

Study of Digital Teaching Media Needs at SMAN 1 Way Sulan

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ABSTRACT : The transformation of education in the digital era requires schools to integrate technology into the learning process to make it more interactive, adaptive, and contextual. This research is motivated by the need for SMAN 1 Way Sulan to optimize the use of digital teaching media to improve student interest and learning outcomes in various subjects. The purpose of this study is to identify the need for digital teaching media based on the characteristics of the subject area, determine teacher and student preferences for the digital tools and platforms used, analyze implementation obstacles, and formulate strategic recommendations for the development of digital teaching media in secondary schools. This study uses a narrative qualitative approach with data collection techniques through in-depth interviews, classroom observations, and document analysis. The research participants consisted of 10 teachers and 30 students who were selected purposively from various subjects at SMAN 1 Way Sulan. Data analysis was carried out using thematic analysis techniques through a process of reduction, categorization, and triangulation of sources to maintain the validity of the research results. The results show that the need for digital teaching media varies in each subject. The science and mathematics (MIPA) field requires visual media and interactive simulations, the language field requires communication-based digital applications and modules, while the social sciences field requires media that display infographics and socio-economic data. Teachers and students tend to choose platforms such as Canva, Google Sites, and interactive PowerPoint because of their ease of access and visual appeal. The main obstacles faced are limited infrastructure, unequal internet access, and low digital literacy among some teachers. This study concludes that optimizing digital teaching media at SMAN 1 Way Sulan requires the development of technology-based interactive learning materials, improving teacher competency through ongoing training, and improving school infrastructure. These findings are expected to serve as a reference for developing technology-based education policies in secondary schools to realize effective learning oriented towards 21st-century competencies.

KEYWORDS : About five key words in alphabetical order, separated by comma

I. INTRODUCTION

Educational transformation in the digital era demands a paradigm shift in the learning process in secondary schools. Digital learning media is now an integral part of modern educational strategies due to its ability to expand access, increase student participation, and facilitate interactive and contextual learning [1]. In Indonesia, the integration of information and communication technology (ICT) in education is increasingly emphasized through the Independent Curriculum policy, which requires teachers and students to adapt to the digital ecosystem [2]. However, the level of digital learning media utilization in schools still shows significant variation across regions and educational levels.

SMAN 1 Way Sulan, a high school in South Lampung Regency, faces similar challenges. Despite the availability of digital devices and basic network connectivity, the use of digital teaching media is not evenly distributed across all subjects. Some teachers have utilized platforms like Canva, Google Sites, and interactive PowerPoint, while others still rely on conventional methods due to limited digital competency and infrastructure. This creates a gap between the potential of technology and learning practices in the field.

Previous research shows that interactive learning media can improve student interest and learning outcomes [3]. The use of visual and simulation-based media has a positive effect on student engagement at the elementary level [4]. Media such as educational videos and digital applications increase motivation and responsibility for learning [5]. The use of animated media has been shown to improve student activity and learning outcomes in social studies learning at the junior high school level [6]. However, most of these studies focus on the elementary school level and have not specifically examined the high school context, especially in terms of the need for digital teaching media that is tailored to the characteristics of the subjects and school conditions.

Based on these research gaps, this study seeks to deeply identify the digital learning media needs at SMAN 1 Way Sulan, including the types of media appropriate for each subject area, teacher and student preferences for digital platforms, and implementation barriers. This research also highlights the importance of developing teachers' digital competencies and improving educational technology infrastructure to ensure effective and sustainable digital media-based learning.

The purpose of this study is to identify the need for digital teaching media based on the characteristics of each subject at SMAN 1 Way Sulan, so that the type of media that best suits the learning demands of each subject can be identified. In addition, this study also aims to determine teacher and student preferences for various digital tools and platforms used in the learning process, in order to understand user tendencies and comfort in utilizing educational technology. The integration of network system-based technology and spatial analysis also contributes to increasing the effectiveness of educational planning and equalizing access to learning through the use of digital media and GIS-based devices[7]. Furthermore, this study seeks to evaluate various obstacles faced in implementing digital media in the school environment, including technical obstacles, infrastructure limitations, and digital literacy skills of educators. Based on the results of this analysis, this study is expected to formulate strategic recommendations for the development of digital teaching media that are relevant to school needs and in line with 21st-century learning trends that emphasize creativity, collaboration, and optimal use of technology.

This research has both theoretical and practical significance. Theoretically, the results are expected to enrich studies on the development of digital teaching media at the senior secondary level, which has been limited to date. Practically, these findings can serve as a basis for schools and local governments in developing policies to improve teacher capacity, procure digital infrastructure, and develop technology-based learning media that adapt to student needs.

In terms of novelty, this study offers a local context-based needs analysis approach in senior high schools, a practice that has not been widely implemented in Indonesia. This study also integrates cross-subject comparative analysis to examine differences in digital media needs in the fields of Mathematics and Natural Sciences, Languages, and Social Sciences, something rarely explored in previous studies. It is hoped that this research will produce a comprehensive overview of the direction of digital teaching media development at SMAN 1 Way Sulan that is relevant to the real needs and challenges of 21st-century education.

