

## FROM ENTHUSIASM TO INITIAL INTEGRATION: EDUCATORS' PERCEPTIONS AND PROMPT-DESIGN SKILLS IN USING CHATGPT FOR TEACHING

**Bakhrul Rizky KURNIAWAN**

ORCID: 0000-0003-1765-3537  
Graduate Institute of Science Education  
National Taiwan Normal University  
Taipei, TAIWAN

**Dadan SUMARDANI**

ORCID: 0000-0001-5367-6096  
Graduate Institute of Science Education  
National Taiwan Normal University  
Taipei, TAIWAN

**Dr. Chi-Jung SUI**

ORCID: 0000-0003-4559-0641  
Department of Learning and Materials Design  
University of Taipei  
Taipei, TAIWAN

**Dr. Chun-Yen CHANG**

ORCID: 0000-0003-2373-2004  
Graduate Institute of Science Education  
National Taiwan Normal University  
Taipei, TAIWAN

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### ABSTRACT

The integration of artificial intelligence (AI) tools like ChatGPT into education presents significant opportunities to foster interactive and student-centered learning. This study surveyed 61 educators during an online AI workshop to examine their baseline prompt-design skills, explore their perceptions of student use of ChatGPT, and identify associated challenges and strategic opportunities. Importantly, the six-element prompt design framework was deliberately shared only after data collection, ensuring that the study captured prompt-design abilities at a true baseline without prior intervention, which constitutes a novel contribution of this research. Findings reveal that although most educators expressed enthusiasm for ChatGPT's potential, there was notable variability in their ability to design effective prompts. Specifically, over 77% of the initial prompts were vague and lacked essential elements such as context, role, or format, indicating a substantial gap in prompt-engineering competence. Some respondents faced difficulties in crafting contextual and specific prompts, while others demonstrated creative uses of ChatGPT to inspire classroom activities and support student discussions. Additionally, ethical concerns, such as plagiarism, overreliance, and the reliability of ChatGPT-generated answers, emerged as critical issues. The study highlights the urgent need for targeted digital literacy training, prompt-design strategies, and institutional policies that promote the ethical and pedagogically sound use of ChatGPT in both physical and online classrooms. These findings

provide a unique and timely foundation for guiding AI adoption in education by underscoring the necessity of equipping educators with tailored digital literacy training and clear ethical guidelines, which are critical for fostering innovative, responsible, and context-sensitive teaching practices.

**Keywords:** ChatGPT, digital literacy, AI-based education, educator skills, prompt design.

## INTRODUCTION

In the era of digital disruption, global education is undergoing a major transformation fueled by rapid advancements in artificial intelligence (AI) technology. AI has become an essential instrument in various aspects of life, including education (Nikolic et al., 2024). Its role now extends beyond automating administrative tasks to serving as a catalyst for pedagogical innovation, enhancing the effectiveness and efficiency of learning while opening new avenues for deeper educational practice (Owan et al., 2023). For example, an AI tutor like ChatGPT can clarify a common student misconception in mathematics, such as misunderstanding the concept of vector subtraction, by guiding learners through the correct procedure.

However, implementing AI in education faces significant challenges. Limited digital literacy among educators and insufficient training are major barriers to effectively integrating this technology into teaching and learning processes (Halaweh, 2023). Many teachers express concerns about AI's impact on student creativity and the ability to personalize instruction (Wilkinson et al., 2024). Additionally, ethical issues such as plagiarism arise, with students potentially using AI to complete assignments without engaging in critical thinking or proper attribution, which could undermine learning quality (Wang et al., 2023). In distance education settings, these issues become even more salient. Educators often face limitations in maintaining continuous interaction with students, making it difficult to provide timely feedback or individualized support (Hentea et al., 2003). In such contexts, ChatGPT can serve as a virtual learning companion, supporting students outside of live sessions, answering questions on demand, and helping clarify complex concepts when direct teacher interaction is unavailable. For this reason, understanding how educators perceive and utilize tools like ChatGPT is critical for optimizing their potential in online and remote learning environments.

As ChatGPT adoption grows in education, it becomes crucial to understand how educators, including teachers, pre-service educators, education practitioners, and lecturers, perceive and utilize this technology in the learning process. However, to date, few studies have empirically documented educators' experiences with tools like ChatGPT or their perspectives on students' use of AI, especially in developing countries, which represents a notable research gap. Additionally, educators' skills in crafting effective prompts are key to maximizing the benefits of ChatGPT in fostering more meaningful learning. In the context of distance education, prompt quality becomes even more essential as students often rely on asynchronous interactions and AI-generated responses to support their independent study. Thus, to address this gap, this study aims to explore three key aspects: educators' initial experience and skills in prompt design and their perceptions of students' use of ChatGPT.

## GenAI Chatbot in Learning

One of the increasingly prominent AI technologies in education is ChatGPT. Developed by OpenAI, ChatGPT demonstrates significant potential in processing natural language and providing relevant responses based on user input (Halaweh, 2023). In the educational context, ChatGPT can assist teachers in designing instructional materials (Chan, 2024; Nikolic et al., 2024), conducting assessments (Chan, 2024; Li et al., 2024; Nikolic et al., 2024), and offering real-time feedback to students (Li et al., 2024; Weng et al., 2024). Its revolutionary potential lies not only in generating automated text but also in supporting more independent and personalized learning experiences (Vasconcelos & Santos, 2023). Supporting this, a survey conducted among Estonian K–12 teachers found that although many had limited (47%) or fair (35%) knowledge about AI, and 44% were unsure if they had ever used AI-enhanced educational applications, they still expressed generally positive attitudes toward the use of AI in education (Chounta et al., 2022). This illustrates a growing openness among educators globally, even those with limited prior exposure, to embracing AI as a tool for educational advancement.

Despite these challenges, when used appropriately, ChatGPT and other AI technologies can significantly enrich learning experiences. AI can reduce teachers' administrative workload, enabling more meaningful interactions with students and a focus on developing analytical and critical thinking skills (Furze et al., 2024; Nikolic et al., 2024). Moreover, AI provides opportunities for educators to implement more diverse and tailored teaching methods to meet individual student needs (Wilkinson et al., 2024). However, the ethical and pedagogical challenges, such as maintaining academic integrity and fostering critical thinking skills, demand careful attention (Mohamed et al., 2022). The increasing attention on AI use in education has led experts to suggest that instead of rejecting this technology, educators should adopt an ethical approach to its integration (Rudolph et al., 2023). Such an approach allows AI to serve not only as a tool for automating routine processes but also as a catalyst for developing 21st-century skills, including creativity, problem-solving, and collaboration. However, effective AI implementation requires higher digital literacy among educators, continuous professional development (PD), and a robust ethical framework to prevent technology misuse.

