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Mapping the Terrain: EFL Teachers' Acceptance of Generative AI Integration in Lesson Planning

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ABSTRACT

Grounded in the Technology Acceptance Model (TAM), this study explores high school EFL teachers' perceptions of the ease of use (PEU) and usefulness (PU) of Generative AI (Gen-AI) MagicSchool for lesson planning. It further investigates the factors influencing their acceptance or resistance to adopting this technology after undergoing a Gen-AI training session. A mixed-methods approach was employed. Quantitative data were gathered through a TAM-based questionnaire tailored to the features of Gen-AI MagicSchool, while qualitative insights were obtained via focus group interviews. The questionnaire assessed teachers' perceived usefulness, ease of use, attitudes, and behavioral intentions. Focus groups explored nuanced factors influencing acceptance or hesitation. Thematic analysis revealed generally positive perceptions of Gen-AI. Teachers found the tool easy to use and valuable for lesson planning, indicating an intention to continue exploring its applications. However, concerns emerged about the prompt formulation and the contextual relevance of AI-generated outputs. These concerns highlighted the need for pedagogical alignment and appropriate scaffolding. Findings suggest that while Gen-AI tools have strong potential to support EFL instruction, effective integration depends on enhancing teachers' content and AI-related competencies. The interplay of PU and PEU was central to shaping behavioral intentions. To foster AI adoption in education, teacher training should include prompt engineering and strategies for AI-human collaboration. Practical exposure to Gen-AI during professional development can strengthen confidence and competence in AI integration.

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1. INTRODUCTION

The integration of artificial intelligence (AI) in the field of education (AIEd) has been under the spotlight in recent years. A meta-study conducted by Martin et al. (2024) reported that the surge of publications related to AIEd has been notable in the past ten years. Along with this emerging trend, investigations of AIEd have touched on various dimensions and contexts. AIEd, particularly Generative

AI, as exemplified by ChatGPT, has been explored in terms of its use by students and teachers in both primary and secondary education and higher education. The investigations have yielded some insights into this relatively new area. For example, on a positive outlook, Gen-AI can revolutionize the way EFL teachers approach lesson design and delivery (Ruiz-Rojas et al., 2023), enhance personalized feedback and support (Cecilia and Chan, 2023), and personalized educational content to enhance the overall learning experience (Kadaruddin, 2023). On the other hand, empirical studies have also revealed some issues with the integration of Gen-AI. Recent studies have pointed to the presence of ethical issues, academic integrity, and weak pedagogical grounding in using Generative AI (Flora, 2024; Flora et al., 2024; González-Calatayud, 2021).

Considering the bright and dark findings from AIEd exploration that co-exist, it is important to examine how both teachers and students accept Gen-AI for teaching and learning. One framework that has been widely used to investigate technology acceptance is the Technology Acceptance Model (TAM). TAM was first proposed by Davis in 1989 and is a theoretical framework that explains how users accept or reject an innovation, system, or technology. TAM core factors are perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness (PU) refers to the degree to which a user believes that a system will improve their performance, while perceived ease of use (PEOU) refers to the degree to which a user believes that a system is easy to use.

The Technology Acceptance Model (TAM), originally introduced by Davis (1989), has seen further development through subsequent iterations. Venkatesh and Davis (2000) proposed TAM 2, and Venkatesh and Bala (2008) introduced TAM 3, both of which added dimensions such as subjective norms, image, and perceived behavioral control. These additions were intended to enhance the explanatory power of the original model. Despite these enhancements, the original TAM continues to be widely used due to its simplicity, practical focus, and ease of implementation in a range of research contexts.

This study adopts the original TAM framework to examine how high school EFL teachers perceive and accept the use of Generative AI (Gen-AI) in their lesson planning practices. Since the Gen-AI use in this study was introduced through structured training, components such as social influence or organizational image—central to TAM 2 and TAM 3—are considered less relevant. Therefore, this research focuses on the original model's three core constructs: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention to Use (BI).

