



## Prompt Strategy for Optimal AI Results

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### ABSTRACT

*The rapid development of artificial intelligence (AI) technology requires users to have the ability to compose effective instructions or prompts so that the output produced meets their needs. However, many users, especially students, do not yet understand prompting strategies optimally. Therefore, this community service activity was carried out in the form of a webinar and workshop entitled "Prompt Strategies for Optimal AI Results." This activity aims to improve participants' understanding and skills in utilizing AI through prompting techniques such as Chain-of-Thought (CoT), Few-shot Prompting, Retrieval-Augmented Generation (RAG), ReAct, and Tree of Thoughts (ToT). The methods used in this activity included socialization, pre-testing, webinar material delivery, hands-on practice in the workshop session, post-testing, and evaluation through a feedback questionnaire. The evaluation results showed a significant increase in participants' understanding, marked by an increase in the average score from 78.06 in the pre-test to 100 in the post-test, or an increase of 28.1%. Additionally, participant satisfaction with the material, presenters, and activity implementation was very high. Thus, this activity proved effective in improving participants' literacy and competence in the optimal use of AI.*

Pesatnya perkembangan teknologi kecerdasan buatan (Artificial Intelligence/ AI) menuntut pengguna untuk memiliki kemampuan dalam menyusun instruksi atau prompt yang efektif agar output yang dihasilkan sesuai dengan kebutuhan. Namun, masih banyak pengguna, khususnya mahasiswa, yang belum memahami strategi prompting secara optimal. Oleh karena itu, kegiatan pengabdian kepada masyarakat ini dilaksanakan dalam bentuk Webinar dan Workshop dengan judul "Strategi Prompt untuk Hasil AI Optimal". Kegiatan ini bertujuan untuk meningkatkan pemahaman dan keterampilan peserta dalam memanfaatkan AI melalui teknik prompting seperti Chain-of-Thought (CoT), Few-shot Prompting, Retrieval-Augmented Generation (RAG), ReAct, dan Tree of Thoughts (ToT). Metode pelaksanaan kegiatan meliputi sosialisasi, pelaksanaan pre-test, penyampaian materi webinar, praktik langsung pada sesi workshop, post-test, serta evaluasi melalui kuesioner feedback. Hasil evaluasi menunjukkan adanya peningkatan pemahaman peserta yang signifikan, ditandai dengan peningkatan nilai rata-rata dari 78,06 pada pre-test menjadi 100 pada post-test, atau mengalami peningkatan sebesar 28,1%. Selain itu, tingkat kepuasan peserta terhadap materi, pemateri, dan pelaksanaan kegiatan tergolong sangat tinggi. Dengan demikian, kegiatan ini terbukti efektif dalam meningkatkan literasi dan kompetensi peserta dalam pemanfaatan AI secara optimal.

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## **A. INTRODUCTION**

The rapid advancement of information technology has driven the increased utilization of Artificial Intelligence (AI) across various sectors, including education, organizations, and digital content production. One of the most widely used forms of AI today is the Large Language Model (LLM), which is capable of generating text automatically based on instructions (prompts) provided by the user. However, the quality of the generated output is not solely determined by the AI model's capabilities but is significantly influenced by how the prompts are constructed. (Imam Haromain, 2025)

Although several studies have discussed prompt engineering and advanced techniques such as Chain-of-Thought, Few-shot Prompting, Retrieval-Augmented Generation (RAG), ReAct, and Tree-of-Thought, most of them remain theoretical or limited to academic contexts. There is still a lack of practical training activities that directly equip students and the wider community with hands-on skills in designing effective prompts. This gap highlights the need for community service programs that not only explain the concepts but also provide interactive practice to strengthen participants' competence in utilizing AI optimally.

