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Investigation on the Use of Artificial Intelligence in Reading Comprehension Class in Indonesian Setting

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ABSTRACT

This research aims to explore the use of AI in reading comprehension classes in Indonesia. This explorative research uses various references to gain a conclusion on the investigation of AI used in teaching reading comprehension. The use of artificial intelligence in reading comprehension classes in Indonesia offers significant benefits, including personalized learning, material accessibility, fast feedback, and increased student engagement. However, challenges such as lack of infrastructure, teacher training, and concerns about data privacy need to be addressed to maximize the potential of AI in education. Various successful implementation examples show that with the right support, AI can be an effective tool in improving students' reading comprehension in Indonesia. Therefore, it is important for all stakeholders to collaborate in creating a learning environment that supports the use of this technology.

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Introduction

Nowadays, in advanced digital era, the use of technology in education has become highly important. One of the most trending technologies is Artificial Intelligence (AI). AI is widely used all over the world recently especially in education field. It broadens the world of education. AI offers various tools and methods that can improve the learning process, including in teaching reading comprehension.

AI can help teachers analyze students' reading abilities and provide more timely and relevant feedback. For example, AI-based learning platforms can monitor students' progress in real-time and offer exercises tailored to individual needs. In this way, students facing difficulties can receive additional support, while faster students can move on to more challenging material. This not only enhances student engagement but also enables a more personalized teaching approach.

AI can be used to analyze text, provide timely feedback, and adjust learning materials according to students' needs. For example, applications like Grammarly and Turnitin use AI to help students improve their writing and understand common mistakes. By utilizing this technology, students are not only learn to read but also understand the context and meaning of the texts they consume.

It is important to explore how AI can be integrated in a way that is suitable for the local context and the needs of students in Indonesia. In this context, it is important to see how AI can provide practical solutions to reading comprehension problems. For example, the use of AI-based chatbots can help students answer questions about the text they read, provide additional explanations, and help them understand difficult concepts. In this way, AI functions are not only as a tool but also as an active learning partner for students.

In Indonesia, where there are still many challenges in education, the implementation of AI in reading comprehension classes can be an effective solution. According to data from the Central Statistics Agency (BPS) in 2020, the literacy rate in Indonesia reached 95.4%, but there is still a gap in reading comprehension among students. In line with the data from CSA above, UNESCO reports approximately 60% of students in Indonesia struggle with reading with good comprehension (UNESCO, 2020). This indicates the need for innovative approaches in teaching that can help students better understand texts. One out of many solutions is the implementation of AI technology in reading comprehension classes.

Therefore, this research will further discuss the use of AI in reading comprehension classes in Indonesia, with a focus on the benefits, challenges, and successful implementation examples. Through this research, it is hoped that it can provide deeper insights into the potential of AI in improving the quality of education in Indonesia.

Many previous researches have shown that the use of AI-based tools in education can increase students' motivation and learning outcomes (Abbas et al., 2023; Boubker, 2024; Purnama et al., 2023; Nouri, 2020). Research conducted by Zhang et al. (2020) also shows that interaction with chatbots can enhance student engagement and understanding of the material. The implementation of AI in education in Indonesia still faces various challenges, including lack of technological infrastructure and training for teachers. According to a report from UNESCO (2021), only 35% of schools in Indonesia have adequate internet access. This becomes a barrier for effective technology implementation in the classroom.

Method

This study uses an exploratory method that thoroughly reviews various academic references and empirical studies to investigate the integration of artificial intelligence (AI) in teaching reading comprehension. This approach involves a comprehensive literature review to gather insights into the benefits and drawbacks of using AI tools in an educational context. Particular attention is given to how these AI applications can be adapted to the unique conditions of Indonesian classrooms, which often face challenges such as limited technological infrastructure and resources. This method allows for a broad understanding of the potential impact and feasibility of AI integration in reading comprehension teaching.

Results and Discussions

The use of AI in reading comprehension classes offers various significant benefits. First, AI can assist in personalizing learning. By using sophisticated algorithms, AI systems can analyze students' learning progress and adjust learning materials according to individual needs. For example, learning platform like Ruangguru has integrated AI technology to provide recommendations for appropriate learning materials for students based on their exam results and learning activities. This allows students to learn in a way that is more suitable for their own style and pace.

Second, AI can improve the accessibility of learning materials. By using technologies like Natural Language Processing (NLP), AI can simplify and make complex texts easier to understand. For example, applications like Readability Score can help students with reading difficulties understand more difficult texts by providing simpler versions. According to a study by Kurniawan et al. (2020), the use of AI-based tools in reading comprehension can reduce comprehension gaps among students with different backgrounds.

Third, AI can provide faster and more accurate feedback. In traditional learning, feedback from teachers often takes time and may not always be accurate. However, with AI, students can receive instant feedback on their understanding of the reading. For example, AI systems can analyze students' answers to reading questions and provide recommendations for improvement. Research by Wang et al. (2021) shows that fast feedback can increase student's motivation and help them learn more effectively.

Fourth, AI can increase student's engagement in the learning process. By using AI-based educational games, students can learn in a more interactive and fun way. For example, applications like Kahoot! and Quizizz allow students to participate in interactive quizzes that can enhance their understanding of the reading. According to a survey conducted by Educause (2020), 70% of students feel more engaged in learning when using interactive technology.

