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Teachers' and Students' Perceptions of Ai and Deep Learning Intergration in English Instruction at Junior High School

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ABSTRACT

This study aims to examine teachers' and students' perceptions of Artificial Intelligence (AI) and deep learning integration in English instruction at junior high schools. AI and deep learning are expected to serve as learning-support technologies by providing additional resources, adaptive feedback, and more guided practice, while teachers continue to guide learning strategies. The research employed a descriptive quantitative design using questionnaire data collected from English teachers and junior high school students. The questionnaire items measured participants' understanding of AI and deep learning concepts, perceived usefulness of AI features (such as learning resources, feedback, grammar checking, and speaking practice), perceived ease and readiness to use AI tools, perceived challenges or limitations, and perceived expectations for teacher support and classroom integration. Data were analyzed using descriptive statistics, including frequency counts, percentages, and mean scores, with potential comparative analysis between teacher and student perceptions. The findings indicate that AI-assisted deep learning positively supports all four English language skills reading, writing, speaking, and listening through faster assistance in comprehension, grammar and writing corrections, engaging speaking practice with instant feedback, and listening support using transcripts and adjustable exercises. However, several negative impacts were also identified, including students' overreliance on AI that may reduce independent learning, the possibility of AI outputs that do not align with context or students' proficiency level, challenges related to device and internet/audio quality, and concerns about alignment with curriculum objectives if AI use is not properly guided. Overall, the study suggests that AI integration can enhance learning effectiveness and motivation, but requires appropriate teacher direction, careful tool selection, and alignment with curriculum competencies to maximize benefits and minimize limitations.

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1. INTRODUCTION

Artificial Intelligence (AI) is a technology that is constantly evolving. In the development of AI, one area of study that is receiving increasing attention is its connection to computational creativity—creativity realized through computers. A number of AI technologies have been utilized to support

creative capabilities in computers. Rahman (2009, p. 343) explains that AI is capable of producing computer programs that can filter information and perform tasks independently, such as calculations or searches by students. Furthermore, AI can also create "intelligent" systems or objects, such as online platforms and robots that respond and operate using mechanisms that mimic the functioning of the human brain (Karsenti, 2019). The theories outlined above demonstrate that the current education system has made significant strides thanks to modern technology, particularly the advancements in artificial intelligence. This technology is highly effective in enhancing the quality of education. Artificial intelligence enables teachers to more easily access additional resources to support their instruction of students.

Deep learning is a class of machine learning which performs much better on unstructured data. Deep learning techniques are outperforming current machine learning techniques. It enables computational models to learn features progressively from data at multiple levels. The popularity of deep learning amplified as the amount of data available increased as well as the advancement of hardware that provides powerful computers (Mathew et al., 2021). So, deep learning is a branch of machine learning designed to perform better on unstructured data, such as text, audio, or images. Deep learning can also learn from data incrementally, meaning the model first identifies small patterns and gradually builds a more comprehensive understanding until it can generate answers or predictions. Deep learning is becoming increasingly popular due to the growing volume of available data and advancements in computer hardware, which allow the learning process to be faster and more accurate.

Therefore, deep learning is closely linked to AI in English language teaching because deep learning is one of the primary approaches in AI that enables systems to understand and learn patterns from data, particularly text and/or audio data. In English language learning, this data can include collections of sentences, conversations, grammar exercises, reading passages, and recordings of students' pronunciation. Through deep learning models, AI can analyze language structure, predict the most appropriate answers, provide corrections for errors (such as tenses, sentence structure, spelling, and word choice), and generate relevant examples of language usage. Thus, when AI is used as a learning tool or assistant, deep learning acts as a "learning engine" that enables AI to provide more accurate and adaptive feedback tailored to students' needs. In addition, AI can be used in English language learning through various features that utilize deep learning, such as chatbots for dialogue practice, grammar checkers to correct writing errors, and speech recognition technology to practice speaking skills and pronunciation. In practice, teachers can integrate AI as a learning companion by setting clear goals (such as focusing on the present tense or expanding vocabulary), then using the AI's output as feedback and material for further practice. This approach makes the learning process more guided because AI helps students identify their mistakes while providing exercises tailored to their skill level, while teachers continue to play a role in directing learning strategies, assessing overall performance, and ensuring that the use of AI aligns with the competencies outlined in the curriculum.