Several studies in Indonesia indicate that the use of proper prompt engineering techniques can enhance the relevance, accuracy, and quality of results provided by AI systems. Imam Haromain (2025) states that prompt design strategies significantly affect the output quality of AI-based language models. Furthermore, prompting techniques have proven effective in supporting learning activities and the development of AI-based educational media (Butsiarah, 2025)

As the interaction patterns between users and AI systems evolve, several advanced prompting approaches have emerged, including few-shot prompting, Retrieval-Augmented Generation (RAG), Chain-of-Thought (CoT), Tree-of-Thought (ToT), and ReAct. These various approaches were developed to help improve contextual accuracy, reasoning quality, and the precision of results generated by AI systems. Consequently, the process of interacting with AI is no longer a simple task; it requires more directed and structured instruction design tailored to the intended purpose.

On the other hand, prompt engineering plays a role not only in technical aspects but also in communication and ethics regarding AI technology usage. (Chairunnisa Widya Priastuty, 2025) emphasizes that the ability to design effective prompts is a vital part of digital literacy in human-AI interaction. Therefore, mastering AI prompt strategies has become a relevant necessity to ensure that AI technology can be utilized optimally, effectively, and responsibly, particularly within the context of training and community service activities.

As a follow-up, the author and their team organized a Webinar and Workshop as part of a community service program focusing on enhancing understanding and skills in AI utilization, specifically through the application of AI prompt strategies. This activity was conducted to equip participants with the ability to design structured and targeted instructions so that AI technology can be utilized more optimally. Mastery of prompt strategies is essential because the quality of AI-generated results is heavily influenced by the precision and clarity



of the commands given. Through this training, participants are expected to utilize AI more effectively in both academic and non-academic activities.

According to Prehanto et al. (2021), a webinar is an online training medium developed from face-to-face seminars. Webinars serve as an online learning solution because they facilitate interaction between speakers and participants through visual and text media. Meanwhile, (Dian Rahadian, 2023) states that a workshop is a training activity that emphasizes the active involvement of participants through direct discussion and practice under the guidance of a facilitator, with the aim of increasing understanding and skills in a specific field.

Through these webinar and workshop activities, participants not only gain conceptual understanding but also engage in practical sessions to directly apply the material provided. This activity is expected to reflect the learning process and the participants' achievements in understanding the fundamentals of AI utilization strategies.

## **B. METHODS**

To realize the activities described previously, the author and the team have formulated a series of systematic steps. The implementation is divided into two phases: Community Education in the form of a Webinar and Training in the form of a Workshop. The process consists of the following stages:

### **1. Stage 1: Activity Socialization**

The team disseminates information regarding the event via social media. This involves sharing flyers and a registration link <https://forms.gle/tBUniDXcQ4DSxPfBA> These promotional materials are uploaded to various social platforms and distributed through broadcast messages in WhatsApp groups to ensure broad reach.

### **2. Stage 2: Preparation of activity materials**

The author and the team prepare the instructional content for both the Webinar and Workshop. This includes presentation slides (PPT) and supporting modules that will be distributed to participants. These materials serve as the primary resource used by speakers during the sessions.

### **3. Stage 3: Pre-Test Administration**

Before the activity begins, participants are asked to complete a pre-test via the link <https://forms.gle/tBUniDXcQ4DSxPfBA> This pre-test contains questions related to the webinar and workshop material. This initial test is designed to determine the participants' initial level of understanding before the activity begins. Subsequently, the pre-test results will be compared with the post-test results, which will be conducted after the entire series of activities has been completed.

### **4. Stage 4: Community Education (Webinar)**

In this session, the team delivers introductory material on Artificial Intelligence, covering its definition, mechanisms, and applications. This is followed by a focused discussion on prompt engineering techniques, including: Few-shot Prompting, Retrieval-Augmented Generation (RAG), Chain-of-Thought (CoT), Tree-of-Thought (ToT), ReAct The goal is to provide participants with a foundational understanding of systematic prompt design and its practical examples.



5. Stage 5: Training Through Workshops

The workshop serves as the practical implementation of the webinar theories. It focuses on hands-on practice using the five specific prompt strategies mentioned above. Participants receive a brief explanation of the workflow for each technique before applying them to prepared case studies. This allows participants to directly observe the differences in workflow and output quality generated by each approach.