Fifth, AI can help students access a variety of courses and training programs. There are a lot of platforms out there with interactive learning materials from the best tutors, and one of them is AI Speech Recognition. According to library research by Fitria (2021), this AI allows students to listen or read in their native language, making it easier and faster for students to read and understand articles, journals or books in any language.

Sixth, AI can improve students' motivation (Moybeka et al., 2023). There is a positive correlation between students' reading motivation and their reading comprehension ability (Nuril, 2022). It means the use of AI in improving students' motivation will go hand in hand with improving their reading comprehension.

Seventh, AI can enhance teachers' competence. Research conducted by Nugrahawati (2024) shows that AI-powered tools can help the teachers to improve their competence in teaching reading comprehension skills by teaching both literal and inferential reading. Teachers' literacy skills not only help students understand texts. They also improve their critical, analytical skills, identify the main ideas, arguments, and important details in a text.

Lastly, AI can help teachers design more effective teaching strategies. By analyzing data on student progress, AI can provide insights to teachers on areas that need improvement and the most effective teaching strategies. This enables teachers to allocate time and resources more efficiently. A study by Alharbi (2021) shows that teachers using AI-based data analysis in their teaching are able to significantly improve student learning outcomes.

Despite the many benefits of using AI in reading comprehension classes, there are also various challenges that need to be overcome. First, the lack of technological infrastructure in many schools in Indonesia is a major obstacle. According to a report from the Ministry of Education and Culture in 2021, only about 30% of schools in remote areas have adequate internet access. This hinders schools' ability to effectively implement AI technology in teaching.

Second, the lack of training for teachers is also a major challenge. Many teachers in Indonesia do not have enough knowledge or skills to effectively use AI technology in teaching. According to a survey by the Indonesian Education Association in 2020, about 60% of teachers feel unprepared to use technology in the learning process. Without adequate training, teachers may struggle to harness the potential of AI to improve students' reading comprehension.

Third, there are also concerns about student data security and privacy. The use of AI often involves the collection of students' personal data, which can pose risks if not managed properly. According to research by Putri and Sari (2021), many parents and teachers are concerned about how students' data will be used and protected. Therefore, it is important to have clear and transparent policies on the use of data in AI-based applications.

Fourth, resistance to change in teaching methods can also be a barrier. Many teachers and schools are still attached to traditional teaching methods and may be hesitant to adopt new technologies. According to research by Susanto (2020), a lack of awareness of the benefits of technology in education can hinder the adoption of AI in classrooms. Therefore, it is important to educate all stakeholders about the benefits that can be gained from using AI in teaching.

Lastly, cost issues are also a significant challenge. Many schools, especially in rural areas, may not have sufficient budget to implement AI technology. According to a World Bank report (2021), investment in education technology in Indonesia is still relatively low compared to other countries in Southeast Asia. This indicates the need for support from the government and the private sector to improve the accessibility of technology in education.

In Indonesia, several initiatives have been taken to integrate AI in reading comprehension classes with promising results. One prominent example is the use of AI-based learning applications like Zenius. Zenius uses AI technology to analyze students' learning progress and provide recommendations for suitable learning materials. According to user reports, students using Zenius have shown significant improvement in their reading comprehension (Zenius, 2021). The application also provides a variety of learning materials designed to enhance reading and text comprehension skills. Another example is the "AI for Education" program launched by the Indonesian government in collaboration with several technology companies. This program aims to provide AI-based tools to schools in remote areas to help students learn to read. According to data from the Ministry of Education, this program has successfully reached more than 1,000 schools across Indonesia and has improved students' reading comprehension outcomes (Ministry of Education, 2022).

Furthermore, some universities in Indonesia have also begun implementing AI in teaching reading comprehension. For example, Gadjah Mada University (UGM) has developed a learning platform that uses AI to help students understand complex academic texts. Research conducted by the UGM team shows that students using this platform have a better understanding of their course materials compared to those who do not use it (UGM, 2022). At the elementary school level, some teachers have started using AI-based learning applications like Kelas Pintar to help students understand reading. This application provides interactive exercises and feedback to increase student engagement. According to a survey conducted by teachers, 80% of students feel more interested in learning to read after using this application (Kelas Pintar, 2021). Finally, the use of AI-based chatbots in some schools has also shown positive results. These chatbots can answer students' questions about the texts they read and provide additional explanations. According to research by Rahman et al. (2021), students who interact with chatbots show significant improvement in reading comprehension compared to those who do not use chatbots.

Conclusions

The use of artificial intelligence (AI) in reading comprehension classes in Indonesia offers significant benefits, such as learning that is personalized to each student's level and learning style, making learning more effective, materials that are more accessible anywhere and anytime, quick feedback, and increased student engagement. However, there are challenges that need attention. Many schools, especially in rural areas, lack of proper infrastructure, teachers do not have enough training or knowledge to use AI tools well, and also concerns about data privacy need to be addressed to maximize the potential of AI in education. Despite these challenges, many successful examples in Indonesia show that when the right support and resources are provided, AI can be a very effective tool to improve students' reading comprehension skills. Therefore, it is crucial for teachers, school leaders, government, and other stakeholders to work together to build a supportive learning environment. This collaboration will help maximize the benefits of AI while addressing its challenges, ultimately making education more effective and inclusive for all students in Indonesia.

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