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Artificial Intelligence in Education: In-Service Teachers' Experiences of Using ChatGPT for Generating Lesson Plans

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Abstract

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This study was conducted to explore in-service teachers' experiences of using Chat Generative Pre-trained Transformer (ChatGPT) for generating lesson plans. Fifteen in-service teachers from an online graduate technology course at a university in the south participated in the study. Participants were required to generate a lesson plan using ChatGPT based on a curriculum standard of their choice. They were also required to compare the Artificial Intelligence (AI) generated lesson plan with the one they had created on their own using the same curricular standard without using AI. To reflect on their experiences participants were required to respond to an open-ended Google questionnaire. Data was analyzed step-by-step starting from assigning codes, categorizing the codes, and developing themes. The themes suggest that comparing the ChatGPT-generated lesson plan with the teacher-generated lesson plan allowed participants to gain a deeper understanding of how to use ChatGPT effectively to generate lesson plans. Findings also focus on some concerns regarding the use of ChatGPT in generating lesson plans.

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Introduction

AI is a cutting-edge technology that has revolutionized all spheres of life including education. AI is changing how teachers teach and students learn. The AI app ChatGPT has gained a lot of attention in the education field since its release in 2022. It is one of the most sophisticated AI chatbots from OpenAI that has the ability to understand and generate human-like text and can provide answers based on user prompts. ChatGPT's ability to generate instructional materials, provide assistance with writing, and facilitate back and forth communication based on user prompts has sparked interest among educators. As with any new technology, it is important to understand how users feel about using ChatGPT. In the education field, it is particularly important to understand teachers' opinions as they are the people who teach students how to use and deal with this new technology. In this rapidly expanding AI world, teachers' knowledge and awareness play a major role in shaping students' future. They understand the need of equipping students with AI-related information and skills (Cheah & Kim, 2025). Teachers' pedagogical beliefs also play an important role in adoption of new technologies. They are hesitant to adopt technology that they are not familiar with (Bice & Tang, 2022). Teachers are more inclined to include new technology, if they believe it addresses significant student learning outcomes since they often value things that help meet student needs (Ertmer & Ottenbreit-Leftwich, 2010). There have been several studies conducted in the field of education since the introduction of ChatGPT in 2022. However, there hasn't been much research done on in-service teachers' experiences of using ChatGPT for generating lesson plans in particular. This study was conducted to understand the experiences of fifteen in-service teachers regarding their use of ChatGPT for generating lesson plans. It is crucial to comprehend their viewpoints to see how AI-driven lesson planning impact teaching and learning.

Literature Review

AI Benefits

Studies have consistently reported that AI enhances personalized learning through intelligent tutoring systems, adaptive instruction, and automated feedback tailored to individual learner needs (Chen et al., 2020; Merino-Campos, 2025; Zawacki-Richter et al., 2019). Adopting AI systems foster a sense of connection between learners and educators, improve engagement, and help with customized learning (Gligorea et. al., 2023; Tapalova & Zhiyenbayeva, 2022). In the context of higher education, adapting instruction based on learning preferences, learner goals, and performance boosts learner flexibility and freedom (Bayly-Castaneda et al., 2024). AI has made it possible for teachers to be more effective and efficient leading to high quality instruction and making learning more meaningful to students (Chen et al., 2020; Fortuna et al., 2025; Vashista et al., 2023). Overall, AI has the potential to drastically change education, but in order to fully reap its benefits, it is essential to manage its risks and limitations and strike a balance between innovation and ethics for a sustainable and inclusive education system (Parra et. al., 2024).