Perceived Usefulness refers to the degree to which an individual believes that a particular technology will enhance their job performance. Perceived Ease of Use indicates how effortless the user perceives the technology to be. Behavioral Intention reflects the user's intention or willingness to continue using the technology in the future. These three constructs form the foundation of this study's theoretical approach and provide the framework for analyzing teachers' engagement with Gen-AI.

In recent years, TAM has been increasingly applied in studies investigating the adoption of Artificial Intelligence in Education (AIEd). Numerous works indexed in databases such as Google Scholar, Scopus, and the Directory of Open Access Journals (DOAJ) have examined how users interact with AI-driven tools in educational settings. SciSpace, an AI-based research platform, has listed nearly 100 articles published between 2023 and 2024 among its top-ranked papers in this area, further highlighting the growing interest in TAM-based AIEd research.

Many of these studies have focused on students' acceptance of AI technologies in diverse educational contexts. For example, Esiyok et al. (2024) used an extended version of TAM to examine the acceptance of AI chatbots among over 400 undergraduate students engaged in self-directed learning. The findings revealed that both PU and PEOU significantly influenced students' behavioral intentions to use the technology, with ICT self-efficacy serving as a key moderating factor. Similarly, Dahri et al. (2024) employed a mixed-methods design with 300 pre-service teachers to explore the use of ChatGPT for supporting metacognitive self-regulated learning. Their results indicated a high level of acceptance influenced by perceived usefulness, personal competency, and enjoyment.

Another relevant study by Zou et al. (2023) applied the Integrated Model of Technology Acceptance to investigate over 200 university students' perceptions of an AI-based speech evaluation program for

English as a Foreign Language (EFL) speaking practice. The study found generally positive responses toward the AI tool, though it also identified implementation challenges. Consistent with other findings, both PU and PEOU emerged as strong predictors of the students' behavioral intention to use the system.

Collectively, existing studies emphasize the broad applicability and consistency of the Technology Acceptance Model (TAM) in exploring the integration of artificial intelligence (AI) technologies in education. They particularly affirm the central role of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) in influencing users' behavioral intentions. These findings reinforce the justification for employing the original TAM framework in the present study.

While much of the early research focused on students' acceptance of AI tools, increasing attention is now being directed toward teachers' acceptance of AI, reflecting a growing body of literature in this area. These studies generally report a high level of acceptance, often accompanied by the identification of key enabling factors and associated challenges. For instance, Darayseh (2023) and Cabero-Almenara et al. (2024) both found that teachers expressed strong acceptance of AI integration, particularly within science education. Their findings highlighted a range of influencing factors, including self-efficacy in using AI tools, perceived ease of use, expected benefits, positive attitudes toward AI, as well as personal characteristics such as age, teaching modality, and belief systems.

More recently, Al-Abdulatif (2024) investigated Gen-AI acceptance among 237 university faculty members using structural equation modeling (SEM). The study examined the influence of intelligent TPACK, AI literacy, perceived trust, and overall technology acceptance. Results indicated that AI literacy and perceived ease of use were the most influential factors, while intelligent TPACK and trust served as important mediators. These insights point to the importance of designing professional development initiatives that build AI literacy and offer practical, hands-on experiences for educators.

Similarly, Cabero-Almenara et al. (2024) employed the UTAUT2 framework and Partial Least Squares (PLS) analysis to explore the perceptions of 425 university teachers regarding the integration of Gen-AI. Their findings demonstrated that performance expectancy, effort expectancy, social influence, and hedonic motivation significantly shaped teachers' acceptance. The study also noted that educators who adopt constructivist, student-centered teaching philosophies tend to be more receptive to Gen-AI, underscoring the value of aligning professional development programs with varying pedagogical orientations.

In a different context, Alasmari (2024) conducted a mixed-methods study involving 256 EFL instructors in Saudi Arabia, supplemented by follow-up interviews with 17 participants. The study identified trust, ethics, and pedagogical affordability as major determinants of Gen-AI acceptance. Among these, pedagogical affordability—particularly in terms of enhancing productivity and efficiency—emerged as the most influential factor. Based on these findings, the study recommends the implementation of clear ethical guidelines and the promotion of transparency to safeguard academic integrity during the integration of AI technologies in educational settings.