## Prompt Engineering in Education

Prompt engineering is the strategic crafting of user inputs to guide AI systems like ChatGPT in producing relevant and high-quality responses. In educational contexts, it allows teachers to leverage AI for lesson planning, assessment development, and student engagement (Henrickson & Merono-Penuela, 2023; Lee et al., 2024). A key component introduced in the training session was the ChatGPT prompt framework, which includes six elements: task, context, example, persona, format, and tone (Atlas, 2023).

The task defines the specific function, such as writing a lesson plan. The context provides background details including user roles and target audience, helping AI tailor its response. The example clarifies expectations through sample inputs or desired output features. The persona instructs the AI to adopt a specific role, such as a teacher or content creator. The format and tone ensure that outputs align with specific structural and stylistic goals. Together, these elements help educators create precise prompts that yield meaningful results. For instance, a prompt that integrates all these elements could be: "You are an experienced high school science teacher. Create a one-page, engaging, and age-appropriate handout for tenth-grade students introducing Newton's First Law. Include three real-life examples and ensure the explanation is clear and relatable. The tone should be friendly and supportive." This prompt sets a clear task, provides context and audience, includes examples, defines the persona, specifies the format (handout), and requests a particular tone.

Effective prompt engineering enhances human-AI collaboration by enabling iterative refinement of outputs for instructional purposes (Javaid et al., 2023; Lee et al., 2024). However, poorly designed prompts can lead to vague or even ethically problematic responses (Wang et al., 2023). Educators also face challenges due to limited experience with AI, difficulties in structuring prompts, and concerns over integrating AI into traditional pedagogy (Elbanna & Armstrong, 2024; Singh & Pathania, 2024). Additional risks include over-reliance on AI and the potential spread of biased or inaccurate information. Addressing these issues requires targeted training that builds educators' understanding of AI's capabilities and limitations, supported by hands-on practice and peer collaboration (Lyanda et al., 2024; Nikolic et al., 2024). Training should emphasize that AI complements rather than replaces teachers. Prompt engineering, when applied effectively, empowers educators to integrate AI in ways that enhance personalized learning, instructional design, and student engagement, without compromising pedagogical integrity.

## PURPOSE OF THE STUDY

This study aims to provide actionable insights into overcoming barriers to effective ChatGPT integration and identifying best practices for leveraging its potential to enhance learning experiences. The research questions guiding this study are:

1. How do educators' prior experiences with ChatGPT influence their understanding of its potential benefits and risks in educational settings?
2. How do educators design effective prompts for ChatGPT in teaching material development?
3. What are educators' perceptions regarding the use of ChatGPT by students in the classroom, and what factors contribute to their support, opposition, or uncertainty?

## METHOD

This study was a collaborative effort between a regional educational movement, a university in East Java, and an institute in northern Taiwan. It was implemented through an online workshop consisting of two 90-minute sessions targeting educators.

The first session introduced the fundamentals of teaching material development, including definitions, essential criteria, and common challenges. A major issue discussed was student misconceptions, pre-existing, incorrect beliefs that hinder conceptual understanding. For example, many students incorrectly perceive vector subtraction as simple numerical difference, disregarding directional changes (Kurniawan et al., 2019). Such misconceptions, if unaddressed, limit students' ability to solve complex problems and reflect a tendency toward rote learning rather than deep comprehension (Kurniawan & Taqwa, 2018; Nur'aini et al., 2020). Other challenges include low student motivation, particularly in physics, often viewed as abstract and difficult (Sholikah et al., 2020), and the difficulty of designing assessments that accurately measure conceptual understanding. While integrating technology can enrich learning, limited training and resources often hinder effective implementation. These issues highlight the need for continuous teacher support and professional development, especially amid the growing role of AI in education.

The second session focused on the application of artificial intelligence (AI) in developing teaching materials. AI offers transformative potential in education by automating routine tasks, such as generating study guides, summarizing readings, composing instructional texts, and producing visual aids (Rudik & Onyshchuk, 2024). Teachers can use AI to generate diverse representations of scientific concepts, such as analogies, diagrams, or real-world scenarios, tailored to different learning styles (Levine et al., 2024). AI tools also enable rapid prototyping of lesson plans, quizzes, or interactive activities, freeing up teachers' time for personalization and deeper student engagement (Fitria, 2021; Ng et al., 2023). Moreover, AI can support reflective teaching by offering suggestions to improve clarity, coherence, and inclusiveness in materials. It can adapt content to specific age groups, curriculum standards, or language levels, making it a powerful tool for inclusive and differentiated instruction.

Crucially, the effectiveness of AI in education depends on how prompts are constructed. A prompt is a user instruction that guides the AI in generating desired output (Atlas, 2023; Lee et al., 2024). To measure educators' baseline skills in prompt design without external intervention, the six-element prompt engineering framework was intentionally introduced only after initial data collection through surveys. Well-crafted prompts that specify the task, audience, format, and tone significantly improve the quality of AI-generated responses. For example, a general prompt like *"Write an essay on the importance of education"* may yield vague results. In contrast, a structured prompt such as *"Act as a high school teacher. Write a persuasive one-page essay explaining to tenth-grade students why STEM education is crucial in the 21st century, using relatable examples and a motivational tone"* produces a more targeted and pedagogically valuable output. It should be acknowledged that this study primarily focused on initial mapping of educators' perceptions and prompt-design skills, rather than evaluating the effectiveness of the training itself. A follow-up study is planned to reassess educators' skills after they have applied the prompt engineering framework more extensively, aiming to examine deeper implementation and practical impacts.

## Participants

In 2024, we conducted a workshop titled "Kreasi Prompt ChatGPT untuk Penyusunan Modul Ajar" (Creating ChatGPT Prompts for Teaching Module Development), aimed at educators in Indonesia. The participants included teachers, pre-service teachers, education practitioners, and lecturers. This professional development activity was voluntary and conducted online. Recruitment involved promoting the event through posters shared on social media platforms.

The workshop utilized Zoom Meeting, with interested participants required to register to receive the meeting link. The online format enabled participation from various regions across Indonesia, including Sumatra, Java, Bali, Nusa Tenggara, Sulawesi, and Kalimantan, representing diverse educational contexts. A total of 88 participants attended the workshop, of whom 61 completed the survey. The survey respondents consisted of 57 teachers, one pre-service teacher, one education practitioner, and two lecturers (Table 1).