AI Concerns

Despite AI's positive impact in the education field, it has also raised several concerns. One major concern is AI-assisted cheating, where students use generative AI to finish homework and tests. The use of Generative AI in

professional writing also raise ethical concerns regarding authorship and the possibility of presenting AI-generated content as original (Okaiyeto et al., 2023). The authors in the study mentioned that making students aware of the difference between the risks such as academic plagiarism and utilizing the advantages of generative AI can help increase productivity and promote equitable outcomes. Another concern is regarding the overuse of AI that puts students at risk of overreliance on the technology which could potentially make them lose sight of the real emotional student-teacher bond (Alasgarova & Rzeyev, 2024). Overreliance could also lead to digital tiredness and cause anxiety issues related to data privacy concerns (Klimova et. al., 2025). While AI has the potential to support learning, it also highlights the need for strong ethical standards and human oversight because of possible problems with accuracy, bias, and privacy (Noroozi et al., 2024).

Teacher Readiness and AI Integration Challenges

Teacher readiness plays an important role in deciding whether or not new technology should be integrated into teaching and learning. There is a difference between teachers' interests in AI integration and actually integrating AI into teaching and learning. Understanding teachers' attitudes, experiences, AI literacy, and potential integration issues is crucial for successful AI integration. While many teachers recognize the potential benefits of using AI, they may not have the necessary training or skills and hence feel unprepared to incorporate AI with pedagogy (Akanzire et al., 2023; Cheah & Kim, 2025; Qi, 2025). In addition to pedagogical knowledge, teachers must also have basic AI knowledge and skills for effective content delivery as they play a vital role in helping students understand how to use AI ethically and responsibly (Ayanwale et al., 2024). To enable successful implementation of AI, teachers especially in under-resourced schools need ongoing professional development and support from school districts (Riggs, 2025). Overall, while AI has great potential to transform education, its effective application requires careful assessment of both opportunities and challenges (Adil, 2025).

ChatGPT in Education

ChatGPT is a widely used app in the education field. It can come up with explanations at varying levels of complexity, adapt explanations to meet student needs and provide immediate feedback which may enhance student engagement (Azaria et al., 2024). ChatGPT also has the potential to promote critical thinking and provide more access to high-quality education (Chandrasekaran & Nair, 2024). However, overreliance on AI apps such as ChatGPT may also reduce students' metacognitive, critical thinking, and problem-solving skills. Teachers fear that too much reliance on AI may prevent students from putting in the necessary effort which might result in superficial learning (Ogurlu & Mossholder, 2023). Similar to other AI apps, ChatGPT also comes with ethical issues and challenges related to data security and privacy, openness, and agreement with educational ideals (Isiaku et al., 2024). The most serious issues include making sure that the ChatGPT generated texts are credible which can have a detrimental impact on knowledge and skill assimilation, validity of evaluation procedures and threats to data privacy and safety (Kiryakova & Angelova, 2023). Overall, integrating ChatGPT into educational practices has the potential to improve the teaching and learning environments (Boubker, 2024) but teachers must caution students about the challenges and guide them on how to use AI ethically and responsibly.

In the last few years, the use of AI technology has drastically increased in the education field. Rapid increase in the use of AI apps has raised interests among researchers to understand how AI impacts teaching and learning outcomes. Since the introduction of ChatGPT in 2022, several studies have been conducted in the education field to understand the increasing use of this new technology. However, based on the review of literature not much research was found regarding in-service teachers' use of ChatGPT to generate lesson plans. Thus, this study was conducted to understand in-service teachers' experiences of using ChatGPT for generating lesson plans. With the progressing use of AI in education it is imperative to understand teachers' experiences of using AI because their beliefs and experiences matter when implementing new technology that directly impacts teaching and learning. This study was conducted to shed light on using ChatGPT for lesson planning and how AI-driven lesson planning impact teaching and learning.

Method

Research Design

Qualitative research design helps researchers comprehend the meaning people construct and the experiences they have in the world. This study was conducted to understand the experiences of graduate students' especially in-service teachers in generating lesson plans using ChatGPT.

Participants and Setting

Participants for this study were students enrolled in an online graduate technology course offered in the School of Education at a university in the south. There were 21 students enrolled in the course out of which 4 were not in-service teachers, and 2 students did not provide informed consent. Overall, data from 15 participants who were in-service teachers and had provided consent were included in the study.