While there has been considerable interest in AI acceptance and its applications in education, studies have not adequately explored its acceptance in the specific context of EFL in Indonesia. Also, little is known about the factors for accepting or resisting AI in this context. Framed with TAM, this study aims to uncover the Indonesian EFL teachers' acceptance of Gen-AI based on their perception on its usefulness and easiness to predict their future adoption of AI. Understanding how Indonesian EFL teachers accept AI is crucial for developing strategies that support Indonesian teachers in integrating AI into their EFL instruction.

2. METHODS

This descriptive case study involved 38 high school EFL teachers as the subject. The sample size in this study is relatively small and may not be adequate to generalize the findings regarding teachers' acceptance of Gen-AI. However, the heterogeneity of the respondents enhances the spectrum of the data. The teachers are members of the English Teacher Forum in a district in Central Java Indonesia. The

demography of the area which consists of urban and mountainous rural areas enriches the context of the study. The schools at which the teachers work also have different levels of ease of access to technological tools and internet connections. The profile of the respondents in this study is presented in the following table.

Table 2. Respondents' profile

Gender	**Male**	**Female**
Educational Background		
S1/ BA	5	28
S2/ M.Ed	1	4
Years of teaching		
5-7 years	1	3
7-10 years	3	21
10-13 years	2	4
13-15 years	0	1
More than 15 years	0	3
TPD Frequency		
Often	0	4
Sometimes	4	20
Rare	2	8

Two techniques were used to collect the data: (1) a questionnaire and (2) a focus group interview. The questionnaire is developed by adapting the TAM model that was originally proposed by Davis (1989). A total of 9 Likert questions were used to capture the respondents' perspectives on the three dimensions of TAM, i.e. perceived usefulness, perceived ease of use, and behavioral intention. Statistical computation using SPSS Pack 22 on the items' reliability shows the value of *Cronbach's Alpha* at 0.938 which means that the instrument is highly reliable.

In addition to the Likert questions, two open-ended questions are used to elicit the teachers' willingness to use Gen-AI for lesson planning. The questionnaires were distributed online utilizing Google Forms. The interview was carried out after the distribution of the questionnaires. The teacher-respondents filled in the questionnaire two weeks after a workshop on the use of Gen-AI for lesson planning. Thus, they have ample time to explore and try out the AI tool features for actual lesson planning.

The semi-structured interview was carried out in groups for time efficiency. A number of 11 out of 38 teachers were willing to take part in the interview, and they were grouped into three groups, each consisting of three to four participants. The interview was conducted using *Bahasa Indonesia* and in a casual FGD. Four key questions were prepared before the interview. They focus on the teachers' recount on the use of Gen-AI (procedure of using), the challenge and benefit, and their projection on the use of Gen-AI for their careers.

The data analysis was carried out using two methods based on the types of data. Results The Likert questions were analyzed quantitatively to determine the respondents' tendencies in terms of their perception within the TAM frame. Statistically, the analysis was based on the mode of the data. Meanwhile, results from the open-ended questionnaire and interview were analyzed thematically. Responses were tabulated and coded in two phases. The initial phase involved in-vivo coding followed by clustering and categorization of codes based on the identified patterns of data. Themes were then generated based on the clusters of data.

3. FINDINGS AND DISCUSSION

The frequency analysis using SPSS Pack 22 revealed that the teacher-respondents generally show high acceptance of Gen-AI to help them write their lesson plans. The summary of statistical computation on all three dimensions of TAM is presented in Table 2.2.

Table 3. Frequency

		PU 1	PU 2	PU 3	PU 4	PEU 1	PEU 2	PEU 3	PEU 4	BI
N	Valid	38	38	38	38	38	38	38	38	38
	Missing	0	0	0	0	0	0	0	0	0
Mode		3	3	3	3	3	3	3	3	3
Minimum		3	3	3	3	2	2	2	2	2
Maximum		4	4	4	4	4	4	4	4	4

Meanwhile, the qualitative analysis captures not only acceptance but also challenges and resistance for using Gen-AI *MagicSchool* for lesson planning. Summary of the key theme is presented in Table 4, and the details will be discussed in the following subsections.