6. Stage 6: Feedback and Post-Test Completion by Participants

At the conclusion of the program, participants provide feedback to evaluate the speakers' delivery and the overall quality of the event. They also complete a post-test via <https://forms.gle/uRaJ3sGMgbaSyyPL6>. The results are compared with the pre-test scores to evaluate the effectiveness of the training and the participants' improvement in understanding the subject matter.

### C. RESULTS AND DISCUSSION

The Webinar and Workshop activities were organized by students of the Informatics Engineering Study Program, Faculty of Engineering, Universitas Muhammadiyah Jakarta. The event was conducted virtually via Zoom Meeting on Thursday, January 8, 2026, from 1:00 PM to 4:00 PM WIB (Western Indonesia Time), accessible through the link <https://s.umj.ac.id/FTUMJ-02>. A total of 49 participants from various institutions attended the event, the majority of whom were students from the Informatics Engineering Study Program at Universitas Muhammadiyah Jakarta. Throughout the session, an interactive Question and Answer (Q&A) session was provided to facilitate discussion. The schedule for the Webinar and Workshop is presented as follows:

#### 1.1 Activity Socialization

During the initial phase of implementation, the organizing team disseminated information to the general public through various social media platforms as part of the publication and participant recruitment efforts. The activity information was delivered in the form of a pre-designed digital flyer, as shown in Figure 1. This approach aimed to generate interest and maximize public participation in the upcoming event.



Picture 1 event flyer

## 1.2 Preparation of activity materials

At this stage, the presenter delivers webinar material in the form of a systematic presentation on prompting strategies to generate optimal AI output, covering definitions, principles, techniques, and examples of their application. Next, participants practice directly composing prompts, analyzing AI results, and refining prompts to make them more accurate and relevant.



Picture 2 Webinar Activity Materials

The webinar material discusses AI prompting strategies to generate optimal output, starting with an introduction to basic AI concepts, the importance of clear prompt composition, and techniques such as Chain of Thought, Few-Shot Prompting, Retrieval-Augmented Generation, ReAct, and Tree of Thoughts, complete with effective prompting tips to ensure results meet user needs.

```
you give me my own question or create a test case you want

import ollama

# Note: Ensure you have pulled the model first: ollama pull gemini:2b
response = ollama.chat(
    model='gemini:2b',
    messages=[
        {"role": "system", "content": "You are my assistant."},
        {"role": "user", "content": "All squares are rectangles, is every square a rectangle? and can you think why?"},
    ],
    stream=False # Set to True for real-time word-by-word output
)

print(response['message'])

Okay, let's break this down.

**All squares are rectangles**

Yes, absolutely. That's a fundamental truth in geometry. A rectangle is a special type of quadrilateral (a four-sided shape) with specific properties:

* It has four right angles (90-degree angles).
* Opposite sides are equal in length.

A square "always" has four right angles and four equal sides. Therefore, it's a perfect example of a rectangle.

**Can you think why??**

It's a logical consequence of definitions. Here's why:

1. **Definition of Square:** A square is defined as a quadrilateral where all sides are equal.
2. **Definition of Rectangle:** A rectangle is a quadrilateral with four right angles.
3. **Therefore:** If something is a square, it "must" also be a rectangle.

**In short, the relationship is symmetrical and based on established definitions.**

Do you want me to elaborate on any part of this, perhaps relating it to a specific example?
```

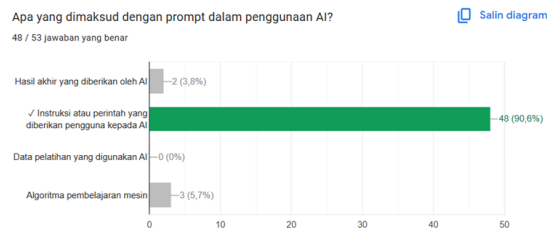
Picture 3 Workshop materials

The workshop session focused on the hands-on practice of AI prompt writing using five main techniques, namely Chain-of-Thought (CoT), Few-shot Prompting, Retrieval-Augmented Generation (RAG), ReAct, and Tree of Thoughts (ToT). Participants practice each technique step by step with the support of Jupyter Notebook and local AI models to understand how to improve reasoning, contextual relevance, interactivity, and the quality of AI output in solving various problems.