Ethics and Consent

The study was approved by the university's Institutional Review Board. Other ethical research guidelines such as informed consent, voluntary participation, confidentiality, privacy protection, and anonymity were also followed. The informed consent had detailed description of the research and use of data.

Trustworthiness

To judge the trustworthiness of qualitative research, Lincoln and Guba (1985) suggest concepts of credibility, confirmability, dependability, and transferability. This helps establish the consistency and accuracy of the data and ensures that the findings and conclusions are supported by the data collected and not the assumptions of the researcher. The following steps were taken to judge the trustworthiness of the study:

- To establish credibility and confirmability, an audit trail was kept documenting each and every aspect of the research from start to finish. The themes were supported with direct quotes from the participants.
- To establish transferability, rich thick description of the research process including participant selection,

data collection, and data analysis was provided.

- To establish triangulation, two different sources of data collection, such as the lesson plans and the open-ended questionnaire responses were used.

Data Collection and Data Analysis

Data for this research was collected from participants enrolled in a graduate-level technology course in the School of Education. For one of the course assignments they were required to generate a lesson plan using ChatGPT based on a curriculum standard of their choice. They then had to compare the ChatGPT-generated lesson plan with the one they had created on their own using the same curricular standard without using AI. Finally, they had to share their experiences regarding the use of ChatGPT to generate lesson plans by answering the following questions through a Google questionnaire.

1. Are you an in-service teacher?
2. Have you ever used ChatGPT before this assignment? If yes, please explain.
3. How do you feel about using ChatGPT for generating lesson plans?
4. What difference/s did you notice between the two lesson plans?
5. What are some pros and cons of using ChatGPT for generating lesson plans?
6. Will you continue using ChatGPT for generating lesson plans? Why or why not?

Data was analyzed in two parts. The first part focused on the content of the lesson plans. Both set of lesson plans were analyzed to see the prompts used by the participants to generate the plans using ChatGPT, the difference in the content between the plans, and the curriculum standard used to generate the plans. The second part focused on the responses to the Google questionnaire. Responses were analyzed based on the key steps including data organization, coding, categorization and interpretation of themes that emerged (Merriam & Tisdell, 2016). Responses from the Google questionnaire were first organized using a word document before breaking them down into meaningful segments and assigning labels or codes. Then, similar codes were grouped together to develop larger categories or themes. Finally, the themes were reviewed and refined seeking connections between them and the questions. After going through all the responses, five major themes such as Efficiency and Time-Saving, Customization and Adaptability, Lesson Structure and Details, Student-Centered vs Teacher-Centered, Overreliance and Reduced Teacher Creativity were developed. Here is an example of the steps followed during data analysis to develop one of the themes.

Step 1: Data Organization

The responses pertaining to the questions were organized into a Word document.

Step 2: Coding

Data that represented specific ideas were labelled or coded. For example, the code “Time-Saving” was based on the responses such as “ChatGPT is significantly faster than creating a lesson plan by hand”, “Cuts time for

educators in creating lesson plans,” What would have taken hours to complete, ChatGPT was able to do in seconds”, “One reason I will use ChatGPT to generate lesson plans will be to save time” etc.

The code “Efficiency” was based on responses such as “It [ChatGPT] is super-fast and complete,”, “It is very easy to get bogged down in the details of lesson planning,”, “It’s [ChatGPT] able to synthesize those ideas in a matter of minutes saving teachers precious time,”, “I am definitely going to continue using ChatGPT because it is fast and efficient system”, “It [ChatGPT] allows the teacher more time to dedicate to the instruction.” etc.

Step 3: Theme Formation

The codes from step 2 were used to develop the theme “Efficiency and Time-Saving” because it included the responses related to how ChatGPT saves time and makes lesson planning more efficient.