**Table 1.** Demographic information of survey participants

Demographic Information	N	Percentage (%)
<b>Gender</b>		
Male	29	47.54
Female	32	52.46
<b>Age</b>		
18 – 24 years	2	3.28
25 – 34 years	15	24.59
35 – 44 years	21	34.43
45 – 54 years	14	22.95
55 – 64 years	9	14.75
<b>Educational background</b>		
Bachelor	48	78.69
Master	12	19.67
Doctor	1	1.64
<b>Teaching experience</b>		
< 5 years	15	24.59
5 – 10 years	10	16.39
11 – 20 years	22	36.07
> 20 years	14	22.95

### Data Collection and Analysis

During the workshop, five questions were administered to assess teachers' skills in crafting prompts and their perceptions of ChatGPT's role in education. These questions were developed by the first author and underwent rigorous validation by two experts: a doctoral candidate in education and a professor specializing in educational research. Participants provided their responses at the end of the first session.

The first question, "*Have you ever used ChatGPT before?*", aimed to explore participants' prior knowledge of ChatGPT (Hosseini et al., 2023). The second question, "*Create a prompt you could use to assist in developing a teaching module.*", evaluated participants' ability to craft clear, specific, and goal-oriented prompts that could generate meaningful outputs from ChatGPT (Koubaa et al., 2023). The third question, "*Do you think students should be allowed to use ChatGPT in class?*", examined participants' opinions on the appropriateness of ChatGPT in classroom settings. The fourth question, "*Provide your reasoning regarding the use of ChatGPT by students in class.*", sought to understand participants' justifications for supporting or opposing ChatGPT integration in student learning. The fifth question, "*What do you think are the potential uses of ChatGPT by students?*", aimed to identify possible applications of ChatGPT in education, including its benefits and challenges (Nazir & Wang, 2023; Wang et al., 2023; Zhou et al., 2023).

This approach is essential for ensuring the thoughtful and responsible integration of AI into educational practice. By examining both educators' skills in utilizing ChatGPT and their perceptions of its role in classrooms, this study underscores the importance of equipping educators with the necessary competencies and insights to maximize AI's positive impact on teaching and learning.

The data collected through the five questions during the workshop were analyzed using both qualitative and quantitative approaches. Each question aimed to explore educators' skills in designing prompts and their perceptions of ChatGPT's use by students, as well as to identify challenges and uncover strategic opportunities for enhancing interactive, dynamic, and student-centered learning. The first question, "*Have you ever used ChatGPT before?*", was analyzed quantitatively by calculating the number of participants who had and had not used ChatGPT, providing an overview of their initial experience with this technology, which is crucial for understanding their context and comprehension of ChatGPT's role in education (Hosseini et al., 2023).

The second question, “*Create a prompt you could use to assist in developing a teaching module*”, was analyzed qualitatively using a framework comprising the following elements: Task (the specific task described in the prompt), Context (the situational background provided), Example (examples included in the prompt), Persona (roles or characters invoked in the prompt), Format (the desired output format), and Tone (the communication style or tone specified). To ensure the reliability of coding, two independent researchers were involved in the qualitative analysis. They applied the framework to categorize and code the data, then compared their results, resolving discrepancies through discussion and consensus to ensure consistent interpretation. This process identified how participants crafted prompts suitable for their teaching contexts and how effectively they applied the principles of designing specific, goal-oriented prompts to produce meaningful ChatGPT outputs (Koubaa et al., 2023; Nazir & Wang, 2023; Zhou et al., 2023). To examine differences in prompt design skills based on prior experience with ChatGPT, a Mann–Whitney U test was performed. This non-parametric statistical test was selected due to the non-normal distribution of the data, as confirmed by the Shapiro–Wilk test. This analysis aimed to determine whether educators with previous ChatGPT experience differed significantly in the number of key prompt elements they included, compared to those without such experience.

The third question, “*Do you think students should be allowed to use ChatGPT in class?*”, was analyzed by categorizing responses into three main groups: those who agreed, were uncertain, or disagreed with students’ use of ChatGPT in classrooms, offering insights into participants’ general views on technology adoption in education and their support for AI integration in teaching and learning. The fourth question, “*Provide your reasoning regarding the use of ChatGPT by students in class*”, was analyzed thematically to identify the reasons cited by participants for supporting or opposing ChatGPT use, focusing on key factors such as benefits like enhancing creativity and expediting learning, and challenges like plagiarism, dependency on AI, and inaccuracies in information (Koubaa et al., 2023; Nazir & Wang, 2023). The fifth question, “*What do you think are the potential uses of ChatGPT by students?*”, was analyzed by identifying positive themes mentioned by participants, such as ChatGPT’s use for personalizing learning, fostering creative exploration, and supporting interactive learning (Koubaa et al., 2023; Nazir & Wang, 2023; Wang et al., 2023; Zhou et al., 2023).

Analysis of Question 1 and 5 addresses RQ1 by exploring how educators’ prior experiences with ChatGPT influence their perceptions of its benefits and risks in educational settings. Question 2 directly informs RQ2 concerning educators’ skills in prompt design. Meanwhile, Questions 3 and 4 together address RQ3 by examining educators’ perceptions regarding the use of ChatGPT by students and the factors that contribute to their support, opposition, or uncertainty about its implementation.

## FINDINGS

This section presents the findings of the study on educators’ perceptions regarding the use of ChatGPT in learning. The findings are divided into three main areas: (1) educators’ experience and perceptions of ChatGPT’s potential, (2) educators’ skills in prompt engineering, and (3) educators’ perceptions of ChatGPT usage by students. Each section provides critical insights into educators’ views and practices in integrating ChatGPT into the teaching and learning process.

### **RQ1. How do Educators’ Prior Experiences with Chatgpt Influence their Understanding of its Potential Benefits and Risks in Educational Settings?**

This section outlines participants’ initial experiences with ChatGPT. Of the total respondents, 67.21% (41 educators) had prior experience using ChatGPT, while 32.79% (20 educators) did not. Educators with prior experience provided more specific insights, highlighting ChatGPT’s potential for facilitating task completion (34.15%), helping students grasp complex concepts (14.63%), and supporting independent learning and creativity (17.07%). However, 17.07% gave unclear or ambiguous responses, such as simply stating “useful” or referencing school policies barriers like gadget bans. Concerns raised included overreliance on technology (4.88%) and diminished critical thinking skills (12.20%).

In contrast, educators without experience offered more generalized views, largely assumption based. They emphasized ChatGPT’s role in promoting independent learning (30.00%), enhancing literacy and intellectual skills (20.00%), and aiding task completion (15.00%). However, 35.00% gave unclear answers or cited institutional restrictions. Notably, this group did not mention risks like diminished critical thinking or tech overdependence, likely due to unfamiliarity with the tool.

As summarized in Table 2, educators with experience showed a deeper understanding of ChatGPT’s benefits and challenges, whereas those without experience tended to focus on assumptions and external limitations. This suggests a need for targeted exposure and training to foster more informed perspectives and address institutional constraints.

