in the city of Banjarmasin at an advanced elementary school, despite being located in a suburban area, namely SDN SN Surgi Mufti 1. The subjects of this research include the school principal, teachers, and students. The principal was selected as the primary subject due to their strategic role in leading change,

while the teachers were chosen because of their ability to implement teaching methods related to the use of web-based learning media. Additionally, students were interviewed to provide supplementary perspectives related to the interviews.

Data collection was conducted using in-depth interviews and non-participant observation techniques. The in-depth interviews were structured, allowing the researcher to engage in intensive conversations aimed at delving into the experiences, practices, and feelings of the informants. This method was chosen to gain a more comprehensive and detailed insight into the implementation of web-based learning media. To complement the data, the researcher also employed a literature review. The literature review is a type of research conducted by gathering, studying, and analyzing relevant materials related to the research topic or issue, such as books, journal articles, scientific papers, and other forms of literature (Said, S., 2023).

The researcher applied descriptive qualitative analysis techniques. After completing the data collection stage through observation and interviews, the next step was to read and thoroughly understand the collected information. The researcher then identified key points that emerged from the informants' experiences and structured descriptions to illustrate the context and meaning of those experiences. The results of this analysis were compiled into a report to clearly and informatively present the research findings.

Result and Discussion

Result

The results of the interviews and observations conducted by the researcher during the study indicate that this research focuses on the implementation of web-based learning media as an effort to utilize digital technology in elementary school education. Through interviews with the school principal, teachers, and students, all parties expressed a positive outlook on the importance of digital technology. In today's digital era, the use of technology in education has become an unavoidable necessity. This study aims to explore the application of web-based learning media in elementary schools, identify its impact on the learning process, and understand the challenges for future development.

Importance of Implementing Web-Based Learning Media in Education

The school principal emphasized the importance of digital technology in education today. He stated, "Although not all materials need to use technology, the presence of web-based learning media can increase students' interest and attention." This statement reflects an understanding that technology integration is not just an additional tool but can create a more engaging and interactive learning environment and experience for students.

The application of web-based media has been beneficial for students. They expressed, "The implementation of web-based learning media makes lessons easier to understand." Technology thus functions as a tool and source of inspiration for student learning. Incorporating media into the learning process enables students to become more active, ultimately improving their understanding of the subject matter.

School Policy and Support

The implementation of web-based learning media in education requires strong support from the school. The principal explained that there are specific policies in place to support the use of this technology, including budget allocation for electronic devices and teacher training. He said, "This support aims to ensure that teachers stay updated with the latest technology and are able to use learning media effectively." This indicates that without adequate support, the use of technology in education could be hindered.

Teachers also emphasized the importance of training in the implementation of web-based learning media. They felt more prepared and confident in integrating technology into their teaching after undergoing training provided by the school or government. As a result, teachers can make the most of learning media, making the learning process more interactive and efficient.

Positive Impact on Learning

One of the main findings in this research is that the implementation of web-based learning media has a positive impact on the students' learning process. The principal observed an increase in students' interest and understanding, as seen from the results of evaluations and direct observations of their learning outcomes. He stated, "The integration of technology into teaching can enhance the quality of education at the elementary school level." This suggests that the implementation of web-based learning media can change the way students interact with learning materials.

Teachers also reported that students became more active and participatory during the learning process. One teacher stated, "The implementation of web-based learning media has a significant positive impact on students' motivation to learn." This observation illustrates how technology can foster greater student engagement in teaching and learning activities.

Challenges in Implementing Web-Based Learning Media

Although there are many benefits from the implementation of web-based learning media, challenges in its application still exist. The principal identified several issues that become barriers to its

implementation, particularly related to funding and time management. He stated, "Some teachers are reluctant to use the media because they consider it time-consuming." This statement suggests that despite the desire to utilize technology in learning, practical factors such as limited time and resources can become obstacles.

Furthermore, some teachers expressed difficulties related to the infrastructure supporting the implementation of web-based learning media. They face issues such as unstable internet connections and limited supporting equipment. One teacher explained, "The internet connection is sometimes unstable, and the lack of supporting equipment, such as an LCD projector, is also an issue." This situation makes the learning process less optimal. To overcome this, teachers often have to find creative solutions, such as using personal internet quotas to ensure better access during lessons and scheduling equipment borrowing with other teachers so that all students can benefit from a better learning experience.

Discussion

The findings of this study highlight the importance of implementing web-based learning media in elementary schools. The principal emphasized that although not all aspects of learning need to use technology, the presence of web-based learning media can enhance the quality of education. This is a positive step in utilizing digital technology in today's era. The teaching process in the digital age clearly requires innovation from teachers as leaders of learning in the classroom. Especially in education, teachers play an integral and crucial role, so they must possess digital competencies to adapt to changes (Syahid et al., 2022). The principal plays a key role in motivating teachers to keep adapting as times evolve (Harsono et al., 2018).

