

## The Role of Interactive Learning Media in Enhancing Student Engagement and Academic Achievement

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**Abstract:** Interactive learning media is a tool or learning resource that enables direct interaction between students and learning materials. This research aims to explore the role of instructional media in enhancing student engagement and academic performance. Through the Systematic Literature Review (SLR) method, this study examines the impact of interactive learning media on student engagement, learning ability, and performance across various subjects. The research findings consistently demonstrate the positive impact of interactive learning media on student's engagement in the learning process. Furthermore, the use of this media has also been proven to enhance students' learning abilities and their performance in understanding subject concepts. These findings affirm that interactive learning media provides an effective means of creating a dynamic and engaging learning environment for students. Thus, understanding the importance of implementing interactive learning media in the educational context is reinforced. This research offers valuable insights for educational practitioners in designing more effective and engaging learning strategies. By optimizing the use of interactive learning media, it is hoped that the quality of education can be strengthened, leading to improved student academic performance across various educational levels.

**Keywords:** Interactive Learning Media, Student Engagement, Academic Achievement

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### A. INTRODUCTION

Interactive learning media offers a dynamic and engaging platform for students to actively engage in the learning process, enabling them to construct deeper understanding through direct interaction with the learning material (Putra & Pratama, 2023). With its various interactive features, such as simulations, instructional videos, and interactive exercises, interactive learning media extends the learning space beyond the confines of traditional classrooms and textbooks. This not only creates a more engaging learning experience but also opens doors to personalized and adaptive learning, allowing students to develop critical skills and better concept mastery according to their individual learning styles (Rahayu et al., 2023).

Therefore, understanding the role and potential of interactive learning media is crucial in strengthening the quality of education and preparing students to meet future demands.

Student engagement is not merely about physical presence in the classroom but also involves active participation, deep understanding, and intrinsic motivation in the learning process (Srimuliyani, 2023). High engagement is closely associated with improved academic performance, which encompasses better conceptual understanding, mastery of skills, and overall academic achievement. In striving for enhanced student engagement and academic performance, a holistic and diverse approach is required, including the utilization of various engaging teaching strategies, supportive learning environments, as well as innovative technology and instructional media (Gunarto et al., 2023). Understanding the relationship between student engagement and academic performance serves as a crucial foundation for the development of curricula, teaching strategies, and education policies aimed at better outcomes for students in the future.

Interactive learning not only facilitates students' access to information but also encourages active engagement in the learning process (Said, 2023). Through the use of interactive technology, students can participate in various engaging learning activities such as simulations, educational games, and online discussions, which significantly enhance their motivation to learn. Moreover, interactive learning media provides flexibility for students to learn independently, adjust their learning pace, and deepen their understanding of complex concepts (Anasro et al., 2023). Thus, the use of interactive learning media contributes positively to enhancing student engagement and academic performance across various educational levels.

The role of interactive learning media in the context of education in Indonesia holds significant importance in enhancing students' understanding and academic performance. Various types of interactive media, such as videos and multimedia tools, have the ability to actively engage students in learning. Research has indicated that the effective use of interactive media in education enhances students' understanding of the material and their learning outcomes (Hidayatullaily et al., 2022 ; Adeliyanti et al., 2018; Muhammad et al., 2023). Moreover, interactive media has the potential to advance higher-order thinking skills and promote self-directed learning in the digital era (Rachmawati et al., 2023). The development of interactive learning media focusing on character education has also proven successful in improving student learning outcomes in Indonesia (Putra et al., 2023). Thus, the integration of interactive learning media into the Indonesian education system can play a crucial role in enhancing students' learning experiences and achievements.

Student engagement in the learning process can be enhanced through direct interaction with instructional materials using interactive learning media (Puteri et al., 2023; Retnasari et al., 2023). For instance, interactive instructional videos can inspire students to actively engage in solving contextual problems and focus the learning process on the students. The development of interactive multimedia can also assist students in understanding difficult concepts and enhancing their competencies in specific subjects, such as children's fashion learning (Yulhendri et al., 2022). Psychological aspects of student engagement, such as attitudes toward learning, motivation, and inclusion in learning, have been found to correlate

positively with academic performance (Bond & Bergdahl, 2023). Moreover, the use of multimedia and interaction between teachers and students has been shown to have a significant impact on student engagement (Goode et al., 2022). Additionally, there is a positive perception regarding the use of Android-based software solutions in mathematics learning (Supriadi & Hermansyah, 2023). Overall, integrating interactive learning media and encouraging direct interaction with instructional materials can enhance student engagement and contribute to a more effective learning experience.

