

EXPLORING STUDENTS' PERCEPTION OF AI ENHANCED LEARNING MEDIA IN MICROTEACHING PRACTICE

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Abstrak

Perkembangan pesat Kecerdasan Buatan atau *Artificial Intelligence* (AI) telah memberikan pengaruh signifikan dalam dunia pendidikan, khususnya pada pengembangan media pembelajaran. Seiring kemajuan teknologi, AI hadir sebagai inovasi yang menawarkan konten adaptif untuk meningkatkan pengalaman belajar. Penelitian ini bertujuan untuk mengkaji persepsi mahasiswa terhadap penggunaan media pembelajaran yang diperkaya dengan AI dalam konteks praktik *microteaching*. Fokus utama penelitian adalah mengeksplorasi bagaimana mahasiswa merespons integrasi elemen audio, visual, dan teks yang didukung AI guna memperkuat efektivitas kegiatan *microteaching*. Penelitian ini menggunakan desain deskriptif kualitatif dengan pendekatan analisis tematik. Subjek penelitian terdiri dari tiga mahasiswa semester enam Program Studi Pendidikan Bahasa Inggris yang dipilih secara purposive sesuai dengan tujuan penelitian. Data dikumpulkan melalui wawancara semi-terstruktur dengan panduan yang dikembangkan berdasarkan Teori Kognitif Pembelajaran Multimedia dari Mayer. Data yang terkumpul dianalisis secara manual melalui proses pengkodean, kategorisasi, dan identifikasi tema utama dari jawaban mahasiswa. Hasil penelitian menunjukkan bahwa mahasiswa umumnya memiliki pandangan positif terhadap media pembelajaran berbasis AI karena sifat adaptifnya yang mampu menyesuaikan kebutuhan belajar yang beragam. Namun, tantangan berupa beban kognitif berlebih dan kebutuhan penyesuaian tempo belajar individu juga ditemukan. Temuan ini menegaskan pentingnya pengelolaan desain multimodal secara tepat agar media pembelajaran berbasis AI dapat berjalan efektif.

Kata Kunci: Kecerdasan Buatan; Media Pembelajaran; *Microteaching*; Persepsi Mahasiswa

Abstract

The rapid advancement of Artificial Intelligence (AI) has significantly influenced education, particularly in the development of learning media. As technology evolves, AI emerges as an innovative tool offering adaptive content to enhance learning experiences. This study aims to investigate students' perceptions of AI-enriched learning media within the context of microteaching practice. The focus is on exploring how students respond to the integration of audio, visual, and textual elements supported by AI to strengthen the effectiveness of microteaching activities. A qualitative descriptive design with a thematic analysis approach was employed. The participants consisted of three sixth-semester students majoring in English Education, selected purposively to meet the research objectives. Data were obtained through semi-structured interviews guided by instruments developed based on Mayer's Cognitive Theory of Multimedia Learning. The collected data were analyzed manually by coding, categorizing, and identifying key themes from students' responses. The findings

revealed that students generally perceived AI-based learning media positively due to its adaptive features that accommodate diverse learning needs. They highlighted the benefits of combining multimodal elements to support comprehension, though challenges such as cognitive overload and the need for individualized learning paces were noted. These findings underscore the importance of carefully managing multimodal design to maximize the effectiveness of AI-integrated learning media.

Keywords: *Artificial Intelligence (AI); Learning Media; Microteaching, Students' Perception*

INTRODUCTION

The rapid advancement of technology in the 21st century has significantly transformed education, particularly through the integration of Artificial Intelligence (AI). Learning is a dynamic process that must continuously adapt to human needs, which evolve alongside societal and technological developments. AI, as one of the most revolutionary innovations of the modern era, has reshaped many aspects of human life, including educational systems (Shokirovna, 2023). Its ability to provide adaptive solutions makes AI an influential force in the design and delivery of learning media.