Step 4: Interpretation

Based on the theme developed in step 3 it can be inferred that ChatGPT can significantly reduce lesson planning time saving teachers’ time for other important aspects of teaching such as instruction.

Results

When asked if the participants had ever used ChatGPT before, their response was no. None had ever used ChatGPT until the lesson plan assignment in the technology course. Given that this study was conducted within ten months of ChatGPT’s release in November 2022, this was not surprising at all. Some participants did however mention that they had heard about ChatGPT and other AI apps. Initial reactions of the participants regarding the use of ChatGPT ranged from skepticism and intimidation brought on by negative perceptions, lack of exposure or institutional constraints to a growing appreciation for ChatGPT’s potential once they used it for the lesson plan assignment. They were also very concerned about credibility and ethics. However, after using it for the lesson plan assignment they expressed curiosity, astonishment, and openness towards ChatGPT into their educational practice moving forward. Based on data analysis the following five themes were developed:

Efficiency and Time-Saving

All participants agreed that ChatGPT can significantly reduce lesson planning time allowing teachers spend more time on instruction. With ChatGPT, a comprehensive outline for a lesson can be generated in minutes. ChatGPT can not only save teacher-time spent on generating lesson plans but also allow them to focus more on student engagement, collaboration, and student-teacher relationship building which are crucial for effective teaching. They also mentioned that quick and easy method to generate lesson plans was practical for teachers with limited time and growing responsibilities. Here are some quotes that support this theme:

"One reason I will use ChatGPT to generate lesson plans will be to save time."

- "It [ChatGPT] allows the teacher more time to dedicate to the instruction."
- "When spending less time lesson planning, I can spend more time building a rapport with students."
- "Using ChatGPT for generating lessons is that the system is quick and easy to use."
- "ChatGPT is significantly faster than creating a lesson plan by hand."
- "It's [ChatGPT] able to synthesize ideas in a matter of minutes saving teachers precious time."
- "Creating a lesson in ChatGPT was quick and efficient."

Customization and Adaptability

Participants found ChatGPT very effective in providing lesson structure and generating ideas that could be easily modified to differentiate instruction ensuring that the lesson plans are engaging, relevant, and effective for a wide range of students. ChatGPT can also provide resources specific to learning needs and skill levels of students by simplifying tasks for struggling learners while providing enrichment activities for advanced learners. In addition to planning and differentiating instruction, ChatGPT's versatility to generate quizzes, homework assignments, and activities can also help teachers with assessments. Teachers can also use ChatGPT generated ideas to modify, adapt, and or combine those ideas with their own expertise using ChatGPT as a support tool or guide instead of a replacement tool. Here are some quotes that support this theme:

- "It [ChatGPT] helps create activities that provide students with content that suits their learning level."
- "In addition to having the lesson plan, you could also generate a homework assignment and a quiz."
- "It [ChatGPT] can generate charts and other resources to supplement the lesson plans."
- "It [ChatGPT] also helps with creating tests."
- "ChatGPT gives extension activities or early finisher work for students who finish early."
- "I might also use ChatGPT... to add elements such as differentiation, accommodations and modifications."
- "It [ChatGPT] gave me ideas I wouldn't have considered otherwise and it saved me a lot of time in the process."

Lesson Structure and Details

Participants noticed that ChatGPT-generated lesson plans were more detailed and structured and provided clear steps for the different sections of the lesson such as objectives, activities, homework, assessment including time allocations and specific instructions for teacher and student roles. On the other hand, the lesson plans created by the participants were succinct and flexible focusing more on the overall direction of the lesson as opposed to specific step-by-step instructions. This theme highlights the contrast between structure and flexibility. ChatGPT generated plans were more rigid, provided a clear guide that could be followed by any teacher, potentially reducing ambiguity while teacher-created plans were more flexible providing room for spontaneous changes. Here are some quotes to support this theme:

- "My lesson plan is brief and gives a broad overview of the week."