II. METHOD

This study uses a qualitative approach with a narrative design that aims to explore in depth the needs of digital teaching media at SMAN 1 Way Sulan. The qualitative approach was chosen because it allows researchers to comprehensively understand the social and educational phenomena that occur in the school environment, not only through numbers and statistics, but through the meanings and experiences experienced by teachers and students. Qualitative research positions researchers as the main instrument that interacts directly with participants to obtain authentic and contextual data [8]. Thus, this study not only focuses on identifying the needs of digital teaching media, but also understands the perceptions, obstacles, and expectations of users regarding the use of technology in the learning process.

A narrative research design was chosen because it allows participants to freely and in-depthly share their experiences. Through this approach, researchers attempt to reconstruct the social realities experienced by teachers and students regarding the use of digital media in learning. Narratives obtained from interviews, observations, and document analysis will be processed to comprehensively describe the school context, the state of the technology infrastructure, and ongoing learning practices. In this way, the research is expected to provide a rich and reflective description of how digital learning media is utilized at SMAN 1 Way Sulan and the factors that influence its effectiveness.

The participants in this study consisted of 10 teachers and 30 students selected using a purposive sampling technique. This technique was chosen to ensure that the participants truly represent the diverse experiences and needs of digital learning media users at the school. The teachers involved came from various fields of study such as Mathematics and Natural Sciences, Indonesian, English, and Social Sciences, while the participating students were from grades 10 to 12. The selection of participants took into account their active involvement in digital media-based learning activities, so that the information obtained was more relevant to the research objectives. The research location was SMAN 1 Way Sulan, a public high school in South Lampung Regency that is striving to integrate technology into learning in line with the implementation of the Independent Curriculum.

Data collection techniques used three main methods: in-depth interviews, classroom observations, and document analysis. Interviews were conducted semi-structured to allow researchers to explore the views, experiences, and perceptions of teachers and students flexibly while remaining focused on the research focus. Classroom observations were used to directly observe learning practices involving digital media, including interactions between teachers and students, as well as any obstacles that arose during the activities. Meanwhile, document analysis was conducted on lesson plans (RPP), teaching modules, and digital teaching materials used

by teachers. Through these three methods, the data obtained is more robust because it encompasses various sources and complementary perspectives.

The collected data was analyzed using thematic analysis techniques, which is the process of organizing and grouping data into main themes relevant to the research focus, such as the need for teaching media per subject, user preferences, and implementation constraints. The analysis was carried out through the stages of data reduction, data presentation, and conclusion drawing. To ensure the validity and reliability of the research results, source and method triangulation was conducted, namely comparing findings from interviews, observations, and documents. This approach helps confirm data consistency and increases the credibility of the research results. With systematic and in-depth analysis, this research is expected to produce accurate and useful findings for the development of digital media-based learning strategies in secondary schools.

III. RESULT AND DISCUSSION

The results of this study describe the actual conditions of digital teaching media utilization at SMAN 1 Way Sulan as well as the needs, preferences, and obstacles faced by teachers and students in the learning process. Based on data from interviews, classroom observations, and document analysis, it was found that the need for digital teaching media at this school is very diverse and depends on the characteristics of each subject. In the field of Mathematics and Natural Sciences, teachers and students showed a high need for visual media and interactive simulations that can help explain abstract concepts in Physics and Chemistry. Meanwhile, in the subjects of Indonesian and English, the desired teaching media are digital modules, e-books, and vocabulary and speaking practice applications that can improve language skills practically. For the subject of Social Studies, the need is focused on infographic-based media, interactive maps, and multimedia presentations that facilitate the visualization of social and economic phenomena. The following table shows the distribution of teaching media needs by subject at SMAN 1 Way Sulan:

TABLE 3.1 Distribution of Teaching Media Needs

Subjects	Digital Media Needs	Major Obstacles
MIPA	Interactive animation digital simulation, explanatory video	Lack of supporting devices
Indonesian	Interactive e-book module, vocabulary application	Limited internet access
English	Interactive e-book modules, e-learning applications, gamification applications	Digital literacy gap
IPS	Infographics, multimedia presentations, online discussion platforms	Limited supporting infrastructure

Source: Results of interviews with teachers at SMAN1 Way Sulan

In addition to needs based on subject area, the study also found a strong preference for interactive learning media such as Canva, Google Sites, and PowerPoint. Teachers and students considered these platforms easy to access, flexible to use, and visually appealing. Canva, for example, is widely used to create infographics and presentation materials, while Google Sites is used to build interactive learning portals that can be accessed anytime. Interactive PowerPoint applications are also a top choice for presenting materials, combining text, images, videos, and quizzes, adding to a more engaging learning experience. However, some teachers still face technical challenges in utilizing these platforms' advanced features due to limited training.