**Table 2.** Summary of Educators’ Initial Perceptions of ChatGPT Potential Use for Students

No.	ChatGPT Potential Use for Students	Educators with Prior Experience (%)	Educators without Prior Experience (%)
1.	Facilitating task completion	34.15	15.00
2.	Helping understand complex concepts	14.63	-
3.	Supporting independent learning and creativity	17.07	30.00
4.	Enhancing literacy and intellectual skills	-	20.00
5.	Concern: Overreliance on technology	4.88	-
6.	Concern: Weakening critical thinking	12.20	-
7.	Unclear responses or external complaints	17.07	35.00

## Rq2. How do Educators Design Effective Prompts for Chatgpt in Teaching Material Development?

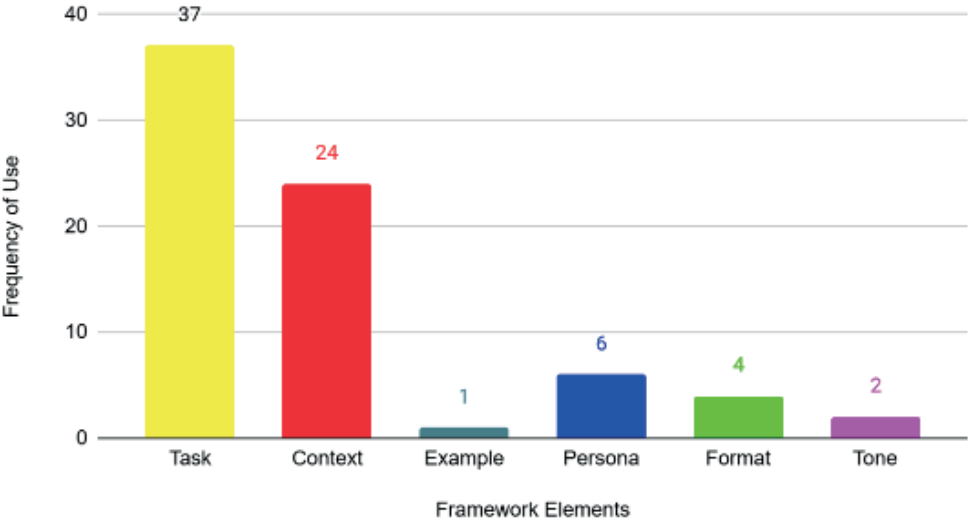
This section examines participants’ ability to design prompts using a framework comprising six elements: Task, Context, Example, Persona, Format, and Tone. Most participants used only a few elements. Specifically, 31.15% (19 participants) used none, while 29.51% used one or two elements. Only a small number used three (6.56%) or four (3.28%) elements, and none used all six (see Table 3).

**Table 3.** Distribution of Participants Based on Number of Framework Elements Used

Number of Framework Elements Used	Participants (N)	Percentage (%)
None	19	31.15
One	18	29.51
Two	18	29.51
Three	4	6.56
Four	2	3.28
Five	0	0.00
Six	0	0.00

Among individual elements, Task was the most commonly used (37 times), followed by Context (24), Persona (6), and Format (4). Example and Tone were rarely used (once and twice, respectively). Only 22.95% of the prompts demonstrated high clarity and specificity. These included detailed instructional requests, such

as creating modules tailored to specific topics, student levels, and teaching methods. In contrast, 77.05% of the prompts were vague, lacking essential details such as objectives, context, or format, for example, prompts like “Teaching Module” or “I am a science teacher” (see Fig 1).



**Figure 1.** Frequency of Framework Elements Usage

A Mann–Whitney U test was performed to determine whether prior experience with ChatGPT significantly affected the number of framework elements educators incorporated into their prompts. Prior normality testing using Shapiro–Wilk showed that data from both groups were not normally distributed. The group of participants who had used ChatGPT had  $p < .001$ , while the group who had not used it had  $p = .002$ . Therefore, a non-parametric test was appropriate. The Mann–Whitney U test (see Table 4) revealed no statistically significant difference between participants with prior ChatGPT experience and those without ( $U = 312.50$ ,  $Z = -1.563$ ,  $p = .118$ ). Nevertheless, educators who had prior experience using ChatGPT demonstrated a higher mean rank (33.38 vs. 26.13), suggesting a trend toward using more prompt elements, although this difference did not reach statistical significance.

**Table 4.** Mann-Whitney U Test Results

Group	N	Mean Rank	Sum of Ranks
Not Used	20	26.13	522.50
Used	41	33.38	1368.50

Test Statistic	Value
Mann-Whitney U	312.500
Wilcoxon W	522.500
Z	-1.563
Asymp. Sig. (2-tailed)	0.118

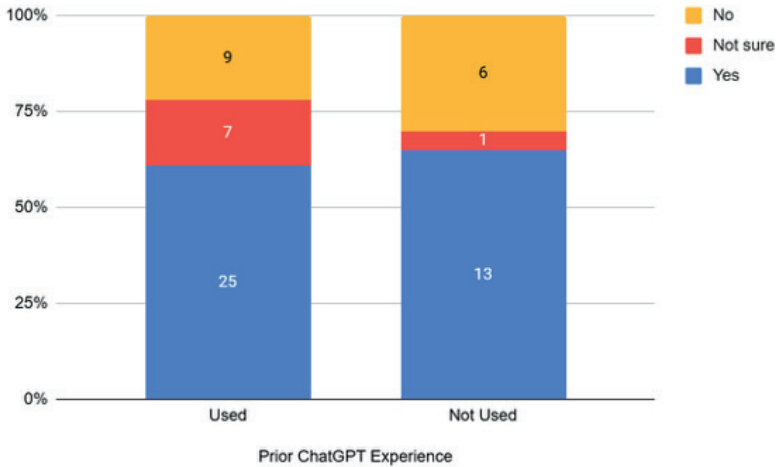
Key challenges included unfamiliarity with the framework, difficulty articulating clear instructions, and limited experience with ChatGPT. These findings suggest the need for targeted training in prompt engineering to help educators maximize ChatGPT’s potential in instructional design.

**Rq3. What are Educators’ Perceptions Regarding the Use of Chatgpt by Students in The Classroom, and what Factors Contribute to their Support, Opposition, or Uncertainty?**

This section summarizes participants’ views on students using ChatGPT in the classroom. Quantitative data shows that the majority (62.30%; 38 participants) were supportive, while 24.59% (15 participants) were unsupportive, and 13.11% (8 participants) were unsure (see Table 5). When analyzed based on prior ChatGPT experience (See Figure 2), 64.4% of educators who had previously used ChatGPT supported student use, compared to 59.1% of educators without prior experience. Meanwhile, uncertainty was higher among experienced users (15.6%) compared to non-experienced users (4.5%). Opposition was slightly higher among those without prior experience (27.3%) compared to experienced educators (20.0%). This suggests that while overall support is relatively high regardless of prior experience, prior familiarity with ChatGPT may correlate with greater openness and more nuanced views about its classroom integration.