Table 4. Acceptance, Challenges and Resistance

Theme	Data from the field	Insight
Time efficiency	"The Gen-AI could not directly and instantly produce the lesson plan that I wanted because I had to generate part by part. But since I didn't start from scratch, I could focus on the 'revision.' This means I could produce a better lesson plan in a relatively shorter time." (Hana, novice teacher)	Gen-AI significantly reduces the time needed to create teaching materials by shifting the focus to improving and refining outputs rather than starting from zero. This allows teachers to allocate more time to other instructional tasks.
Enable differentiation	"Gen-AI enabled me to level passages for my students. I could create two or three graded reading texts with minimal effort." (Jamal, 7 years of teaching experience)	Gen-AI empowers teachers to implement differentiation, particularly for mixed-ability classrooms. This feature addresses one of the most challenging aspects of teaching: catering to diverse student needs efficiently. It also enhances teachers' ability to individualize instruction, which could lead to improved student outcomes.
Challenges with prompting	"It [MagicSchool] is very easy to learn and use, but I often have to edit the prompt because it doesn't give me what I want. I have to make some adjustments." (Rina, M.Ed, 7 years of teaching) "This tool has too many features that confuse me. I tried generating text during the workshop, but I think my students will not understand it." (Haris, 17 years of teaching)	While Gen-AI tools are generally user-friendly, their effectiveness hinges on the teacher's ability to craft clear and precise prompts. Poor prompt engineering can lead to frustration, undermining the tool's utility. For less tech-savvy teachers, overwhelming features may deter regular use, emphasizing the need for targeted training
Challenges with ensuring relevant material	"The first result from the tool didn't meet my expectations, and I quit trying to reformulate the prompt. The material felt disconnected from my teaching context." (Haris)	The relevance of AI-generated materials to specific teaching contexts can be inconsistent. Teachers with limited patience or lower ICT skills may struggle to adapt outputs, which could discourage further use. This highlights the importance of localized support systems or curated templates for AI-generated content.

3.1. Perceived Usefulness (PU)

All respondents in this study perceived the usefulness of Gen-AI positively. The teacher-respondents both agree and strongly agree that in terms of writing lesson plan, Gen-AI improved their performance, and productivity, and enhanced the overall effectiveness. The distribution of the responses is presented in Figure 2.1.