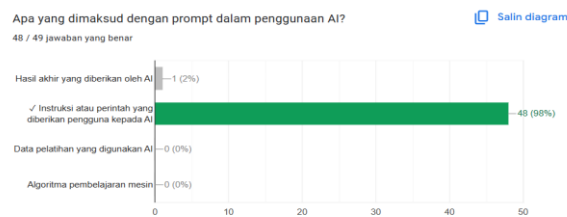
## 1.3 Pre-Test and Post-Test Completion by Participants

At the initial stage of the activity, the implementation team administered a pre-test to participants to measure their initial understanding of the basic concepts of prompt strategy development and AI utilization. Forty-nine participants took the pre-test. The results showed that most participants already had a basic understanding, but still needed to deepen their knowledge in order to apply the prompt strategy more optimally.

**Pre Test**



**Post Test**



Picture 4 Pre-test and Post-test results from questions Prompt dalam on the use of AI

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 9.5%. After the same questions were asked at the end of the event (post-test), it was clear that all participants understood and were able to answer correctly.

**Pre Test**



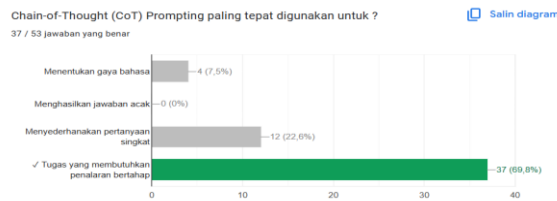
**Post Test**



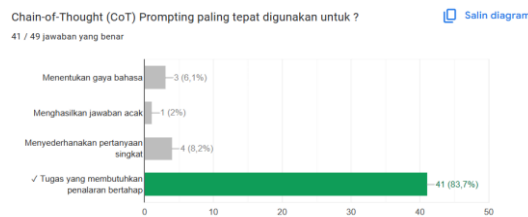
Picture 5 Results of the Pre-test and Post-test of the Large Language Model questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 8.1%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

**Pre Test**



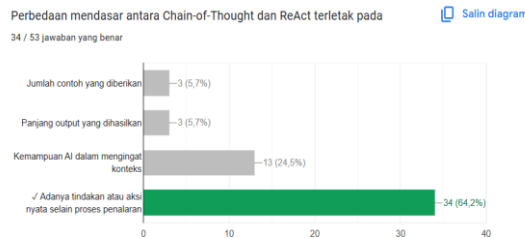
**Post Test**



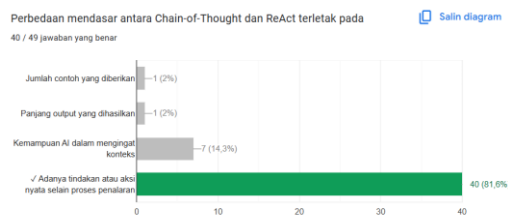
Picture 6 Results of the Pre-test and Post-test of the Prompting Chain-of-Thought Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 30.1%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

**Pre Test**



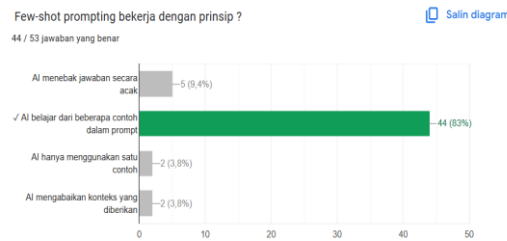
**Post Test**



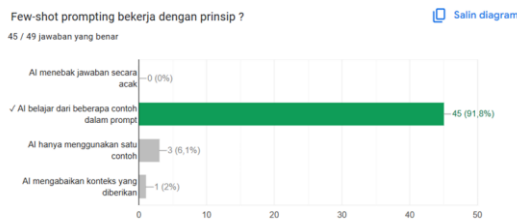
Picture 7 Pre-test and Post-test Results of Chain-of-Thought Difference Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 35.9%. After the same questions were asked at the end of the event (post-test), it was seen that all participants understood and were able to answer correctly.

