Volume 3 Number 2 (2024)
July-December 2024
Page: 29-36

E-ISSN: 2797-0965
P-ISSN: 2809-9710
DOI: 10.37680/basica.v4i2.6145

BASICA
Journal of Primary Education

THE UTILIZATION OF ARTIFICIAL INTELLIGENCE (AI)-BASED MEDIA IN ENHANCING THE LEARNING PROCESS AT THE ELEMENTARY SCHOOL LEVEL

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Submitted: 15/09/2023 Revised: 16/10/2023 Accepted: 21/11/2024 Published: 30/12/2024

Abstract

This study aimed to present a literature review on the utilization of Artificial Intelligence (AI)-based media in enhancing the learning process at the elementary school level. The study used a systematic literature review method, concentrating on the theme of AI-based media in elementary education. The main sources used are writings and documents related to the use of AI-based media in learning at the elementary school level. Apart from that, this research also collects data from secondary sources such as books and academic articles that discuss the use of AI-based media in learning in general to provide a broader understanding. After data collection, data analysis was carried out to identify the use of AI-based media in learning. This analysis involved breaking down concepts and how these concepts were implemented in learning at the elementary school level. Based on the findings from the literature review, the utilization of AI-based media in elementary education has the potential to deliver a learning experience tailored to students' needs. Moreover, AI-based media supports the implementation of game-based learning, fostering a more challenging and dynamic educational environment that actively engages students. Additionally, the use of AI-based media contributes to the development of students' competencies. The competencies that can be enhanced include critical thinking, communication, and creativity. Therefore, implementing AI-based media in elementary school education should take into account the needs of students, which can lead to significant improvements in their competencies.

Keywords Media, Artificial Intelligence, Learning, Elementary School

INTRODUCTION

The rapid growth of science and technology has led to changes that significantly affect human life, especially in the field of education (Jannah & Oktaviani, 2022). This swift advancement is the result of human efforts to solve increasingly complex problems in life (Rozi, 2020). As a result, innovation and reasoning are needed to address and resolve these challenges. One of the recent technological developments is the use of artificial intelligence, which has emerged as an innovation designed to assist human tasks in daily activities (Ratnaningrum et al., 2023).

Artificial Intelligence (AI) has garnered increasing attention across various sectors, as it is able to process large amounts of data and generate outputs that can support various human activities, including the learning process in schools (Asbara et al., 2024). The use of AI in education presents the potential to transform classroom learning into a more interactive, adaptive, and personalized experience, tailored to meet the needs of each individual student.

This present study is in line with a study conducted by (Maufidhoh, 2023), the study's results indicated that the implementation of AI-based learning led to innovations in education. Moreover, it was found to positively impact students' cognitive development by increasing their learning enthusiasm and helping them better understand the material presented by the teacher.

Another relevant study is conducted by (Ratnaningrum et al.,2023) the findings of this study emphasized the importance of AI-based media in the globalization era for increasing student engagement and learning outcomes, particularly in art education. The study also suggested that teachers need to enhance their skills with AI integration to make lessons more dynamic, reduce student fatigue, and achieve better learning results.

Additionally, a related study by (Manongga et al.,2022), explored various educational aspects, including management, teaching, and learning. The study concluded that utilizing AI resources has significantly improved the efficiency and effectiveness of educators, thereby enhancing the quality of instruction. Furthermore, AI has provided students with better learning experiences by customizing resources to their individual needs and abilities. In general, artificial intelligence has profoundly influenced education, especially in management, teaching, and learning, whether in formal institutions or personal learning environments.

Through a comprehensive literature review, this article aimed to contribute significantly to the understanding of AI use in education, particularly in supporting the learning process. Findings from various studies are expected to lay a strong foundation for developing policies and strategies

for AI implementation in elementary schools, while also encouraging educators to utilize this technology to improve learning quality. Additionally, this article intended to identify areas that need further research, ensuring that AI's role in education continues to evolve and provide maximum benefits for elementary school learning.

METHOD

This research uses a literature review approach which focuses the study on the use of AI-based media in learning at the elementary school level. The first step in this research is data collection through literature study. The main sources used are writings and documents related to the use of AI-based media in learning at the elementary school level. Apart from that, this research also collects data from secondary sources such as books and academic articles that discuss the use of AI-based media in learning in general to provide a broader understanding. After data collection, data analysis was carried out to identify the use of AI-based media in learning. This analysis involved breaking down concepts and how these concepts were implemented in learning at the elementary school level.

FINDINGS AND DISCUSSION

This section presents the results of the literature review, focusing on the potential opportunities for integrating AI-based media to enhance elementary school education. The application of AI-based media in this context addresses both the technical aspects of learning and the practical benefits for students and teachers. Below are several key opportunities for leveraging AI-based media in elementary school learning:

Game-Based Learning

The potential use of AI-based learning is linked to the implementation of game-based learning for elementary school students. AI is believed to enhance interactive and engaging game-based and simulation learning (Maufidhoh & Maghfirah, 2023). Through this approach, AI technology plays a pivotal role in creating more dynamic and enjoyable learning experiences. AI-supported games and simulations enable students to learn by engaging in practical activities and interacting with relevant content, thus simplifying complex concepts and making them easier for students to understand and apply (Tri Wulandari & Adam Mudinillah, 2022).