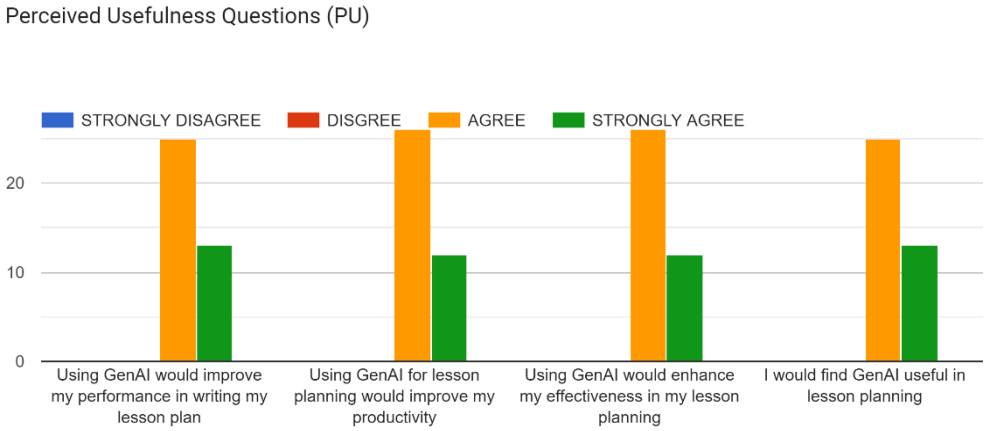

Figure 2. Perceived Usefulness

The data from the focus group interview revealed two major reasons that are related to teachers' perception of the usefulness of AI: (1) *Gen-AI makes differentiation and variation doable*. (2) *Time for writing quality lesson plans decreased*. Jamal, one of the respondents with 7 years of teaching experience and have Bachelor's degree in English Education, shared during the interview that using Gen-AI enabled him to level passages for his students who were struggling in Reading. While acknowledging that material differentiation is one way to help him cater to the needs of his mixed-ability class, he admitted that he had never tried so due to various reasons, such as a heavy workload and his limited language capacity. With the aid of Gen-AI, Jamal and other teachers could level a reading passage from the textbook or the web into two or three graded reading texts. Meanwhile, Hana, a novice English teacher, highlighted the time efficiency of writing lesson plans after she had used Gen-AI. Hana mentioned that the Gen-AI could not directly and instantly produce the lesson plan that she wanted because she had to generate part by part. As Hana mentioned, each generated product always needs revisions, but since she did not start from scratch, she could focus on the 'revision'. This means, Hana could produce a better lesson plan in a relatively shorter time.

3.2. Perceived Ease of Use (PEU)

In the dimension of perceived ease of use (PEU), most of the teacher-respondents agree and strongly agree that it was easy to get the tool to do what is needed and that it was easy to learn and become skillful at it. Both resulted in notable positive perceptions of the overall ease of use, though a smaller group of participants indicated that they found it difficult to learn and use. The distribution of the responses is presented in Figure 2.2.

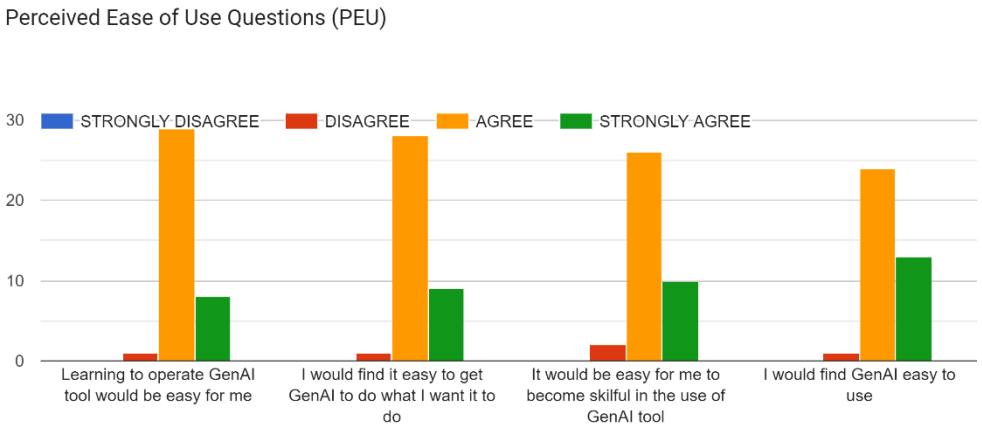

Figure 3. Perceived Ease of Use

The respondents reported in the interview that it was easy to learn Gen-AI and that they were generally able to use the tool on day one. However, they admitted that prompting was challenging. As stated by Rina: "It [Magicschool] is very easy to learn and use but I often have to edit the prompt because it doesn't give me what I want. I have to make some adjustments. But anyway it's very useful" (Rina, M.Ed, 7 years of teaching experience, and occasionally join TPD). Meanwhile, Haris admitted that the tool was "giving me a headache". As he continued saying "I am not too hyped about these technological tools. Every time I join a workshop on a certain tool I just take it as knowledge but not as a practice. Also, this tool has too many features that confuse me. I tried one during the workshop, generating text, with Bu Heni, but I think my students will not understand it." (Haris, BA, 17 years of teaching, frequently joins TPD)

3.3. Behavioral Intention (BI)

The majority of teacher-respondents in this study stated their inclination toward the use of Gen-AI to aid their day job as EFL teachers. Three respondents stated their disagreement when asked about the intention to use the AI tool. The distribution of responses in the dimension of behavioral intention is presented in Figure 4.