**Pre Test**



**Post Test**



Picture 8 Results of the Pre-test and Post-test of Few-Shot Principle Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 17%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

**Pre Test**



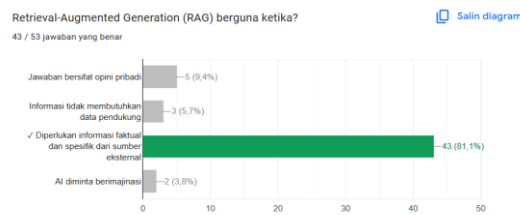
**Post Test**



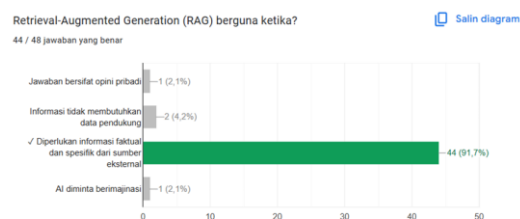
Picture 9 Results of the Pre-test and Post-test of Few-Shot Sample Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 18.9%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

**Pre Test**



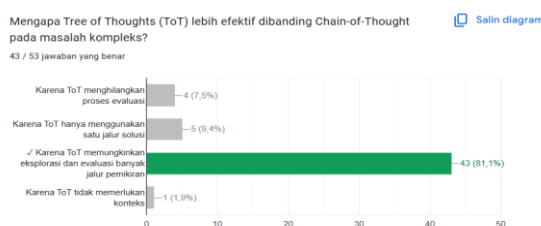
**Post Test**



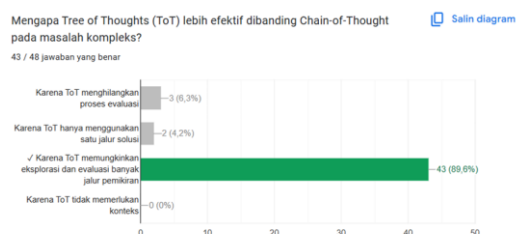
Picture 10 Results of the Pre-test and Post-test of Retrieval-Augmented Generation Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 18.9%. After the same questions were asked at the end of the event (post-test), it was seen that all participants understood and were able to answer correctly.

**Pre Test**



**Post Test**



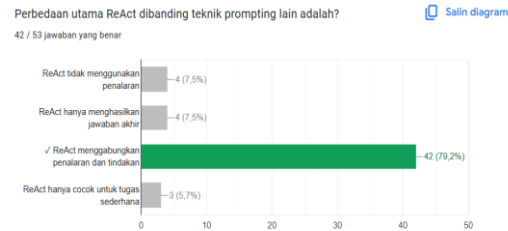
Picture 11 Pre-test and Post-test Results of Effective Prompting Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know

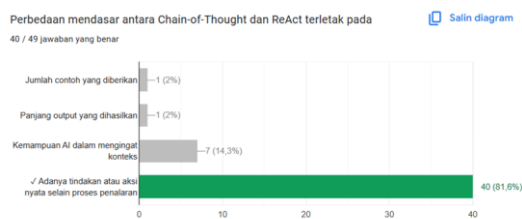


the answers, around 18.8%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

### Pre Test



### Post Test



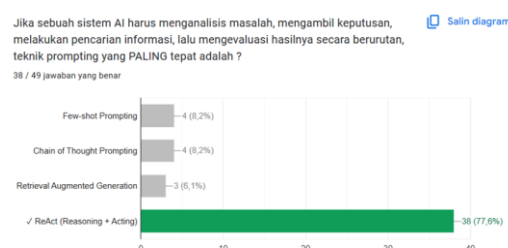
Picture 12 Pre-test and Post-test Results of Prompting Technique Differences Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know the answers, around 20.7%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