Through web-based learning media, students can access various interesting and interactive learning resources. Using technology in education helps students expand their knowledge and motivates them to learn how to use that technology. Technology also functions as a learning medium, making the learning process more effective and enjoyable (Fadillah, 2022). The use of technology in the learning process also increases students' active participation (Arikarani et al., 2021). Additionally, teachers need to implement creative and innovative teaching methods to maintain students' learning enthusiasm. With this approach, teachers can deliver material in a more engaging manner, making the learning process more enjoyable and relevant in the digital era (Hakim & Yulia, 2024).

The policies implemented at this school also reflect strong support for the use of web-based learning media. In support of this, the school has allocated specific funding for electronic devices and the development of the internet network. This step creates a supportive environment for both teachers and students to utilize technology in teaching and learning activities. Moreover, teacher training is essential to equip them with the skills needed to effectively use web-based learning media. Interactive applications such as Wordwall, Mentimeter, Kahoot, Quizizz, and others can increase interactivity in learning. A teacher needs to master these current applications to attract students' attention (Widiastuti, 2021). With proper training, these application features can be tailored by teachers to meet their needs (Hakim & Yulia, 2024).

Student Benefits from Web-Based Learning Media

Students experience the benefits of web-based learning media in the educational process. They feel that this media helps them understand the material in a more comprehensive way. Furthermore, learning through technology allows the material to be presented in a more interactive and engaging manner (Siringoringo & Alfaridzi., 2024). Technology has made it possible to provide various learning materials, including interactive applications that can enhance motivation, engage students, stimulate participation, and foster meaningful interaction (Said, 2023). Students can more easily understand the material taught because of the media used in education, which leads to increased learning motivation and more efficient teaching methods. Students' enthusiasm for learning depends on motivation (Fitriani & Syarkowi, 2021). Teachers no longer need to repeat the same material because students can grasp the information effectively (Wicaksono & Wakid, 2016).

The use of online web-based learning media has a positive impact on improving student learning outcomes (Murtado et al., 2023). The principal mentioned that this media can spark students' interest, helping them understand the material more quickly. By utilizing digital technology, teachers can create an engaging and interactive learning experience, which makes it easier to increase students' interest in learning through the use of technology in teaching activities (Harsono,et al., 2018). Technology also allows the use of various learning resources, such as videos and interactive applications, which support students' understanding of the material (Arikarani & Amirudin., 2021).

Technology's Dual Role in Enhancing and Challenging Learning

Technological advancements have the potential to both enhance and hinder students' learning experiences. However, technology also presents unique challenges, particularly in the field of education (Sinaga, 2023). Many teachers still use outdated teaching methods, while students are more advanced in terms of digital technology. This creates a mismatch between the

teaching approaches employed by teachers and the needs of the students (Hakim & Yulia, 2024). Another challenge faced is the limitation of funds and infrastructure. The principal acknowledged that teachers struggle with time management in the classroom, preventing them from maximizing the use of technology. The lack of facilities also remains a problem for teachers trying to improve learning. Therefore, efforts to address these issues include utilizing the BOS (School Operational Assistance) budget from the government and collaborating with parents to demonstrate the school's commitment to improving education quality.

Conclusion

In line with technological advancements, this analysis shows that web-based learning media has great potential to enhance the quality of education in elementary schools. Although there are challenges such as funding limitations and infrastructure issues, government policy support and teacher training are crucial for the successful implementation of these media. The "Merdeka Belajar" program provides schools with the autonomy to innovate, but its success depends on teachers' ability to adapt their teaching methods. Therefore, training that meets teachers' needs is essential. Proper planning and commitment from all parties—principals, teachers, and parents—are necessary for web-based learning media to create an interactive and engaging learning environment. The steps that need to be taken include providing adequate infrastructure, ongoing teacher training, collaboration with the community, and monitoring and evaluating the effectiveness of technology use. With these steps, the use of web-based learning media is expected to improve the quality of education and equip students with relevant skills to face future challenges. The role of technology in education is becoming increasingly important for creating a learning environment for future generations.

Author Contributions
Conceptualization was carried out by Dewi Yulianti and Ahmad Suriansyah, with Dewi Yulianti handling the methodology. Validation was done by both Dewi Yulianti and Ahmad Suriansyah, while formal analysis was conducted by Dewi Yulianti. The investigation was led by Dewi Yulianti, Ahmad Suriansyah, and Arta Mulya Budi Harsono, with resources provided by Latifa Putri Ridhaningtyas. Data curation was managed by Dewi Yulianti and Ahmad Suriansyah. The original draft preparation was done by Dewi Yulianti, and the writing—review and editing was completed by Ahmad Suriansyah, Arta Mulya Budi Harsono, and Noorhapizah..

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