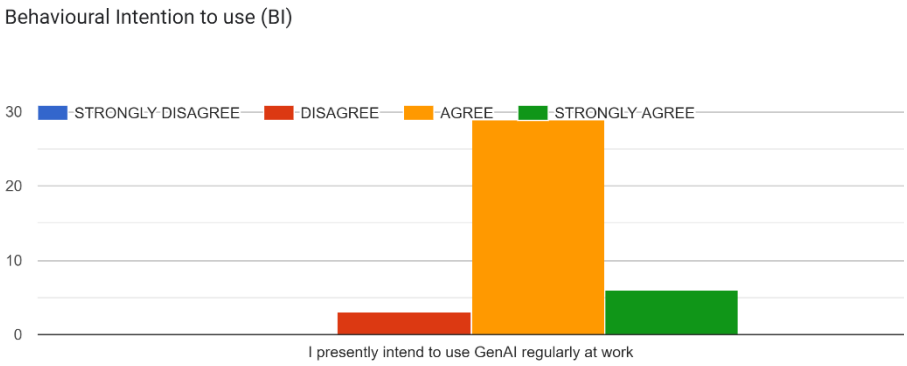

Figure 4. Behavioral intention to use

The follow-up interview with the respondents confirmed that the perceived usefulness and ease of use were the predictors of teachers' intention to use generative AI in their work. As revealed in the interview, the teachers mentioned that they will continue using Gen-AI because of its usefulness in generating various contents for their lessons. Features such as text leveller, multiple choice quiz, YouTube summarizer, and text-dependent questions are considered easy to use and the generated content meets the expectations of the teachers. However, they also noted that it took them some revisions on the prompting before the teachers got the content that they wanted. This could be the explanation for the notable gap between those who stated 'agree' and 'strongly agree' when asked about their future use of Gen-AI. Meanwhile, three respondents who objected to the use of AI reported that it was burdening for them to utilize the tools due to a lack of prompting skills, perceived lack of relevance of the AI product with their teaching context, and limited internet connection. All in all, the respondents' intention to use Gen-AI is predictable based on their perception of its ease of use.

Discussion

The findings of this study are consistent with previous research on AI in education (AIEd), particularly in terms of teacher acceptance of generative AI tools. The perceived usefulness (PU) of Gen-AI, especially in creating differentiated instructional materials, aligns with earlier studies. Generative AI is often seen as a catalyst for personalized learning (Bahroun et al., 2023; Haider, 2023; Mustafa, 2023). In this study, teachers highlighted that Gen-AI, such as the text-leveling feature in MagicSchool, enables them to create graded reading texts with ease, addressing the diverse needs of their students. For example, Jamal reported that Gen-AI allowed him to level passages efficiently, a task he had previously avoided due to time constraints and workload. This demonstrates how AI can empower teachers to implement differentiation strategies that were once considered too demanding. Importantly, this capacity for differentiation may directly support inclusive teaching practices, which are critical for mixed-ability classrooms.

While most respondents perceived Gen-AI as easy to use (PEU), challenges with prompt engineering emerged as a recurring issue. The literature highlights prompt engineering as a critical skill for effectively utilizing AI tools (Zamfirescu-Pereira et al., 2023). Mastering this skill has the potential to enhance teaching effectiveness, work efficiency, and student learning outcomes. Some teachers in this study, like Rina, acknowledged that although the tool is user-friendly, crafting precise prompts often required multiple revisions to achieve the desired output. This suggests that even for experienced educators, refining prompts can be time-consuming and occasionally frustrating. This finding is consistent with the result obtained by Zamfirescu-Pereira et al., 2023 who carefully investigated and compared the prompting of 10 participants having different profession, programing experience, and Large Language Modelling (LLM) knowledge. Zamfirescu-Pereira (2023) found that non-AI experts, face difficulties in creating effective prompts for AI. They often overgeneralize from limited examples, struggle with systematic evaluation, and rely on intuitive but ineffective strategies, which hinders their ability to design successful interactions. However, the iterative nature of prompt refinement might also be seen as a learning curve that builds teachers' digital literacy over time. Future research could explore whether sustained use of AI leads to improved prompt-crafting skills and, subsequently, greater satisfaction with AI tools.