The advancement of technology has transformed the educational paradigm, including the utilization of interactive learning media. Various studies assert that interactive learning media have the potential to enhance student engagement and academic performance in the learning process. Findings from the research by Ouralita et al. (2023) demonstrate that the use of interactive videos in Indonesian language learning at the elementary school level effectively improves students' understanding of concepts. The study by Zaim et al. (2023) confirms that interactive learning media developed with the 4-D development model (defining, designing, developing, disseminating) successfully enhances student learning outcomes. The findings from the research by Harahap et al. (2023) highlight the significant role of interactive learning media in the era of the fourth industrial revolution in improving students' academic performance and high-level thinking skills. Research by Dhiaulhaq et al. (2023) indicates that the use of interactive books in Pancasila and Civic Education (PPKn) learning can enhance students' understanding. Furthermore, the study by Ismawati et al. (2023) concludes that validly designed interactive learning media effectively improve students' learning outcomes in the Indonesian language subject. Findings from the research by Dwiranata et al. (2019) demonstrate the effectiveness of media in large group trials achieving a learning completeness rate of 80% in the "effective" category. The findings of the study by As'ari et al. (2022) indicate a significant influence in improving students' learning outcomes using Maple by 66%, in the moderate category, and GeoGebra by 61%, also in the moderate category. In conclusion, based on various findings, it can be inferred that interactive learning media play a central role in enhancing student engagement and learning outcomes in the context of education.

This research aims to investigate the effectiveness of using interactive learning media in facilitating student interaction with learning materials and its impact on students' levels of engagement in the learning process. Additionally, the study seeks to explore the relationship between enhanced student engagement and their academic achievement in specific subjects. By deepening our understanding of the role of interactive learning media, this research is expected to provide valuable insights for the development of curricula, teaching strategies, and education policies aimed at enhancing the effectiveness of learning and academic achievement of students in this digital era.

## **B. METHOD**

This study employs the systematic literature review method to address the research questions: What is the impact of interactive learning media on student engagement levels, and what is the relationship between the use of interactive learning media and student academic achievement? The aim is to provide an overview of the effects of interactive learning media on student engagement and academic performance. Given that interactive learning is a relatively new innovation in education that has been widely discussed over the past five years, publications searched for in this study are limited from 2018 to 2023. This research involves the identification, assessment, and interpretation of findings on a research topic to address the research questions.

The initial article search process was conducted on Google Scholar and subsequently extended to reputable online databases such as ResearchGate, SINTA, DOAJ, and Scopus, using the keywords "Interactive Learning Media, Engagement, Academic Achievement." Subsequently, the review protocol was established by formulating research questions, classifying keywords according to the population, intervention, comparison, outcome, and context strategy derived from the obtained articles. Inclusion and exclusion criteria were determined by selecting articles relevant to the research questions, while researcher subjectivity in article selection was minimized. For organizing selected articles, Mendeley software was utilized. The data extraction and synthesis processes employed thematic analysis and meta-analysis. The research stages include planning, execution, and reporting, divided into 8 steps: formulating the problem, developing and validating the review protocol, literature search, screening relevant literature, assessing literature quality, data extraction, data analysis and synthesis, and reporting results (Xiao & Watson, 2019).

The process of searching, screening, and evaluating articles to determine those suitable for the research objectives involved examining the topics discussed in each article. Based on the selected articles, extraction and analysis were performed according to the research questions to obtain a comprehensive overview of the impact of interactive learning media on student engagement levels and the relationship between the use of interactive learning media and student academic achievement.

## **C. RESULTS AND DISCUSSION**

### **1. Interactive Learning Media**

Interactive learning media is instructional material that allows direct interaction between students and course content, facilitating self-paced learning. This media can be applied across various subjects, including Bahasa Indonesia. The fundamental concept of interactive learning media is the utilization of technology and information to enhance student engagement in learning. Interactive learning media can take the form of interactive videos, interactive multimedia, or other interactive applications that enable students to interact directly with learning materials (Novia et al., 2021). In its development, the validity and practice of using interactive learning media must be carefully considered (Sumantika et al., 2023). It is hoped that the use of interactive learning media can enhance students' understanding of concepts in Bahasa Indonesia and improve their learning outcomes.