AI applications and websites in education are effective learning tools. One notable application is Visual Mentor, widely used by teachers and lecturers to publish notes, homework, quizzes, tests, and evaluation tasks. Another is Voice Assistants, which enable students to search for materials, reference questions, articles, and books by simply stating keywords (Asbara et al., 2024). Additionally, Smart Content, commonly utilized in libraries, helps users easily locate and categorize books while recommending titles based on search criteria. Automated Assessment tools assist teachers and tutors in preparing quizzes or tests on short notice by quickly generating questions, eliminating the need for manual grading. Personalized Learning platforms function like a personal assistant for students, addressing their individual learning needs by analyzing data from prior learning activities and providing tailored solutions. Canva, a graphic design tool that leverages artificial intelligence, offers various templates to help teachers and students create engaging learning designs. Google Classroom is another platform that utilizes AI to manage tasks and interactions among students. Finally, educational games are specifically designed to facilitate learning while ensuring students enjoy the experience (Admelia et al., 2022). Educational games are any form of games designed to provide educational experiences or learning opportunities for players, incorporating educational content. Examples of such games include Duolingo, Khan Academy Kids, Quick Brain, and Quizizz (Ashari et al., 2023).

AI-integrated educational games can adjust the difficulty level and types of challenges based on each student's ability and progress. For example, in a math game, if a student struggles with certain problems, AI can provide hints or simplify the questions until the student grasps the concept. Conversely, for students showing rapid progress, AI can increase the difficulty to ensure they remain challenged and engaged. In this way, adaptive educational games ensure that each student receives a personalized learning experience tailored to their needs and abilities.

AI-based simulations offer numerous benefits in education. In the field of science, students can use simulations to conduct virtual experiments that may be too dangerous, expensive, or complex for school laboratory activities. Through these simulations, students can test hypotheses, observe results, and gain a deeper understanding of scientific concepts (Nadila & Septiaji, 2023). AI also provides direct feedback and analysis of students' actions, helping them understand the impact of the decisions they make during the simulations.

Game-based learning and simulations can also enhance students' motivation and engagement. Interactive and engaging learning environments lead to a fun and enjoyable learning process (Nisa & Rohmah, 2024). Students are more likely to be motivated to learn when the experience is both challenging and fun. This contrasts with conventional learning approaches, which tend to be monotonous and boring for some students, especially those in elementary school.

Competency-Based Student Development Learning

Another potential use of AI in the learning process is its role in student competency development. AI-based learning can enhance various competencies in elementary school students. In the area of language learning. AI helps students translate text from one language to another, allowing them to develop their language skills more easily. This aligns with a study that found the use of Google Translator and other translation tools significantly aids students in learning English independently (Ahmad Sudi Pratikno, 2017).

In mathematics, AI-based learning tools facilitate the learning process by enhancing students' competencies in critical and creative thinking. For example, using ChatGPT as an AI-based learning tool in mathematics helps boost student engagement and develop computational thinking skills (Kartini et al., 2022). With ChatGPT, students can solve mathematical problems, making the learning process more interactive and engaging.

In other elementary school subjects, AI-based media like ChatGPT play a significant role in enhancing learning, particularly in art. ChatGPT contributes to students' competency development, including their engagement in the discussion process. Furthermore, AI-based learning media can also boost students' motivation and curiosity about the material being studied. Another study found that the use of AI-learning media in art education has the potential to enhance students' problem-solving skills. Thus, the implementation of AI-learning media at the elementary school level can significantly improve students' competencies and skills.

AI Enables Personalized Learning

In conventional learning environments, students are frequently taught in the same way, using standardized teaching methods. However, each student has unique learning styles, paces, and requirements. AI technology addresses this issue by offering flexible solutions that adjust to the individual needs of each student, personalizing their learning experience accordingly.

Artificial Intelligence (AI) can be used as a learning tool by teachers rather than being seen as a barrier to education. AI can help teachers broaden the scope of learning materials and enhance interaction with students. In the learning process, teachers play a crucial role in facilitating and guiding students. They assist students in understanding complex concepts and direct the learning process. However, teachers sometimes find it difficult to give individual attention to each student due to time and resource constraints.

Artificial Intelligence (AI) related to its implementation in education refers to systems designed to support the educational process (Rozi, 2020). In education, AI is used to personalize the learning experience for each student. These AI systems can assist teachers in creating individualized learning profiles, ensuring that the learning material aligns with each student's skills, learning style, and experiences. With the integration of AI and machine learning, personalized digital learning content has also emerged (Asbara et al., 2024). In this context, AI can serve as a solution to assist teachers in providing individual support to students more effectively. AI can be used by students to understand difficult concepts, assign additional tasks, and offer instant feedback. This helps teachers expand the scope of learning and enhance interactions with students.

With the assistance of AI, teachers can offer different opportunities to students who excel in certain areas of learning compared to those who face challenges. Furthermore, AI-driven personalized learning also includes a variety of teaching methods. AI can recommend different forms of learning media, such as videos, educational games, interactive simulations, or reading materials that match students' learning needs. As a result, students who respond better to visual content can receive more video-based materials, while those who prefer text-based learning can be given additional reading resources. This approach creates a richer and more enjoyable learning experience, enhancing student engagement in the learning process.

CONCLUSION

A literature review on the use of AI-based media as a learning support at the elementary school level indicates that AI systems can provide a learning process tailored to students' needs. Additionally, these systems assist teachers in implementing game-based learning, fostering a more challenging and interactive learning environment. Moreover, AI-based learning media contribute to enhancing students' competencies, including critical thinking, communication, and creativity. Numerous websites and applications are available to facilitate learning, enabling teachers to choose

and utilize these resources as effective media for delivering instructional content or assisting with assignments. These choices can be tailored to align with the skills and competion of both educators and students.

The recommendation from the research is that the results of this literature review research will be continued at this stage Implementation, so that the positive impact of AI-based media can be felt by teachers and students in elementary school learning.

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