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Training on Prompt-Based Artificial Intelligence (AI) to Enhance Students' Scientific Papers

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ABSTRACT

Meskipun penulisan makalah ilmiah memerlukan pemikiran kritis dan penguasaan bahasa akademik, banyak mahasiswa masih mengalami kesulitan dalam hal koherensi, struktur logis, dan penulisan kutipan yang tepat. Namun, kemajuan dalam kecerdasan buatan (AI), khususnya model bahasa generatif berbasis prompt, menawarkan peluang baru untuk mendukung penulisan akademik. Pelatihan tersebut mencakup presentasi materi dan latihan praktis, diikuti dengan kuesioner dan wawancara untuk mengeksplorasi persepsi mahasiswa. Hasil penelitian menunjukkan bahwa penggunaan AI yang moderat dan terarah, terutama pada tahap perencanaan dan revisi, meningkatkan kejelasan bahasa akademik dan kohesi antarparagraf. AI membantu mahasiswa mengatasi hambatan psikologis dalam menulis, meningkatkan motivasi mereka tanpa menimbulkan kekhawatiran etis terkait integritas akademik dan ketergantungan berlebihan pada konten yang dihasilkan AI. Secara keseluruhan, Tim Pengabdian Masyarakat menyimpulkan bahwa AI berbasis prompt dapat secara efektif meningkatkan penulisan ilmiah mahasiswa jika digunakan dengan refleksi kritis, bimbingan dari dosen, dan kesadaran etis yang kuat.

Although writing scientific papers requires critical thinking and mastery of academic language, many students still struggle with coherence, logical structure, and proper citation. However, advances in artificial intelligence (AI), particularly prompt-based generative language models, offer new opportunities to support academic writing. The training included a presentation of the material and practical exercises, followed by questionnaires and interviews to explore students' perceptions. The results indicated that the moderate and targeted use of AI, especially during the planning and revision stages, improved the clarity of the academic language and the cohesion between paragraphs. AI helped students overcome psychological barriers to writing, increasing their motivation without raising ethical concerns related to academic integrity and overreliance on AI-generated content. Overall, the community service team concludes that prompt-based AI can effectively enhance students' scientific papers when used with critical reflection, guidance from lecturers, and strong ethical awareness.

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INTRODUCTION

Writing scientific paper is challenging academic task that involves a combination of knowledge of the subject, critical thinking, and ability to use academic language (Khalifa & Albadawy, 2024; Nonci

et al., 2024). A scientific paper serves does not only as a graduation requirement for students in their final semester but also as a means for them to demonstrate their acquired knowledge and skills. However, numerous studies indicate that the quality of students' scientific papers still faces notable challenges, particularly in terms of idea coherence, logical consistency in writing, appropriate use of academic language, and accurate handling of citations and references.

Advances in artificial intelligence (AI), particularly generative language models derived from Large Language Models (LMLs), present new prospects in university study (Hesti et al., 2025; Imran, 2025; Imran et al., 2022; Khalifa & Albadawy, 2024; Urzúa et al., 2025). AI has evolved into complex systems that can generate writing, analyze speech, and provide instant feedback on grammar and structure. AI is no longer simply a tool for solving math problems, in academic writing, prompt-based AI allows students and the system to communicate with each other in real time, improving the writing process by encouraging them think about what they have written (Hradilová, 2025; Nugroho & Trisusana, 2025).

Nevertheless, the utilization of artificial intelligence in academic writing is neither automatic nor unbiased. The quality of AI output primarily depends on the clarity and precision of the instructions or clues provided by the user. General, open-ended prompts usually lead to superficial, general writing that does not meet academic requirements. On the other hand, carefully designed, contextualized, and scientifically purposeful prompts can help AI write more relevant, coherent, and scientifically sound material (Hidayati et al., 2025; Khalifa & Albadawy, 2024). This phenomenon demonstrates that AI does not replace human intellectual ability; rather, it functions as an instrument whose effectiveness is strongly influenced by the academic literacy and critical thinking skills of its users.

The applications of AI prompts from ChatGPT, Gemini, Claude and Grok in scientific writing have also driven ethical debates, particularly concerning originality, academic integrity, and students' potential dependence on technology (Nuraini et al., 2025; Rahmatillah, 2023). These concerns indicate that lecturers should instruct AI as an aid for learning rather than as a means to produce final scientific publications. To effectively employ AI-based prompts in a manner that is productive, ethical, and responsible, it is essential to undergo training on prompt-based AI to enhance student scientific papers.