## **2. The Impact of Interactive Learning Media on Student Engagement Levels**

Interactive learning media has been proven to have a positive impact on student engagement (Arjomandi et al., 2023). Students actively engaged with online learning modules show improvements in academic performance and higher final scores (Goode et al., 2022). A study in the context of introductory statistics classes found that the use of real-time interactive polling enhances student attendance and engagement (Kassim et al., 2021). Several design factors contribute to enhancing student engagement, including the level of interactivity, media diversity, constructive consistency, flexibility, and responsiveness to student needs (Shatri & Shala, 2022). While learning analytics can be a way to assess student engagement in online learning, further research in this area is still needed. Social media can also serve as a learning aid in higher education, using quantitative metrics such as student posts, comments, likes, and views as a means to measure the level of engagement. Overall, the utilization of interactive learning media and social media in the educational context has the potential to enhance student engagement and improve their academic performance.

## **3. The Relationship Between the Use of Interactive Learning Media and Student Academic Achievement**

The utilization of interactive learning media is closely related to students' learning abilities. Findings from research conducted by Anggorowati (2023) indicate a positive correlation between the use of interactive learning media and student academic performance. Ouralita et al. (2023) conclude that the implementation of interactive videos can enhance students' conceptual understanding in Bahasa Indonesia at the elementary school level. Mulyati (2023) also states that the use of interactive learning models in natural phenomena subjects can improve the academic achievement of fourth-grade students at SDN Pondok Kacang Timur 04. Additionally, through interactive learning, students can be more active in learning activities, especially in social studies. The study by Damayanti et al. (2023) found that interactive learning media focused on character education is effective in improving Bahasa Indonesia learning outcomes. Research conducted by Praditya et al. (2023) confirms that the use of pop-up card media in Bahasa Indonesia learning has been proven to enhance the learning outcomes of third-grade students at SDN 1 Tambakrejo. Moreover, the use of pop-up card media also has a positive impact on students' interest and motivation in learning. Students show high enthusiasm in using pop-up cards and actively participate in Bahasa Indonesia learning. Meanwhile, research conducted by Sandang et al. (2022) demonstrates that effective media usage enhances students' Bahasa Indonesia learning outcomes. Furthermore, the implementation of the Merdeka Belajar Curriculum is also associated with improved student academic achievement. Therefore, there is a positive relationship between the implementation of interactive learning media and students' learning abilities in understanding subjects.

#### **4. The Role of Interactive Learning Media in Enhancing Student Engagement and Academic Achievement**

The implementation of interactive learning media has been shown to have a positive impact on students' learning performance. Research has indicated that the use of interactive digital presentations, such as those developed with the Pear Deck add-on, can enhance students' engagement levels, learning motivation, and concept retention abilities. Furthermore, the use of interactive learning media developed using Articulate Storyline can increase students' learning motivation during instruction. This is evident from the improvement in students' learning motivation before and after using the interactive media. There is also an enhancement in students' learning outcomes based on pre-test and post-test results. Therefore, the use of interactive learning media is recommended as a learning resource or instructional tool that can be combined with various diverse teaching models/methods (Saepuloh et al., 2022). The utilization of interactive instructional videos with the assistance of Edpuzzle has also been proven to have a positive impact on students' engagement and learning outcomes, especially in Mathematics subjects (Jayantika & Andini, 2022). Moreover, the implementation of interactive multimedia learning as a teaching tool has been shown to enhance students' interest and achievement in History subjects (Ahmadi, Golchehreh, Mohammadi et al., 2023). Wordwall learning media influences the learning outcomes of fourth-grade Mathematics students (Siagian & Tarigan, 2023). The integration of interactive media in the digital environment has also been demonstrated to increase students' interest and learning performance. Overall, these findings indicate a significant relationship between the use of interactive learning media and the improvement of students' learning performance.

#### **5. Factors Influencing the Effectiveness of Interactive Learning Media**

Several factors influencing the effectiveness of interactive learning media include inadequate understanding of subject concepts, students' need for digital learning resources, advancements in information technology, and the use of innovative and diverse instructional media (Siahaan & Simamora, 2023; Dewi et al., 2022; Jamalludin & Nuraini, 2021). Research findings indicate that the implementation of character-based educational interactive media can enhance students' academic achievement in Bahasa Indonesia. Additionally, the use of interactive learning media can also boost students' learning motivation. Therefore, factors such as understanding of subject concepts, students' need for digital learning resources, advancements in information technology, and the utilization of innovative and diverse instructional media significantly influence the effectiveness of interactive learning media in improving students' academic achievement and motivation.