**Table 5.** Educators’ Support, Opposition, or Uncertainty toward Student Use of ChatGPT (with Reasons)

Category	Number of Participants	Percentage (%)	Qualitative Reasons (count)	Percentage (%)
Supportive	38	62.30	Grasp material quickly (10)	22.22
			Facilitate task completion (8)	17.78
			Introduce modern technology (7)	15.56
			Broaden perspective (5)	11.11
			Enhance creativity (4)	8.89
			Support self-directed learning (3)	6.67
			Ease access to information resources (2)	4.44
Unsupportive	15	24.59	Risk of diminishing critical thinking (9)	34.61
			Over-reliance on technology (7)	26.92
			Potential for plagiarism (6)	23.07
			Importance of independent effort (4)	15.38
Uncertain / unsure	8	13.11	Teacher supervision needed (3)	11.53



**Figure 2.** Percentage of Teacher Responses on Student Use of ChatGPT by Experience

A total of 71 qualitative responses were recorded from 61 participants, indicating that several participants provided multiple justifications. Among the 45 supportive responses, the most cited benefits included aiding comprehension (22.22%), facilitating assignments (17.78%), introducing modern technology (15.56%), and expanding perspectives (11.11%). Others highlighted its role in enhancing creativity, promoting self-directed learning, and improving access to information. One participant remarked, “*ChatGPT can assist students in learning, expand references, and introduce technological developments with teacher supervision.*”

Conversely, 26 responses raised concerns about ChatGPT use. The main issues included reduced critical thinking (34.61%), over-dependence on technology (26.92%), risk of plagiarism (23.07%), and the loss of independent learning (15.38%). As one participant noted, “*If students use it, they will become lazy and stop thinking or trying to find answers on their own.*” Additionally, several responses stressed the importance of teacher oversight to ensure meaningful and ethical usage.

## DISCUSSION

### Educators’ Experience and Perceptions of ChatGPT’s Potential

The initial experience with new technologies, including ChatGPT, plays a crucial role in shaping educators’ perceptions of the potential and challenges of integrating such technologies into teaching and learning. The findings of this study show that educators who have used ChatGPT tend to have a more focused and realistic view of its benefits and risks. On the other hand, those who lack direct experience tend to rely more on general assumptions about the potential of this technology. This difference highlights how hands-on experience can foster a deeper understanding of the relevance and application of technology in the educational context.

In the literature, positive initial experiences are often linked to increased teacher self-efficacy and a greater willingness to adopt new technologies in teaching (Kubincova et al., 2023; Malhotra & Owston, 2024). Educators with successful early encounters tend to feel more confident and motivated to explore the technology’s potential more deeply. For example, educators who have used ChatGPT reported specific benefits, such as making task completion easier (34.15%) and supporting self-directed learning and the development of students’ creative skills (17.07%). This aligns with previous findings that user-friendly interfaces, technology reliability, and alignment with pedagogical goals can strengthen positive initial experiences (Kubincova et al., 2023; Sui et al., 2024)

Less experienced educators, by contrast, often rely on general assumptions or show limited AI-specific understanding. Qualitative analysis of teachers’ reflections revealed that while they expressed general confidence in technology, this was accompanied by uncertainty and limited AI-specific literacy (Dou & Rim, 2025). This gap was evident in their difficulties optimizing prompts and their reliance on generalized phrases. Teachers in this study demonstrated cautious optimism: they acknowledged the potential benefits of AI but emphasized the need for clear guidelines and targeted training, particularly for novice educators, to raise awareness of AI’s limitations and biases (ElSayary et al., 2025). Comprehensive AI literacy is therefore essential, encompassing an understanding of functionality, applications, and ethical implications. This suggests that unfocused or generalized views often stem from a lack of deeper understanding of how AI tools work.

However, negative initial experiences, such as a lack of training or support, can lead to resistance or concerns about new technologies (Nazaretsky et al., 2022; Nikolic et al., 2024; Wilkinson et al., 2024). In the case of ChatGPT, some educators who had never used it expressed optimism about its benefits but did not consider specific challenges such as the potential for technology dependence or its impact on students’ critical thinking skills. This unpreparedness could hinder effective integration of the technology. Therefore, it is essential to provide training that covers not only the technical use of the technology but also pedagogical applications and risk-mitigation strategies to build educators’ confidence in new technologies (Atlas, 2023).

Furthermore, key factors such as credibility, risk mitigation, and pedagogical relevance also contribute to the success of initial experiences (Kubincova et al., 2023; Sui et al., 2024). For instance, educators who can see the positive impact of technology on student engagement and learning outcomes are more likely to have a positive perception. In this context, educational institutions can support positive initial experiences by

offering tailored training, personal consultations, and strategic guidance for the use of AI technologies such as ChatGPT (Nazaretsky et al., 2022).

By understanding the importance of this initial experience, this study underscores the need for a strategic approach to support the adoption of new technologies by educators. This approach should include intensive training, the enhancement of technological pedagogical knowledge (TPACK), and the provision of ongoing support to ensure that technologies like ChatGPT can be effectively integrated and have a positive impact on student learning (Sui et al., 2024).

### **Educators' Skills in Prompt Engineering**

The ability to craft effective prompts is critical in determining how well educators can leverage AI technologies such as ChatGPT to enhance learning outcomes. The findings of this study reveal that the majority of participants utilized only a limited number of elements from the framework, which includes Task, Context, Example, Persona, Format, and Tone. This suggests that many educators still struggle to understand and apply the principles of effective prompt design. For instance, while the Task element was frequently employed (37 instances), other crucial components, such as Example and Tone, were rarely integrated into their prompts.

One possible reason why the Example and Tone elements were rarely used may relate to cultural and linguistic habits. Indonesian teachers are often less accustomed to adjusting communication tone or including explicit examples in written instructions, especially in English, which could explain the underuse of these elements. Although this factor was not directly measured in our study, future research should examine whether language background or teaching traditions influence prompt construction. Moreover, educators who rely only on the Task element may reflect the use of technology at a basic level, aligned more with Technological Knowledge (TK) or Technological Pedagogical Knowledge (TPK), rather than deeper Technological Content Knowledge (TCK) or fully integrated TPACK (Koh & Divaharan, 2011; Rahmawati et al., 2024). The neglect of key elements such as Example and Tone thus indicates a gap in integrated TPACK competence. This resonates with findings that pre-service teachers often develop TK and TPK more strongly, while TCK and TPACK remain underemphasized (Koh & Divaharan, 2011). In this sense, limited prompt use suggests that technology is treated primarily as linear information conveyance, rather than as a means to transform content or enrich pedagogical practices.