AI technologies such as machine learning, natural language processing, intelligent tutoring systems, and adaptive platforms have redefined the educational paradigm (Rana, 2024). In Indonesia, as well as globally, AI has been gradually adopted in schools and universities to facilitate innovative learning environments (Mulianingsih et al., 2020). These developments highlight AI's potential not only to support teachers but also to personalize student learning experiences.

One of the most promising applications of AI in education is the development of AI-enhanced learning media. This form of media integrates multimodal elements text, visuals, and audio into adaptive systems that align with Mayer's Cognitive Theory of Multimedia Learning. Research indicates that such integration supports

comprehension and engagement, although it must be carefully designed to avoid cognitive overload (Godwin-Jones, 2022).

Prior studies have highlighted AI's role in improving learning efficiency and personalization. For instance, research demonstrates that adaptive AI media can reduce cognitive load and improve student focus, aligning with Mayer's Cognitive Theory of Multimedia Learning (Hussain et al., 2025). This shows that AI can enhance comprehension by presenting concise, relevant content. Despite these advantages, challenges also arise. Some studies reveal that AI outputs can be inaccurate, generic, or confusing, leading to skepticism among students (Henderson et al., 2025). In microteaching, poorly designed AI-based media may overwhelm learners with excessive visual or textual information, disrupting the learning process (Skulmowski, 2023).

In the context of English Language Teaching (ELT), AI has become a valuable tool in designing instructional materials. AI-based platforms can provide real-time feedback on grammar, pronunciation, and vocabulary, while also supporting interactive activities and conversational practice (Huang et al., 2023). These features align with the need for more engaging and student-centered approaches, particularly in microteaching practices where prospective teachers are trained.

Microteaching itself plays a critical role in preparing pre-service teachers by allowing them to practice teaching skills in

a controlled environment. Studies emphasize that microteaching enhances pedagogical confidence, reduces teaching anxiety, and bridges the gap between theory and classroom practice (Barnawi & Arifin, 2016). The integration of AI-enhanced media into microteaching, therefore, has the potential to enrich both teaching practice and learning outcomes.

Despite these advancements, the adoption of AI in microteaching remains limited, particularly in Indonesian higher education institutions. A preliminary observation at Universitas Muhammadiyah Muara Bungo (UMMUBA) revealed that only a small number of students utilized AI tools in creating learning media, while many others had little or no experience. This gap highlights the need to explore student perceptions regarding the integration of AI into microteaching practices.

Previous research has discussed AI's role in education, but most studies have focused on its use in computer science or general teaching contexts rather than in microteaching. Similarly, investigations into student perceptions often emphasize specific media types, such as animated videos (Wisnia, 2024), but rarely address AI-enriched multimedia in teacher training environments. International studies have reported positive perceptions of AI when used to support personalized learning, engagement, and motivation (Song et al., 2024). For instance, adaptive AI systems have been found to improve inclusivity by tailoring instruction to diverse learners (Alario-Hoyos et al., 2023). These findings suggest that student perceptions play a vital role in assessing the effectiveness of AI-based media.

However, challenges such as cognitive overload, lack of synchronization, and overreliance on AI have also been reported. Skulmowski (2023) found that excessive detail in AI-enhanced visuals can distract learners, while Zhan (2025) noted that AI-generated feedback is

sometimes too generic to be meaningful. These issues underscore the importance of balanced and thoughtful media design.

Research on AI-related perceptions in Indonesia has shown mixed results. Some students perceive AI media as engaging and effective (Rahmawati et al., 2024), while others raise concerns regarding accuracy and overdependence (Ravšelj et al., 2025). This diversity of perceptions reflects the complexity of integrating AI into learning practices. Given these findings, exploring perceptions in microteaching contexts becomes increasingly important. Unlike regular classroom learning, microteaching emphasizes pedagogical skill development, creativity in instructional design, and reflection on teaching performance. AI integration could either enhance these processes or introduce new challenges.