In terms of implementation barriers, research findings identified three main factors: limited infrastructure, low digital literacy among some teachers, and unequal internet access within the school environment. Although SMAN 1 Way Sulan has computers and a Wi-Fi network, unstable connectivity hinders the consistent implementation of digital learning. Some classrooms are also not equipped with projectors or other supporting devices. In terms of human resources, teachers acknowledged the need for further training to integrate digital media into more creative and innovative learning strategies.

Furthermore, the analysis showed that students' acceptance and participation in the use of digital media were very positive. Students felt more engaged and engaged when learning involved interactive media such as videos, simulations, and digital quizzes. They found these media helped them understand difficult material and made learning less monotonous. However, some students from areas with limited internet access still experienced difficulties accessing online materials outside of school hours. This highlights the need for more adequate infrastructure support to achieve equitable access to learning.

The results of this study reinforce previous findings that digital teaching media plays a crucial role in enhancing the effectiveness and attractiveness of learning. The findings regarding differences in media needs across subjects indicate that digital media development cannot be carried out uniformly, but must consider the characteristics of the content and learning objectives. For example, the science and mathematics field requires more simulation and visual media, while the language field emphasizes interactive aspects that support communication skills. The effectiveness of digital media lies in its suitability to the characteristics of the teaching material and the needs of students [9].

Teachers' and students' preference for platforms like Canva and Google Sites also indicates a shift in the learning paradigm toward a collaborative and creativity-based approach. Flexible and easy-to-use digital media enable teachers and students to become content producers, not just consumers. This phenomenon reflects the spirit of the Independent Curriculum, which emphasizes independent learning and active collaboration between educators and students. These findings align with research showing that the use of digital-based interactive media can increase learning participation and strengthen classroom interactions[10].

In terms of obstacles, research results show that limited infrastructure and teachers' digital literacy remain the main inhibiting factors, which emphasizes the importance of transforming teacher competencies in the digital learning era [2]. Low technological readiness and a lack of ongoing training have resulted in digital media not being utilized optimally [11]. This indicates the need for strategic policies from schools and local governments to provide adequate training support, equipment, and internet networks so that the digitalization process of learning can run effectively.

In addition, the results of the study confirmed that the use of digital media not only affects the cognitive aspects of students, but also their motivation and involvement in the learning process. Students feel more enthusiastic and motivated when learning using interactive media that is fun and visual. Learning that applies gamification elements can increase students' digital literacy and emotional involvement. Thus, the integration of interesting and contextual digital teaching media can be an important strategy in creating an active, collaborative, and meaningful learning atmosphere in secondary schools [12].

Overall, this study demonstrates that optimizing digital teaching media at SMAN 1 Way Sulan requires a comprehensive approach that includes the development of technology-based interactive materials, improving teacher competency through ongoing training, and improving network infrastructure. These efforts are expected to create a learning environment that is adaptive to technological changes and supports the achievement of 21st-century educational goals. The results of this study also provide theoretical contributions to strengthen the literature on the study of digital teaching media needs in secondary schools, while also serving as a practical reference for other schools in developing effective and sustainable technology-based learning policies.

IV. CONCLUSION

This study concludes that the use of digital teaching media at SMAN 1 Way Sulan has great potential to improve the quality of learning processes and outcomes, particularly in terms of increasing student interest, participation, and understanding of the material. The need for digital media in this school varies greatly, depending on the characteristics of the subjects. In the field of Mathematics and Natural Sciences, teachers and students require visualization-based media and interactive simulations to explain abstract concepts. In Indonesian and English, media that can practice communication skills through digital modules and interactive applications are needed. While in the Social Studies subject, media that visually display graphics, data, and social phenomena are considered most relevant.

The research findings also indicate that teachers and students strongly prefer platforms like Canva, Google Sites, and interactive PowerPoint presentations due to their ease of access and visual appeal. However, the successful implementation of digital learning media still faces challenges such as limited infrastructure, unstable internet connections, and low digital literacy among teachers. Therefore, efforts to improve the quality of digital learning need to be accompanied by improvements in teachers' technological competencies through ongoing training, the provision of adequate facilities and infrastructure, and progressive school policy support for digital transformation in learning.

From a theoretical perspective, this study makes an important contribution to strengthening the literature on digital media needs studies at the senior high school level, which is still relatively limited in Indonesia. The local context-based needs analysis approach used in this study demonstrates novelty because it provides a more specific picture of the differences in digital media needs across subject areas and the actual conditions of schools. Practically, the results of this study are expected to serve as a basis for developing technology-based learning policies and strategies at SMAN 1 Way Sulan and other schools facing similar challenges.

Thus, optimizing digital learning media depends not only on the availability of technology, but also on the readiness of human resources, support systems, and a school culture that encourages innovation. Effective integration of technology, pedagogy, and teacher creativity is key to realizing interactive, adaptive, and sustainable learning in accordance with the demands of 21st-century education.

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