Effective prompt design is recognized as a key factor in ensuring relevant and educationally valuable AI outputs (Nazir & Wang, 2023). Research indicates that ChatGPT is highly sensitive to variations in input phrasing, meaning that clarity and detail in prompts significantly influence the quality of responses generated (Lee et al., 2024; Li et al., 2024). Therefore, it is essential for educators to understand core elements of prompt design, such as providing clear context, specifying desired formats, and defining precise pedagogical objectives. For example, prompts like *“Create a teaching module for 9th-grade Mathematics on the topic of Linear Equations in Two Variables tailored to the cultural context of Bulungan, complete with assessments”* demonstrate good prompt design principles. This contrasts with vague prompts like *“Teaching Module,”* which lack specificity and tend to yield unfocused outputs.

These findings are also consistent with the SAMR framework, in which the use of ChatGPT should progress from the Substitution stage to Redefinition. In other words, teachers need to integrate AI not merely to replace simple tasks, but to transform learning activities (Bicalho et al., 2023). At the Redefinition stage, technology enables the creation of new tasks, strategies, and pedagogical practices that would not be possible without ICT. The stages of Modification and Redefinition fall within the transformation dimension, referring to structural changes in teaching performance through technology integration.

The disparity in skills between experienced and novice users of ChatGPT reflects the role of experience in developing digital literacy. Experienced educators are often more capable of incorporating framework elements such as Persona and Format to tailor ChatGPT's responses to specific instructional needs. In contrast, novice educators tend to focus on basic elements like Task or Context, underscoring the necessity of targeted training to help them unlock the full potential of this technology. However, the Mann–Whitney U test conducted in this study found no statistically significant difference in the number of framework elements used between educators with and without prior ChatGPT experience ( $U = 312.50$ ,  $Z = -1.563$ ,  $p = .118$ ). Nevertheless,

the higher mean rank observed among experienced users indicates a tendency toward more comprehensive prompt design, reinforcing the need for structured and explicit training regardless of prior exposure.

Despite these challenges, it is worth highlighting that a small number of educators, specifically four participants using three elements and two using four, were able to demonstrate relatively advanced prompt construction even without formal training. This suggests the presence of early adopters or tech-savvy educators who may have benefited from prior exposure to digital tools. Recognizing these individual strengths is important to balance the narrative and to identify potential peer mentors for professional development efforts.

Comparable findings have also been reported in other developing country contexts. For example, a study with EFL teachers in Algeria (Dou & Rim, 2025) revealed a moderate to strong correlation between teachers' prompt-engineering quality and their perceptions of ChatGPT's effectiveness. However, while teachers expressed general technological confidence, they often lacked specific AI literacy skills, leading to vague or generalized phrasing in prompts. This mirrors the patterns found in our study, where many educators focused primarily on the Task element while neglecting higher-order elements such as Example or Tone. These similarities suggest that the challenges in developing prompt-design competence are not unique to Indonesia but may reflect broader trends in how educators in resource-constrained contexts adopt emerging AI technologies.

Studies in the UAE have also shown that generative AI outputs are often too general and insufficiently specific, requiring continuous manual adjustment (ElSayary et al., 2025). Teachers who achieved better results emphasized the use of Persona or role-based prompting, noting that assigning roles such as "imagine you are an engineer" yielded more scenario-based outputs. This highlights that skilled educators move beyond the Task element to leverage more advanced strategies.

Modern digital literacy, as defined by the European Commission, involves the confident, critical, and responsible use of digital technologies (Villar-Onrubia et al., 2022). This competence includes information and data literacy, communication and collaboration, digital content creation, problem-solving, and critical thinking. The failure to utilize more complex prompt elements suggests that many educators are still operating at an instrumental level of competence rather than a strategic or critical one. Persona and Tone are closely tied to socio-emotional literacy (DC model) and communication/collaboration (DigComp and 5C model) (Kasperski et al., 2022). Their limited use indicates insufficient emphasis on soft skills for digital interaction in instructional practices.

Framework-based training for prompt design should be prioritized in professional development programs for educators. As suggested in the literature, such training should encompass a deep understanding of ChatGPT's capabilities and limitations, techniques for prompt engineering, and relevant pedagogical applications (Li et al., 2024; Nikolic et al., 2024; Sui et al., 2024). Additionally, scaffolding approaches, such as personalized consultations and step-by-step guidance, can support educators in overcoming challenges related to crafting effective prompts (Nazaretsky et al., 2022).

Ultimately, strong prompt design skills not only enable educators to direct ChatGPT effectively to meet instructional needs but also create opportunities to foster more interactive and meaningful learning experiences for students. By integrating technological understanding with clear pedagogical goals, educators can position ChatGPT as a tool that not only supports but also enriches their teaching practices (Atlas, 2023).

## **Educators' Perceptions of ChatGPT Usage by Students**

Educators' perceptions of students using ChatGPT reveal a spectrum of opinions shaped by anticipated benefits and concerns about its impact on the learning process. The data indicates that the majority of educators (62.30%) support student use of ChatGPT due to advantages such as facilitating faster understanding of material, assisting with assignments, introducing students to modern technology, and expanding their horizons in educational innovation. For example, ChatGPT can function as a virtual tutor, providing rapid and responsive explanations that support personalized learning by allowing students to learn at their own pace and according to their specific needs (Atlas, 2023; Nazir & Wang, 2023). When appropriately integrated, this technology may even foster student creativity through the exploration of new ideas and aid in developing essential digital literacy skills for an AI-driven future (Javaid et al., 2023).

However, educators who opposed (24.59%) or were uncertain (13.11%) about students' use of ChatGPT highlighted major concerns such as the risks of plagiarism, over-reliance on technology, and a potential decline in critical thinking skills. These apprehensions align with literature suggesting that unsupervised use of AI tools may reduce opportunities for students to engage in analytical and reflective thinking essential for deep learning (Susnjak & McIntosh, 2024; Weng et al., 2024). For instance, one survey participant remarked, "*If students use it, they may become lazy and rely on the tool instead of thinking and solving problems independently*", echoing fears about diminished active engagement in problem-solving. Notably, when disaggregated by prior experience with ChatGPT, the findings show that educators who had previously used ChatGPT were slightly more supportive of its use by students (64.4%) compared to those who had not (59.1%). In contrast, uncertainty was more common among those with prior experience (15.6%) than those without (4.5%). This pattern suggests that firsthand exposure may both increase openness to AI use in classrooms and raise awareness of its nuanced implications.