2. RESEARCH METHOD

This study aimed to examine teachers' and students' perceptions regarding the integration of Artificial Intelligence (AI) and deep learning in English instruction at junior high schools. Based on the introduction, AI and deep learning are expected to function as learning-support technologies that provide additional resources, adaptive feedback, and more guided practice for students, while teachers continue to guide learning strategies. Therefore, the research method focused on collecting and analyzing perception data from both teachers and students.

The study employed a descriptive quantitative research design to describe perceptions of AI and deep learning integration as experienced and understood by participants in the learning process. Data were collected using a questionnaire (survey instrument) distributed to English teachers and junior high school students. The questionnaire items were designed to measure several aspects

relevant to the introduction, including: (1) understanding of AI and deep learning concepts, (2) perceived usefulness of AI features in English learning (e.g., learning resources, feedback, grammar checking, and speaking practice), (3) perceived ease and readiness to use AI tools, (4) perceived challenges or limitations (e.g., dependence on technology, alignment with learning objectives), and (5) perceived expectations for teacher support and classroom integration. Responses were analyzed using descriptive statistics such as frequency counts, percentages, and mean scores to identify the overall tendency of perceptions among teachers and students. Where applicable, comparative analysis (for example, comparing teacher versus student perception scores) can be conducted to determine whether both groups show similar or different views regarding AI and deep learning integration in English instruction.

The results of this study are expected to provide evidence that can inform how AI and deep learning technologies should be integrated into junior high school English learning in a way that aligns with curriculum competencies, supports learning effectiveness, and meets the needs of both teachers and students.

3. RESULTS AND DISCUSSIONS

The results of using AI and deep learning in the English language teaching and learning process for junior high school students, covering the four English language skills—reading, writing, speaking, and listening—are as follows: Reading: According to teachers' perceptions, the use of AI and deep learning in English language learning can more easily help students understand texts, solve difficult vocabulary problems, and provide example sentences more quickly compared to not using AI or deep learning. However, a drawback is that students who rely too heavily on AI may reduce their independent comprehension and reading strategies. Students' perceptions of this learning approach indicate that they find it easier to complete reading exercises because they feel assisted by AI; however, they sometimes feel that the AI's answers do not align with the context. Regarding writing, teachers in this context believe that AI can provide corrections for grammar, tenses, and spelling, as well as suggestions for improving paragraphs, making it easier for teachers to give feedback; however, this may lead to dependency and a decline in writing quality. Students believe that using AI in writing instruction for middle school students is very beneficial because it helps them organize their ideas more coherently. However, at their age, AI's corrections or suggestions are sometimes too lengthy or unfamiliar for middle school students, often leaving them confused.

Regarding speaking, AI with speech recognition features can provide pronunciation training and feedback, making students more confident in learning speaking with AI. However, this also depends on the quality of the device used; speech recognition can be affected by the quality of the microphone and the student's accent, potentially leading to inaccurate or misleading responses. Meanwhile, from the students' perspective, speaking practice using AI is more engaging because they can repeat exercises multiple times and receive instant feedback; however, students also often feel frustrated when the AI frequently marks their responses as incorrect even though they feel their pronunciation is correct. This is similar to the teachers' previous observation that device quality can affect learning. According to teachers, AI helps simplify listening instruction through transcripts, exercises with gradually increasing speeds, and explanations of parts that students do not understand. However, this leads students to rely solely on the transcript, which fails to adequately develop their ability to process spoken language directly. Students report that AI-assisted listening instruction is helpful because the AI can replay the material and clarify difficult words or sentences. On the downside, some students feel that the AI-generated material does not always match their level; additionally, a weak internet connection makes listening practice ineffective.

From the perspectives that have been conveyed by teachers and students in this study, we can see how AI assists the English language learning process for junior high school students; there are both positive and negative impacts. Therefore, through this study, the researcher hopes that these findings can serve as a benchmark for teachers in teaching English to junior high school students

4. CONCLUSION

Based on the results shown above, it can be concluded that the use of AI integrated with deep learning in English language learning for junior high school students has the following implications. The positive impacts of AI include: Immediate feedback (corrections/explanations), exercises that can be repeated and tailored to individual needs (adaptive learning), assistance with understanding vocabulary, grammar, and usage examples, and increased motivation to learn due to a more modern and interactive experience. However, shortcomings in this learning method also frequently arise, such as: Reliance on AI (lack of independent practice), AI accuracy is not always context-appropriate or aligned with the students' level, AI explanations are sometimes too difficult or too "guesswork-based," Technical challenges: devices, internet, and audio quality, Risk of misalignment with curriculum objectives if not properly guided.

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