METHOD

The training method was presenting materials and practicing them, the training stages included:
Stage 1: Preparation. The Community Service Team conducted a survey and conducted direct interviews with the Dean of the Faculty of Teacher Training, Education and Literature (FKIPS) and the Head of the English Education Program at Universitas Islam Makassar.
Stage 2: Coordination Meeting. The Community Service Team held a coordination meeting to consolidate the community service activities. Discussions included the training materials and the agenda for the training.
Stage 3: Information Processing. The Community Service Team collected data and references needed to develop the training materials.
Stage 4: Preparation of Training Materials. The Community Service Team compiled the materials needed for the training.
Stage 5: Program Implementation. The team implemented the training agenda.

a) Time and Location of the Activity. The training was held on December 04 and 05, 2025, (1 day, 2 sessions) and (1 day, 2 sessions) in the classroom.
b) Participants. This training was attended by seventh-semester students from the English Education Program, consisting of 25 students.
c) Training Activities. This training was divided into two days. The first day was a presentation of the materials (ChatGPT, Gemini, Claude and Grok) and the second day was training activity. The presentation aimed to provide an overview of materials and the training activities was as an implementation of the presentation activities on the first day.
d) Training Activities. The training was conducted as a follow-up to the presentation of the material (on the first day). The purpose of the training was to provide students with the opportunity to directly practice the materials.

Stage 6: Interviews and questionnaire. This activity aimed to capture students' perceptions regarding the implementation of the training.

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RESULTS AND DISCUSSION

The results showed AI functions was not only as a technical aid but also as a cognitive organizational tool that helped students organizing their scientific thinking more coherently. This is in line with the view that AI-based technology can act as cognitive scaffolding in the academic writing learning process (Megasari et al., 2025).

Figure 1. First Day Traning

Figure 2. Second Day Traning

Furthermore, the questionnaire results revealed that the aspects most beneficial to students were the increased clarity of academic language and inter-paragraph cohesion. 85 % of students revealed that before using AI, they often struggled to logically connect ideas between chapters and paragraphs, after utilizing AI with specific prompts, most of students found it helpful in formulating idea transitions and simplifying overly long or ambiguous sentences. However, the questionnaire also indicated that these benefits were more noticeable among students who already had a basic understanding of scientific writing structure. Students with low academic literacy tended to accept AI output directly without critical evaluation, resulted no significant improvement in the quality of their writing. This finding corroborates the research of Fitriani et al. (2026), which emphasized that AI is only effective if used by students with adequate academic preparation.

Other results from interviews provided a more comprehensive picture of the dynamics of AI practice in scientific writing. Most students stated that AI helped them overcome psychological barriers to writing, such as fear of mistakes and confusion about starting a paper. 15 respondents mentioned that with the help of AI, they could produce initial drafts. This process provided a greater sense of control over their scientific writing and increased motivation to improve their writing. In this context, AI served as an initial trigger, encouraging students to be more actively involved in the writing process (Fitriani et al., 2026; Kumalasari et al., 2021; Masjudin et al., 2026).

However, interviews also revealed an opposition between the convenience offered by AI and the demands of academic integrity. 7 respondents acknowledged the demand to use AI output directly, especially when facing tight deadlines. Nevertheless, 18 respondents stated that they still made edits and adjustments to their writings, recognizing that AI did not fully understand the research context and theoretical framework. This awareness indicates that students begin to develop critical literacy regarding AI technology results, as suggested by Nuraini et al. (2025) in the context of the ethical use of AI in scientific papers.

The of prompt-based AI has a positive impact on the quality of scientific writing when accompanied by a process of ongoing reflection and evaluation (Urzúa et al., 2025). In this process, students learn to formulate sharper questions, clarify their writing goals, and reassess their arguments. Thus, AI does not only improve the final product, but also enriches the writing learning process itself.

From pedagogical perspective, these findings emphasize the importance of lecturers' direction in guiding the use of AI, without clear guidance, students have the potential to use AI mechanically and less critically (Indahyanti et al., 2025; Mursidin et al., 2022; Muthmainnah et al., 2024). Conversely, with proper guidance, AI can be a learning tool that encourages independence, reflection, and improved academic quality. The integration of AI in higher education needs to be accompanied by strengthening academic literacy and scientific writing ethics so that the technology truly functions as a learning aid.

CONCLUSION

The community service activity positively contributed to enhance the quality of seventh-semester students' scientific papers. Through guidance and targeted use of AI, students were able to compose scientific papers that were more systematic, coherent, and in line with academic guidelines. Thus, this community service activity confirms that the integration of AI-based prompts in scientific papers has significant potential as an innovation to support learning in higher education. For its benefit to be sustainable, educational institutions are required to provide guidelines, continued training, and more guidance from lecturers to ensure responsible use of AI.

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