Therefore, this study positions itself to fill the gap by focusing on students' perceptions of AI-enhanced learning media in microteaching practice at UMMUBA. Understanding these perceptions provides insight into both the opportunities and challenges faced by prospective teachers in integrating technology into teaching practice. The novelty of this research lies in combining AI-enhanced learning media with the pedagogical framework of microteaching. By using a qualitative descriptive design and thematic analysis, this study seeks to capture the nuanced experiences and reflections of English education students as they navigate AI tools in instructional design.

In summary, the introduction of AI into microteaching practice represents both a promising innovation and a complex challenge. This research aims to examine students' positive and negative perceptions to provide a balanced understanding of AI's role in teacher training. The results are expected to inform educators, researchers, and policymakers in

developing strategies for effective integration of AI in higher education, particularly in teacher education programs.

RESEARCH METHOD

This study employed a qualitative descriptive design, as the main objective was to explore in depth students' perceptions of Artificial Intelligence (AI)-enhanced learning media in the context of microteaching practice. A qualitative design was selected to allow the researcher to obtain a comprehensive understanding of students' experiences, evaluations, and responses in their natural setting without manipulating variables. According to Creswell (2018), qualitative research enables the exploration of meanings constructed by individuals within a specific social context. This approach is also aligned with the thematic analysis technique applied in this study, which involves coding, categorizing, and identifying emerging themes from interview data. Thus, the design was not only descriptive but also interpretive, providing nuanced insights into how students experienced the integration of AI-based media in microteaching.

The study was conducted at the English Education Study Program, Faculty of Teacher Training and Education, Universitas Muhammadiyah Muara Bungo (UMMUBA). The site was chosen because it corresponds to the focus of the research, namely the use of AI in microteaching practice. Data collection was carried out in July 2025 during the implementation of the microteaching course for sixth-semester students. The timing was considered strategic since students were actively engaged in designing and using learning media, enabling the researcher to collect valid and contextually relevant

data. The research process consisted of planning, data collection, data analysis, and reporting stages.

The population of this study comprised sixth-semester students enrolled in the microteaching class at UMMUBA. From this population, the researcher employed purposive sampling, which involves selecting participants based on specific criteria aligned with the research objectives (Sugiyono, 2013). The criteria included students who had experience using AI tools to create learning media and were willing to participate in the study.

Based on these criteria, three students were selected as participants. Although the sample size was relatively small, this is consistent with the characteristics of qualitative research, which emphasizes depth of information rather than breadth. The selected participants provided detailed insights into both positive and negative perceptions of AI-based learning media in microteaching.

Data were collected through semi-structured interviews using an interview guide developed based on Mayer's (2009) Cognitive Theory of Multimedia Learning. Semi-structured interviews were chosen to allow flexibility in exploring students' experiences while maintaining a focus on the research objectives. Each interview lasted approximately 30–40 minutes and was conducted face-to-face, supported by audio recordings and field notes to ensure accuracy.

The collected data were analyzed using thematic analysis following the framework of Miles and Huberman (1984), which consists of three stages: data reduction, data display, and conclusion drawing. In the reduction stage, data were filtered to emphasize relevant information; in the

display stage, data were organized in narrative and tabular form; and in the final stage, the researcher identified and interpreted the main themes that represented students' perceptions. This systematic process ensured that the findings were valid, reliable, and capable of answering the research objectives.

FINDING AND DISCUSSION

A. Finding

The study was conducted in July 2025 in the microteaching class at Universitas Muhammadiyah Muara Bungo. Three sixth-semester students who met the criteria of using AI-based tools in developing learning media participated in the research. Data were obtained through semi-structured interviews and supported by field notes and documentation. The participants provided information regarding their experiences in utilizing AI platforms such as Canva AI, ChatGPT, and Canva Magic Media.

The first participant reported using Canva AI primarily to design visual materials and prepare presentation scripts. According to the participant, Canva AI offered templates and design suggestions that made the material more systematic and visually appealing. The participant emphasized that the tool contributed to the coherence of the teaching content and improved the delivery of microteaching activities.