### Pre Test



### Post Test



Picture 13 Pre-test and Post-test Results from AI Results Analysis Questions

Participants' understanding of the questions asked. In the pre-test, which was a questionnaire given before the event began, there were still participants who did not know



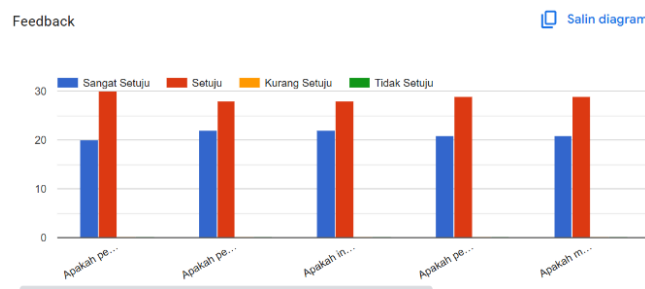
the answers, around 41.5%. After the same questions were asked at the end of the event (post-test), it was evident that all participants understood and were able to answer correctly.

#### 1.4 Feedback Submission by Participants

In this stage, participants were requested to complete the attendance record, post-test, and feedback through a single integrated Google Form. To measure participant responses in the feedback section, a Likert scale was employed as the assessment tool. The Likert scale is a rating system consisting of several options that indicate the participants' level of agreement with the statements provided. This questionnaire utilized four assessment categories: (4) Strongly Agree, (3) Agree, (2) Disagree, and (1) Strongly Disagree. The list of questionnaire items is as follows:

1. Was the explanation of the webinar and workshop material clear and easy to understand?
2. Did the webinar speaker demonstrate a strong mastery of the topics presented?
3. Did the workshop instructor possess expertise relevant to the topics discussed?
4. Was the delivery of the webinar material clear and comprehensible?
5. Was the material in the workshop session explained in an effective manner?
6. How would you rate the quality of the connection, audio, and visuals during the online session?
7. Was the online administrative system (registration/attendance) practical and user-friendly?
8. Overall, how satisfied are you with this series of activities?

In each Webinar and Workshop session, participants were very enthusiastic about the presentations delivered by the speakers. This was evident from the feedback questionnaire forms that were distributed to participants at the end of each session. In these feedback questionnaire forms, the average response to the statements given to participants indicated satisfaction with the material presented.



Picture 14 Participant Feedback Results

## D. CONCLUSION

Based on the results of the Webinar and Workshop “Prompt Strategies for Optimal AI Results” on January 8, 2026, via Zoom conference from 1:00 p.m. to 4:00 p.m. WIB, it can be concluded that the event ran smoothly and successfully. The event was attended by 49 enthusiastic participants who were eager to learn about prompt strategy and the application of artificial intelligence techniques. Participant feedback indicated a high level of satisfaction with the delivery of the material and the methods used, while the post-test results showed an



increase in participants' understanding and ability to apply few-shot prompting, Retrieval-Augmented Generation, Chain-of-Thought, Tree-of-Thought, and ReAct techniques. It is hoped that similar activities will continue to be held in the future to improve participants' competence in effectively using artificial intelligence prompt strategies.

#### **E. ACKNOWLEDGEMENTS**

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#### **F. AUTHOR CONTRIBUTIONS**

In the webinar and workshop themed "Prompt Strategies for Optimal AI Results," each team member had clear contributions and responsibilities to ensure the smooth execution of the activities and the preparation of the scientific article. Alya Rahmah Azzahra served as the project leader, moderator, and person in charge of Instagram content for @informatika\_kkn4. Idelia Fitri Kyla handled the design of flyers and posters. Naula Nabilla contributed to developing the presentation for the implementation of the five prompting techniques in the workshop session. Azril created the feedback forms and participant certificates. Adrian Rivaldy delivered the material on AI and the five prompting techniques and prepared the webinar presentation. All team members collaborated on the preparation of the report, journal, and learning modules. Poppy Meilina, as the supervising lecturer, provided guidance, supervision, and support to ensure the entire series of activities and the publication of the article proceeded smoothly. This team collaboration ensured the success of the activities and the quality of the resulting publication.

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