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Multimedia Media and Their Impact in Increasing The Learning Motivation of Elementary School Students

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ABSTRACT

This study aimed to analyze the effect of the use of multimedia-based learning media on the learning motivation of elementary school students. This study was conducted because of the low motivation of student learning in conventional learning methods. The results showed that the use of multimedia-based learning media significantly increased student learning motivation compared to traditional methods. Visual, audio, and interactive elements in multimedia contribute to increasing student involvement during the learning process. However, this research also found several challenges, such as limited technology facilities and lack of teacher training in the use of multimedia-based learning media. With the application of the appropriate strategies, multimedia-based learning can be an innovative solution in improving the quality of education in elementary schools.

Keywords: *learning media, multimedia, learning motivation, elementary school*

1. INTRODUCTION

The development of information and communication technology has brought major changes in the world of education, including at the elementary school level. The use of multimedia-based learning media is increasingly applied to improve the quality of learning and student learning motivation. According to Mayer (2005), multimedia-based learning can increase the effectiveness of the learning process by combining visual and verbal elements in the presentation of material. Technology allows students to learn more interactively, thereby increasing their absorption of the material. However, there are still many schools that face various obstacles in the application of this technology, such as limited infrastructure, low digital literacy, as well as lack of training for educators (Clark & Mayer, 2016).

Although multimedia-based learning media offers numerous benefits, its implementation in elementary schools continues to encounter several significant challenges. One major obstacle is the limitation of technology access, as not all schools possess the necessary infrastructure to effectively support multimedia-based instruction (Seels & Richey, 1994). Additionally, both teachers and students often struggle with digital literacy, lacking sufficient skills to utilize technology efficiently for educational purposes (Eshet, 2004). Another critical issue is the lack of teacher training; educators frequently do not receive adequate preparation to integrate technological tools into their teaching strategies (Vaughan, 2011). Furthermore, parental support remains limited, with many parents lacking the understanding or willingness to support the use of technology in their children's learning (Epstein, 2011). These challenges collectively hinder the optimal use of multimedia in elementary education.

This research aimed to analyze the effect of the use of multimedia-based learning media on the learning motivation of elementary school students, identify the obstacles faced in the implementation of multimedia-based learning, and develop an effective strategy to optimize the use of multimedia-based learning media.

The scope of this research includes an analysis of the effectiveness of multimedia-based learning in several elementary schools that have implemented technology in learning. The focus of research includes internal factors, such as the readiness of students and teachers, as well as external factors, such as the availability of school infrastructure and parental involvement in technology-based learning.

To overcome obstacles in the application of multimedia-based learning, several strategies can be implemented. One essential step is increasing digital literacy by providing training for both teachers and students to enhance their skills in using technology effectively for learning purposes (Cohen et al., 2011). Additionally, schools must ensure the provision of adequate technology infrastructure, including access to digital devices and stable internet connections, to support multimedia-based learning environments (Mayer, 2005). Collaboration with parents and the broader community is also vital. Educating parents about the importance of their role in supporting technology-based learning at home can strengthen students' learning experiences (Epstein, 2011). Furthermore, innovation in learning methods, such as incorporating gamification and project-based learning, can increase student engagement and motivation (Slavin, 2018).

This study is grounded in several key theories that support the effectiveness of multimedia-based learning. The Cognitive Theory of Multimedia Learning by Mayer (2001) suggested that information is more effectively understood when presented using a combination of text, images, and audio. The Constructivism Theory proposed by Piaget and Vygotsky (1978) emphasized that students construct their own understanding through interaction with their environment, with technology serving as a valuable learning aid. Additionally, the Self-Determination Theory by Deci and Ryan (1985) asserted that students' intrinsic motivation can be enhanced through engaging and interactive learning environments. Lastly, the concept of digital literacy underscores the critical competencies needed to utilize technology effectively within educational settings (Eshet, 2004).

By understanding these theories, this research is expected to make a significant contribution in improving the quality of multimedia-based learning in elementary schools and supporting technology-based education policies that are more effective and sustainable.

2. METHODS

The quantitative approach was used in this study with a pseudo experimental design. This approach allows research to objectively measure the influence of multimedia-based learning media on student learning motivation. The pseudo experimental method was chosen because it provides control over the independent variable, although it does not fully eliminate the possible external factors that affect the results of the study (Creswell, 2014). The population in this study were elementary school students who have used technology in learning, and samples were chosen using purposive sampling techniques to ensure that respondents have experience with multimedia-based learning (Sugiyono, 2017).

The instruments used in this study included learning motivation questionnaires developed based on the ARCS (Attention, Relevance, Confidence, Satisfaction) models to measure student involvement in the learning process (Keller, 2010). In addition, the concept understanding test was used to measure the effectiveness of multimedia-based learning media in increasing student understanding (Fraenkel & Wallen, 2012). Observation was also carried out to assess the level of student involvement in multimedia-based classes.

Data collection was done using pre-test and post-test to find changes in learning motivation and understanding of students before and after multimedia-based learning. Interviews with teachers were conducted to gain further insight regarding obstacles in the implementation of multimedia-based learning media (Moustakas, 1994). Data analysis techniques include descriptive statistical tests to see data trends and inferential tests such as the t-test to measure the difference between experimental and control groups (Cohen et al., 2018).