**Table 1.** Insights on Variables and Researchers

Researched Variables	Authors	Insight
Utilization of Interactive Learning Media	Novia et al. (2021), Sumantika et al. (2023)	The use of interactive learning media can enhance students' understanding of concepts in Bahasa Indonesia and improve their learning outcomes.
Student Engagement in Online Learning	Arjomandi et al. (2023), Goode et al. (2022), Kassim et al. (2021)	Students who actively engage with online learning modules show improvements in academic performance and higher final scores. The use of real-time interactive polling enhances student attendance and engagement.
Design Factors Enhancing Student Engagement	Shatri & Shala (2022)	Design factors such as the level of interactivity, media diversity, constructive consistency, flexibility, and responsiveness to student needs contribute to enhancing student engagement.
Relationship between Interactive Learning Media Usage and Student Learning Abilities	Anggorowati (2023), Ouralita et al. (2023), Mulyati (2023), Damayanti et al. (2023), Praditya et al. (2023), Sandang et al. (2022)	The implementation of interactive learning media can improve students' academic achievement across various Bahasa Indonesia subjects.
Impact of Interactive Learning Media on Student Learning Performance	Saepuloh et al. (2022), Jayantika & Andini (2022), Ahmadi, Golchehreh, Mohammadi et al. (2023), Siagian & Tarigan (2023)	The use of various types of interactive learning media can enhance student interest and achievement in various subjects.
Factors Influencing the Effectiveness of Interactive Learning Media	Siahaan & Simamora (2023), Dewi et al. (2022), Jamalludin & Nuraini (2021)	Factors such as understanding of subject concepts, students' need for digital learning resources, advancements in information technology, and the use of innovative and diverse instructional media significantly influence the effectiveness of interactive learning media in improving students' academic achievement and motivation.

Analysis of the findings from the presented studies indicates that the use of interactive learning media has a positive impact on student engagement, learning abilities, and performance across various subjects. Various types of interactive media, such as interactive videos, multimedia, pop-up cards, and storyboards, have proven to be effective in enhancing

conceptual understanding, learning motivation, and academic outcomes for students. However, there are several gaps or discrepancies that need further investigation in the context of using interactive learning media. Firstly, further research is needed to identify the most influential design factors in enhancing student engagement and the effectiveness of interactive learning media. Factors such as the level of interactivity, richness of media, constructive consistency, flexibility, and responsiveness to student needs can be the focus of future research efforts.

Further research is needed to explore the integration of social media as a learning tool in higher education. The use of quantitative metrics from social media, such as student posts, comments, likes, and views, can serve as indicators of effective student engagement. There is a need for more in-depth research on the implementation of the Merdeka Belajar Curriculum and its influence on student academic achievement. This study could include an analysis of the impact of the new curriculum on learning motivation, academic outcomes, and student readiness to face future educational challenges. Further studies can also explore the effectiveness of interactive learning media in the context of online learning and its influence on student engagement and academic achievement. These studies can encompass aspects such as the use of information technology, learning flexibility, and responsiveness to individual student needs in the online learning environment. By bridging these gaps through further research, a deeper understanding of the potential and effectiveness of interactive learning media in enhancing student engagement and academic performance in the context of modern education can be attained. This will provide a more comprehensive and evidence-based insight for the development of more effective learning approaches in the future.

#### **D. CONCLUSIONS AND SUGGESTIONS**

Based on the findings from a series of studies presented, it can be concluded that interactive learning media plays a significant role in enhancing student engagement, academic achievement, and motivation in the educational context. Research results indicate that the use of interactive learning media, such as interactive videos, multimedia, and other interactive applications, can improve students' understanding of concepts and their learning outcomes. Design factors, applied learning models, and social media integration also contribute to increasing student engagement and academic performance. However, there are still gaps in understanding concept comprehension, information technology development, and variations in the use of interactive learning media. Therefore, a suggestion for further research is to delve deeper into the effectiveness of interactive learning media, considering these aspects more comprehensively. Future research can also explore strategies for developing innovative and relevant interactive learning media in line with current educational technology needs and developments.



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