Comparable patterns are also observed in student populations. In Jordan, a study of education majors found that ChatGPT use for both academic and personal purposes remains moderate, with academic applications most often limited to generating writing prompts, brainstorming ideas, and drafting outlines for essays or reports (Gasaymeh et al., 2025). While these tasks reflect basic Task and Context elements, the tool "is not yet fully integrated into their routines." This indicates that students may still rely heavily on traditional learning and assessment methods, which constrains their exploration of new technologies and limits the development of more advanced prompt-engineering skills.

Despite these challenges, various studies highlight that, with proper guidance, ChatGPT can be utilized to enhance students' critical thinking abilities. For example, ChatGPT can help students develop these skills by presenting diverse perspectives, facilitating discussions and debates, or offering personalized and detailed feedback on their work (Huang et al., 2024; Javaid et al., 2023; Li et al., 2024; Weng et al., 2024). In this way, AI technologies can become tools for nurturing students' capacity to analyze, evaluate, and devise innovative solutions within problem-based learning contexts. To maximize these opportunities, it is crucial for educators to enhance their digital literacy and understand both the limitations and potentials of ChatGPT. Structured training programs can assist educators in designing strategies to ensure the meaningful use of ChatGPT, both as a learning aid and as a way to mitigate risks such as plagiarism (Atlas, 2023; Levine et al., 2024; Nikolic et al., 2024). Moreover, clear policies on the responsible use of AI technologies, including teacher oversight and ethical guidelines, should be implemented to ensure that students use ChatGPT responsibly and productively.

Overall, educators' perceptions of students' use of ChatGPT underscore the need for a balanced approach that leverages the technology to support learning while maintaining the integrity of the educational process. With appropriate guidance, ChatGPT has the potential to serve as a catalyst for creating more interactive, creative, and meaningful learning experiences for students.

Several conditions in the workshop are noted with several features. First, survey design and implementation limitations. Although the survey was conducted online with a facilitator present to provide guidance and answer participants' questions, online administration presents inherent challenges. One notable issue is sampling bias, where online surveys are more likely to attract participants who are already comfortable with technology, potentially skewing results and underrepresenting educators less familiar with digital tools. Additionally, control over participants' survey environment was limited, with potential distractions or multitasking affecting the quality and accuracy of responses (Susnjak & McIntosh, 2024).

Second, participants' prior knowledge and experience. Despite providing participants with an introduction to the concept of prompts and their role in AI interactions, the study did not collect detailed information about participants' previous experiences or training with AI technologies, including ChatGPT. This omission limits the ability to assess whether responses were influenced by the intervention itself or shaped by prior exposure. Participants with more extensive technological backgrounds may have provided responses that differed significantly from those encountering the technology for the first time.

Third, delayed introduction of the prompt framework. The framework outlining the key elements of effective prompt design was introduced after the survey was conducted. As a result, participants may have responded to questions without a comprehensive understanding of the elements considered essential in prompt design.

Timing and context in providing information are known to influence participant responses. Introducing key concepts post-survey may have limited the validity of the collected data and participants' ability to engage fully with the study's objectives.

The limitations in survey design and the lack of detailed participant background information also affect the generalizability of the study's findings. The sample does not represent the broader population of educators, especially those in regions with limited access to technology or AI training. Consequently, the findings should be interpreted cautiously, particularly when applied to contexts beyond this study (Ng et al., 2023). To address these limitations, future research should implement more representative sampling methods to include educators with diverse technological proficiencies and access levels, collect comprehensive data on participants' prior experiences and training with AI technologies to better contextualize their responses, integrate frameworks like prompt design earlier in the study process to ensure participants fully understand key concepts before responding to survey questions, and employ hybrid approaches combining qualitative and quantitative methods to enhance the depth and reliability of findings.

Future research should acknowledge these limitations and adopt appropriate mitigation strategies. By doing so, studies can improve the accuracy, validity, and generalizability of their results, thereby providing more robust insights into AI applications in education. These findings also hold particular relevance for distance education contexts. Teachers' enthusiasm and prompt-design skills will strongly influence how effectively AI tools like ChatGPT are integrated into online classrooms. As face-to-face interactions are limited in virtual environments, AI can serve as a valuable learning companion. Therefore, the proposed digital literacy training should be specifically adapted to support educators in distance learning settings, ensuring that AI technologies enhance, rather than replace, meaningful engagement and instructional quality.

### **Implications for Theory and Practice**

The findings underscore the urgent need to strengthen teacher professional development (PD) as a cornerstone for integrating AI technologies like ChatGPT into education. Evidence from this study shows that educators who had prior experience with ChatGPT tended to demonstrate slightly stronger skills in prompt design and held more nuanced perceptions of its benefits and risks, whereas those without experience often relied on assumptions or produced vague prompts. This suggests that PD must go beyond abstract discussion of technology and prioritize experiential, hands-on engagement, allowing teachers to directly explore AI tools, practice designing prompts, and critically reflect on their limitations (Jibril & Adedokun-Shittu, 2024; Villar-Onrubia et al., 2022). Structured PD programs should also be continuous rather than one-off, combining technical proficiency with pedagogical modeling and ethical guidance (Dou & Rim, 2025). By immersing teachers in iterative cycles of designing, testing, and refining prompts, such programs can help cultivate a deeper understanding of AI as both a pedagogical support and a potential challenge to academic integrity.

Beyond technical competence, the results highlight a deeper issue: the gap between instrumental digital skills and the critical digital literacy required in the AI era. While many participants could employ basic elements of the prompt framework (e.g., Task or Context), far fewer integrated higher-order elements such as Example or Tone. This reflects what digital literacy frameworks describe as an overemphasis on efficiency-oriented use while underdeveloping critical engagement with technology (Kasperski et al., 2022; Villar-Onrubia et al., 2022). For AI to be used responsibly, educators need to cultivate AI literacy and prompt literacy, which involve understanding how phrasing shapes AI behavior, critically evaluating generated outputs, and anticipating ethical issues such as plagiarism or overreliance (Qian, 2025). Embedding AI literacy into teacher education requires alignment with frameworks like TPACK, which integrate technological, pedagogical, and content knowledge. Within this perspective, prompt literacy is not an isolated technical skill but part of the broader capacity to design instruction that leverages technology without losing sight of pedagogical intent or content accuracy (Jibril & Adedokun-Shittu, 2024). Developing these competencies also responds to concerns identified in this study, such as reduced critical thinking, by equipping teachers to use AI outputs as starting points for discussion, debate, and reflective learning.