On the other hand, Haris's experience reflects the barriers some teachers face when adopting Gen-AI. His dissatisfaction with the AI-generated output and difficulty reformulating prompts led him to abandon the tool altogether. Haris, along with two other respondents, cited issues such as limited ICT skills, inadequate internet connectivity, and a perceived lack of relevance in AI-generated materials as reasons for rejecting Gen-AI. These challenges underscore the importance of addressing technological barriers and providing targeted professional development to help teachers build confidence and competence in using AI tools effectively. Moreover, Haris's case highlights the risk of discouragement when teachers are introduced to tools without adequate contextualization or sustained support. Ensuring that training programs address these gaps and equip teachers with practical strategies is

essential for fostering long-term adoption. This finding is consistent with a recent investigation by Al-Abdulatif (2024) that involved 237 lecturers. Using Structural Equation Modelling, Abdulatif found that AI literacy and perceived ease were the most influential factors affecting teachers' acceptance of Gen-AI.

Furthermore, the time efficiency provided by Gen-AI allows teachers to shift their focus from routine tasks like lesson planning to more impactful activities, such as enhancing instructional quality or addressing individual student needs. For instance, Hana explained how AI-assisted lesson planning enabled her to concentrate on revisions, resulting in better-quality lesson plans. This indicates that AI's role extends beyond productivity gains to enabling teachers to engage in deeper pedagogical thinking. Over time, this could improve not only teaching practices but also student outcomes, as teachers are better positioned to address specific classroom challenges.

These findings reinforce previous studies that emphasize the role of ICT efficacy, digital competencies, and peer support in shaping positive attitudes toward AI (Almorgen, 2024; Darayseh et al., 2023; Eşiyok et al., 2024; Zou, 2023; Strzelecki & ElArabawy, 2024). For example, Haris's frustration highlights how gaps in training and support can exacerbate resistance to new technologies. Meanwhile, teachers like Hana, who were able to leverage AI's time-saving benefits, demonstrate how proper prompting and re-prompting can turn Gen-AI into a valuable tool for improving teaching efficiency.

Overall, the study reaffirms that perceived ease of use and usefulness are key predictors of AI adoption. As shown in earlier studies, teachers' acceptance of generative AI is influenced by factors like AI literacy, ease of use, trust, ethics, and how well the tools fit their teaching needs. Supportive factors include clear expectations, social encouragement, and enjoyment of using AI. (Al-Abdullatif, 2024, Cabero-Almenara, et al., 2024). Teachers who favor student-centered teaching methods are more likely to adopt AI tools, while age, gender, and education level have little impact. (Cabero-Almenara, et al., 2024; Alasmari, 2024). The challenges identified, particularly with prompting and contextual relevance, also emphasize highlight the need for integrating AI into teacher trainings in addition to enhancing support systems, and improving infrastructure. These measures can enhance the acceptance of Gen-AI tools to support teachers.

4. CONCLUSION

This study revealed that the majority of teacher-respondents accepted Gen-AI as a useful tool for lesson planning. They recognized its perceived usefulness (PU) in enabling them to produce quality lesson plans more efficiently. Coupled with its perceived ease of use (PEU), the teachers expressed a strong intention to continue utilizing Gen-AI in their work. However, a minority of respondents reported resistance to the tool due to a lack of ICT competency, technical challenges, and dissatisfaction with the generated results.

The study also found that, regardless of their overall acceptance of Gen-AI, teachers acknowledged the need to carefully review and adjust the AI-generated text and revise prompts multiple times to achieve results that aligned with their teaching contexts. This highlights the continued role of teachers as the primary decision-makers in ensuring that AI-generated lesson plans are pedagogically sound and contextually relevant. Consequently, AI-related skills such as prompt engineering should be integrated into teacher training curricula and professional development programs, alongside the reinforcement of strong pedagogical skills. Teachers both pre and in-service teachers should be provided with hands-on experience for prompting and skill to overcome issues related to unexpected AI results.

While this study's findings are based on qualitative exploration, they align with earlier quantitative research that identified PU and PEU as significant predictors of users' behavioral intention and attitudes toward Gen-AI. However, the study's scope was limited by the small number of participants and the localized context. Future research should involve a larger and more diverse sample

across broader educational settings to provide a more comprehensive understanding of teachers' acceptance of AI tools.

Conflicts of Interest: "The authors declare no conflict of interest."

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