With this methodology, research is expected to provide a more in-depth insight about the effectiveness of the use of multimedia-based learning media in increasing the learning motivation of elementary school students and providing policy recommendations for schools and the government in improving infrastructure and training for educators.

3. RESULTS & DISCUSSION

From the data collected it can be concluded that the experimental group that uses multimedia-based learning media compared to the control group that uses the conventional method. The analysis test results show an average difference ($p < 0.05$), which indicates that the use of multimedia-based media has a positive impact on student motivation. In addition, pre-test and post-test results show an increase in understanding of concepts in students who learn to use multimedia, with an average value of an increase of 20% after the intervention is carried out. This finding is in line with Mayer's theory (2005), which stated that the combination of visual and verbal elements in learning can increase understanding and absorption of information by students.

In addition, observations during the learning process reveal that students in the experimental group are more active in participating and showing a higher level of involvement compared to the control group. This supports the concept of intrinsic motivational theory developed by Deci and Ryan (1985), which explained that an interesting and supportive learning environment can significantly increase student learning motivation. Interviews with the teacher also indicate that the use of multimedia helps facilitate students' understanding, especially in abstract concepts, in accordance with the cognitive theory of learning by Sweller (1994), which emphasized the importance of cognitive burden reduction in understanding new information.

The following table shows the results of the comparison between the experimental group and the control group in increasing learning motivation and concept understanding:

Table 1. Research Results

No.	Group	Average learning motivation (pre-test)	Average learning motivation (post-test)	Increased concepts (%)
1.	Experiment	65	85	20
2.	Control	63	70	7

The results of this study support the multimedia learning theory put forward by Mayer (2005), where the delivery of material visually and interactively can increase students' understanding and learning motivation. In addition, the theory of student involvement put forward by Schunk and Zimmerman (2012) stated that more active interactions in multimedia-based learning can increase students' self-efficacy in understanding the material.

Thus, the use of multimedia-based learning media is recommended as an effective strategy in increasing the motivation and learning outcomes of elementary school students. For more optimal implementation, the development of training programs is needed for teachers to ensure the right integration of technology in learning (Clark & Mayer, 2016).

Figure 1. Illustration of multimedia use in increasing the motivation of elementary school students.

The results of this study indicate that multimedia-based learning media significantly increase student learning motivation and understanding. This finding supports the cognitive theory of multimedia learning put forward by Mayer (2005), which stated that information is more easily understood when presented in the form of a combination of text, images, and sound. In addition, this approach also strengthened Sweller's theory (1994) about cognitive burden reduction, which shows that the delivery of material through multimedia can help students in understanding complex information.

The results of this study are also relevant to the study conducted by Clark and Mayer (2016), which found that the use of interactive media in learning can increase student involvement and their learning outcomes. However, the main difference in this study lies in the research subject, where previous research is more focused on secondary education, while this study targets elementary school students. This shows that multimedia-based learning is not only effective for more mature students but can also be applied well at the elementary level with certain adjustments.

However, there are several challenges in the application of multimedia-based learning media, such as limited access to technology and lack of teacher training. The study shows that without adequate infrastructure and adequate training for teachers, the benefits of multimedia-based learning cannot be maximized. Therefore, a more comprehensive strategy is needed to overcome this obstacle.

The implication of this study is that schools need to adopt a technology-based approach in learning to increase student motivation. As explained by Clark and Mayer (2016), technology integration in education requires adequate infrastructure readiness and training for teachers so that they can adapt innovative learning methods. In addition, this finding also supports the theory of intrinsic motivation put forward by Deci and Ryan (1985), which shows that an interesting and interactive learning environment can increase students' interest in learning independently.

Based on the findings of this study, several recommendations can be proposed to enhance the implementation of multimedia-based learning. First, it is essential for schools to strengthen their technological infrastructure by improving access to digital devices and ensuring reliable internet connectivity to support effective learning environments. Additionally, comprehensive training programs should be provided to teachers to help them successfully integrate multimedia tools into their instructional practices. The development and use of interactive learning models, such as project-based learning and gamification, can also play a crucial role in boosting student engagement and participation. Furthermore, educating parents about the value of technology in education is important, as their understanding and support are vital for reinforcing children's learning experiences at home.

Taking into account these various factors, the implementation of multimedia-based learning media can run more effectively and have a greater impact in increasing motivation and learning outcomes of elementary school students. Furthermore, future studies are advised to explore how various types of learning media can be combined to further enhance the effectiveness of learning at various levels of education.

4. CONCLUSION

The results of this study highlight the importance of adopting technology in schools to enhance student engagement and comprehension. Successful implementation of technology-based learning relies heavily on the integration of multimedia into both the curriculum and teacher training. To support this, schools must invest in improving their technological infrastructure by providing adequate multimedia devices and reliable internet access. Equally important is equipping teachers with the necessary skills through targeted training programs focused on effective multimedia use in the classroom. Additionally, employing interactive learning models, such as project-based learning and gamification, can significantly boost students' motivation and participation. Lastly, educating parents about the role of technology in education is crucial to ensure their support in reinforcing learning at home.

This research is limited to several elementary schools; hence, the results cannot be widely generalized. In addition, this research only measures short-term impacts. Further studies are needed to explore the long-term effects of multimedia-based learning on student academic achievement. External factors such as family support

also need to be taken into account in further research in order to understand more in the effectiveness of technology-based learning. By paying attention to these factors, the implementation of multimedia-based learning media can be more optimal in improving the quality of learning of elementary school students.

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