The second participant stated that ChatGPT was the main AI platform used during the preparation of microteaching. The participant explained that ChatGPT helped in generating lesson frameworks, formulating learning objectives, and

creating structured teaching scripts. In addition, ChatGPT provided variations of examples and alternative explanations, which supported the preparation of teaching materials in a shorter time.

The third participant described using Canva Magic Media to develop teaching media for the microteaching session. Initially, the participant experienced difficulties in understanding the platform but was later assisted by peers. After learning how to operate the tool, the participant found it very useful for creating interactive media in a relatively short time. The participant highlighted that the tool saved preparation time while still producing visually engaging materials.

Data analysis showed that all three participants acknowledged the efficiency of AI in streamlining the process of creating learning media. The participants noted that AI provided automatic suggestions for images, videos, and text adjustments. This function helped them simplify complex content to match students' comprehension levels, making the preparation phase more efficient.

Another result indicated that participants perceived AI-enhanced media as effective in attracting attention and reducing monotony during teaching. They reported that the combination of text, visuals, and audio provided by AI tools supported more engaging learning experiences in microteaching classes. According to the participants, this multimodal design made the delivery of materials more interactive.

The data also showed that AI-assisted media supported better comprehension for learners. Participants explained that the integration of multiple modes of information presentation facilitated clearer explanations and improved the understanding of complex terms. They added that AI-supported materials helped maintain students' focus and promoted easier knowledge retention.

In terms of challenges, one participant reported the issue of cognitive overload when too many elements such as images, animations, and texts were combined. The participant felt that in certain cases, the abundance of features distracted attention from the main content. This indicates that while AI provided a variety of tools, their use sometimes created difficulties in maintaining clarity of instruction.

Another challenge found was related to individual learning pace. Participants expressed that not all learners could process AI-generated materials at the same speed. Some students required more time to adjust, while others were able to follow quickly. This condition raised the need for synchronization between media design and learners' individual differences.

Overall, the data collected revealed that participants had both positive and negative experiences in using AI-enhanced learning media for microteaching. On the one hand, AI was considered effective in providing adaptive, attractive, and efficient support in preparing and delivering teaching materials. On the other hand, issues such as excessive cognitive load

and differences in learning pace emerged as challenges in its implementation. These findings provide a comprehensive description of students' perceptions and experiences in employing AI tools in microteaching practice.

B. Discussion

The findings of this study demonstrate that AI-enhanced learning media can significantly support the preparation and delivery of microteaching practices by streamlining the process of instructional design. This aligns with Mayer's (2009) Cognitive Theory of Multimedia Learning, which emphasizes that learning is more effective when information is presented through multiple channels such as text, audio, and visuals. The participants' experiences with Canva AI and ChatGPT show that AI contributes to reducing extraneous cognitive load by simplifying and adapting materials for learners.

One of the key contributions of this study lies in revealing how pre-service teachers perceive efficiency when using AI tools. While previous studies have highlighted AI's role in personalization (Huang et al., 2023), this research adds insight into how pre-service teachers specifically benefit from time-saving functions during microteaching preparation. This suggests that AI not only personalizes learning for students but also optimizes instructional planning for teachers in training.

The results also indicate that AI contributes to engagement by making lessons less monotonous. This is consistent with Fredrickson's (2001)

Broaden-and-Build Theory, which argues that positive emotions enhance motivation and learning outcomes. By integrating multimodal elements, AI media provided participants with innovative ways to capture attention and sustain learner interest, confirming recent findings that interactive digital tools can increase classroom engagement (Xueting & Shi, 2023).

Furthermore, the study highlights how AI supports comprehension through multimodal integration. According to Yue et al. (2013), information retention improves when learners process materials via both visual and auditory channels. The participants' acknowledgment that AI tools made complex terms easier to understand demonstrates the application of Mayer's redundancy and modality principles, where carefully designed text-audio combinations enhance clarity and memory.