At the policy level, the implications are particularly relevant for distance education, where teacher–student interaction is often mediated by digital tools. In such contexts, AI technologies can play a supplementary

role, supporting students with explanations, feedback, and creative exploration when live interaction is limited. However, the risks of plagiarism, disengagement, and excessive dependence on AI also increase without adequate oversight. Distance learning policies must therefore mandate PD that equips teachers with prompt engineering strategies, emphasize frameworks like TPACK for designing adaptive and inquiry-based pedagogies, and establish explicit standards of ethical use to safeguard academic integrity (Jibril & Adedokun-Shittu, 2024; Kasperski et al., 2022). These policies should also encourage the adoption of advanced instructional strategies, such as reflective learning, metacognitive monitoring, and inquiry-based approaches, that counterbalance the tendency for students to rely passively on AI outputs. In addition, investment in digital infrastructure and professional learning communities is necessary to ensure equitable access, facilitate peer exchange, and provide teachers with sustainable ecosystems of support (Furze et al., 2024; Kubincova et al., 2023) assessment practices and student learning. Banning or blocking GenAI tools has proven ineffective, and punitive approaches ignore the potential benefits of these technologies. As a result, assessment reform has become a pressing topic in the GenAI era. This paper presents the findings of a pilot study conducted at British University Vietnam exploring the implementation of the Artificial Intelligence Assessment Scale (AIAS). Embedding AI literacy into PD, aligning it with digital literacy frameworks, and adapting distance learning policies enables institutions to foster an environment where ChatGPT is positioned not as a substitute for human teaching but as a tool to enrich interaction, creativity, and critical engagement. Ultimately, these measures allow educators to navigate the promises and perils of AI, ensuring that its integration enhances rather than undermines meaningful, human-centered learning (Halaweh, 2023; Javaid et al., 2023).

## CONCLUSION

This study shows that educators' perceptions of ChatGPT are shaped by their direct experiences, with prior users demonstrating more balanced views of its opportunities and risks. Despite this, most participants revealed limited skills in prompt engineering, often neglecting key elements such as tone, role, and audience that are essential for effective use in teaching. These findings highlight the urgent need for professional development programs that build not only technical capacity but also pedagogical and ethical competence. Targeted digital literacy and prompt-design training can help educators craft clearer, more contextual prompts and critically evaluate AI-generated outputs, while at the same time equipping them to guide students in responsible and creative use of AI tools.

At the institutional and policy level, the results underscore the importance of embedding AI literacy and prompt engineering into teacher education curricula and distance learning frameworks. Policies must provide clear guidelines for ethical use, including issues of plagiarism, data privacy, and transparency in acknowledging AI support, while also promoting AI as a supplement rather than a substitute for human instruction. ChatGPT is a powerful tool, but its impact, positive or negative, depends on how it is used. Future research should move beyond cross-sectional surveys toward longitudinal and experimental designs to assess how sustained training influences educators' digital competence and teaching practices. Such work will contribute to stronger theoretical grounding in digital literacy and TPACK, while informing practical and policy pathways for integrating generative AI responsibly across diverse educational contexts.

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## BIODATA and CONTACT ADDRESSES of AUTHORS



**Bakhrul Rizky KURNIAWAN** is a doctoral student at the Graduate Institute of Science Education, National Taiwan Normal University (NTNU), Taiwan, and a lecturer in the Department of Physics at Universitas Negeri Malang (UM), Indonesia. He earned his master's degree in Physics Education from Universitas Negeri Malang. His research focuses on technology-enhanced science learning, e-learning, artificial intelligence in education, and student learning agency in AI-supported learning environments. He is particularly interested in how technology can be effectively designed and integrated into learning environments without diminishing the learning process or replacing students' learning agency.

Bakhrul Rizky KURNIAWAN  
Graduate Institute of Science Education, College of Science  
Address: National Taiwan Normal University, 106308 Taipei, Taiwan  
Phone: +62 815 5969 2534  
E-mail: [bakhrul.rizky.fmipa@um.ac.id](mailto:bakhrul.rizky.fmipa@um.ac.id)



**Dadan SUMARDANI** is an Educator and Researcher who specializes in Science and Physics. His primary research interests include the use of Educational Technology to support Science Education, the implementation of Scientific Inquiry activities, as well as the application of Cognitive Science in the teaching-learning process. He is currently a PhD student at National Taiwan Normal University College of Science studying Science Education.

Dadan SUMARDANI  
Graduate Institute of Science Education, College of Science  
Address: National Taiwan Normal University, 106308 Taipei, Taiwan  
Phone: +62 857 7964 8527  
E-mail: [d.sumardani@ntnu.edu.tw](mailto:d.sumardani@ntnu.edu.tw)



**Dr. Chi-Jung SUI** is an Assistant Professor at the Department of Learning and Materials Design, University of Taipei. He previously served as an assistant research fellow at the National Academy for Educational Research and as a junior high school teacher. He earned his Ph.D. from the Graduate Institute of Science Education at National Taiwan Normal University. His research interests include scientific inquiry, self-regulated learning, and teacher professional development in digital learning contexts. Dr. Sui is a co-founder of the AI-assisted teaching platform (AISL.tw).

Chi-Jung SUI  
Department of Learning and Materials Design, College of Education  
Address: University of Taipei, 100234, Taipei, Taiwan  
Phone: +886 223 113 040  
E-mail: [chrosui@gmail.com](mailto:chrosui@gmail.com)



**Dr. Chun-Yen CHANG** is a Chair Professor at National Taiwan Normal University (NTNU) and the Principal Investigator of the Institute for Research Excellence in Learning Sciences. He received his Ph.D. in Science Education from the University of Texas at Austin at August, 1996. He currently holds professorships in both the Graduate Institute of Science Education and the Department of Earth Sciences at NTNU. He also serves as the Adjunct Professor of the Department of Biology, State University of Malang, Indonesia and Adjunct Chair Professorship at the Graduate Institute of Education, Chung Yuan Christian University. His research interests include science education, e-learning, interdisciplinary science learning, and science communication. Dr. Chang has published more than 200 academic articles, with over 170 papers indexed in SCI and SSCI databases. He also serves as the Editor-in-Chief of four international academic journals. His academic contributions have been recognized with several prestigious awards, including the 29th National Chair Professorship Award, the Academic Award from Taiwan's Ministry of Education, and three Outstanding Research Awards from the National Science and Technology Council.

Chun-Yen CHANG

Graduate Institute of Science Education, College of Science

Address: National Taiwan Normal University, 106308 Taipei, Taiwan

Phone: +886 7749 6798

E-mail: [changcy@ntnu.edu.tw](mailto:changcy@ntnu.edu.tw)

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