However, the challenge of cognitive overload also emerged. When too many visual or textual elements were included, participants reported distraction from the core content. This finding supports Skulmowski (2023), who argues that poor multimedia design can increase extraneous cognitive load and hinder learning. Therefore, while AI provides advanced features, educators must critically evaluate how much content to include in order to maintain instructional focus.

Another important issue relates to individual learning pace. The findings showed that students process AI-generated content at different speeds, underscoring Mayer's (2009) principle of individual differences. This echoes

recent studies emphasizing the need for adaptive pacing in digital learning environments (Alario-Hoyos et al., 2023). For pre-service teachers, this highlights the importance of designing media that not only attracts attention but also accommodates learners' diverse processing capacities.

From a pedagogical perspective, the use of AI in microteaching serves as a bridge between theory and practice. Microteaching aims to equip pre-service teachers with essential teaching skills in a safe environment (Barnawi & Arifin, 2016). The integration of AI expands this function by encouraging creativity in instructional design and by enabling pre-service teachers to experiment with novel tools before entering real classrooms. This shows that AI is not merely a technological aid but also a catalyst for pedagogical innovation.

The novelty of this study lies in its context: microteaching practice. While previous studies have often examined AI applications in general classroom settings (Song et al., 2024), few have focused on teacher training environments. By capturing the perceptions of pre-service teachers, this research contributes a new dimension to the discourse, showing how AI influences not only students' learning but also teachers' preparation, confidence, and creativity in developing learning media.

In addition, this study provides evidence that AI tools foster reflective practice among pre-service teachers. According to Mergler and Tangen (2010), microteaching enables self-reflection and skill development. The

participants' experiences with AI platforms demonstrate how digital tools can further enhance this process by providing alternative teaching strategies, generating diverse examples, and stimulating reflection on instructional design choices.

Nevertheless, ethical and practical challenges cannot be overlooked. Concerns about overreliance on AI, data privacy, and the potential misuse of generated content remain relevant (Rachmad & Supanto, 2020). These challenges imply that teacher education programs must incorporate not only training in AI use but also critical awareness of its limitations and risks. By doing so, pre-service teachers can adopt AI responsibly and effectively.

Overall, this study confirms that AI-enhanced learning media have significant potential to transform microteaching practice by improving efficiency, engagement, and comprehension while also presenting challenges related to cognitive load and learner differences. These findings suggest that the success of AI integration depends not only on technological sophistication but also on pedagogical sensitivity. Future research should continue to explore how AI can be tailored to teacher education contexts, ensuring that its adoption leads to sustainable improvements in teaching and learning.

CONCLUSION

The present study concludes that the integration of Artificial Intelligence (AI) into microteaching practice has provided

valuable contributions to the preparation and delivery of learning activities while also revealing important challenges that must be addressed. The findings confirm that AI-enhanced learning media were perceived positively by pre-service teachers due to their ability to support efficiency in instructional preparation, offer adaptive features, and create engaging multimodal presentations that combine text, visuals, and audio. These advantages align with the theoretical foundation of the Cognitive Theory of Multimedia Learning, which emphasizes that well-designed multimodal input can enhance comprehension and retention. At the same time, the study uncovered limitations such as cognitive overload when excessive elements were included, and differences in learners' processing pace, which indicated that the success of AI integration depends not only on technological sophistication but also on pedagogical design and sensitivity to learner diversity.

The use of AI in microteaching also encouraged reflection and creativity, providing pre-service teachers with opportunities to develop innovative approaches in a controlled environment before applying them in real classrooms. Thus, the purpose of this research, which was to explore students' perceptions of AI-enriched learning media in microteaching, has been achieved by demonstrating that students recognized both benefits and challenges in their experiences. Overall, this study highlights that AI integration in teacher education is promising and transformative, but it requires thoughtful management and critical awareness to ensure its effective and sustainable use in preparing future teachers.

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