“The ChatGPT lesson plan even contained the estimated time for each section of the lesson.”

"The lesson plan that ChatGPT generates is a complete one..."

"The ChatGPT lesson plan is very detailed with plenty of information for the lesson, homework, and assessment."

"My lesson plans now are very brief and give the overall idea of what we will be learning."

“The ChatGPT lesson plan was very detailed and explained each step so that anyone could use it.”

“The lesson plan on ChatGPT is very detailed. My lesson plan is more interactive with less detail.”

Student-Centered vs. Teacher-Centered

Participants noticed that ChatGPT-generated lesson plans were student-centered emphasizing creativity and self-reflection. However, this might be challenging for lower grades where students need more direction and support. The teacher-created lesson plans were more teacher-centered involving planned activities, direct instruction, focused questioning and concrete methods for measuring student mastery. Participants mentioned that the ChatGPT-generated lesson plans had the teacher role more of a facilitator rather than the primary instructor. Some participants noticed that ChatGPT-generated lesson plans supported constructivist learning where students build understanding through collaboration and reflection, whereas teacher-created lessons supported traditional methods ensuring clarity, control, and alignment with pacing guides. Here are some quotes to support this theme:

“In the ChatGPT lesson plan, I noticed that the lessons are completely student-driven...”

“ChatGPT differs from original as it focuses on creativity, originality which is hard to assess at the kindergarten level.”

“ChatGPT also differs from original as it assesses students based on reflection.”

"ChatGPT lesson plan had students in charge of discussions, creating presentations, and reflecting on their discussions."

"My lesson plan clearly states what is going to happen in class whereas the ChatGPT lesson offers the teacher and students a variety of methods to choose from."

"My lesson plan had more resources and interactive online activities to use built into the lesson."

“My lesson plan was spanned across one week, keeping in mind my pacing guide.”

Overreliance and Reduced Teacher Creativity

Some participants were concerned about overreliance on ChatGPT which could cause teachers to put in less effort when designing lessons, adapting materials, and engaging students. Moreover, participants mentioned that if teachers rely too much on ChatGPT to plan lessons, their own creativity and critical thinking may also suffer. They might not even take the time to improve or modify lessons for their students. This could also lead to not responding to students' questions with the depth and understanding that teachers would otherwise respond had they created the plans themselves. Here are some quotes to support this theme:

“Teachers may become lazy in their creativity.”

“I feel ok about using it [ChatGPT] for extra help, but I don’t want to use it for every lesson.”

“In my opinion, lesson planning is an art that requires creativity.”

“ChatGPT is a good tool, but it is a computer based program that does not have a connection to human emotions.”

“I could become too reliant on ChatGPT that I no longer put in the amount of time that I need...”

“This could become problematic when questions are asked by students in class.”

“A con for using ChatGPT is students and teachers not actually doing their work.”

Discussion and Conclusion

ChatGPT has the potential to create comprehensive lesson plans saving teachers time that can be utilized for student engagement and instruction. ChatGPT’s ability to generate structured lesson plans can provide teachers with a base that can be used as a guide to easily customize instruction for diverse student needs, fostering differentiation and enrichment. In contrast to structured and student-centered lesson plans generated by ChatGPT, teacher-created lesson plans are more flexible offering a balance between clarity and adaptability. Overreliance on ChatGPT might hinder teachers’ ability to think critically and creatively. Additionally, it can make it more difficult for them to respond to students’ questions with the same depth and understanding as they could with their own plans. The experiences described by the participants strongly align with findings from past research. ChatGPT generated lesson plans not only cut down on planning time enabling more time for in-class instruction and student engagement but they are also higher quality than teacher-written plans (Luo & Tahir, 2025). A systematic review highlighted that ChatGPT can relieve teachers’ administrative load, support lesson planning and enable personalization and differentiation (Fernández-Cerero et al., 2025). That said, the findings from the current study emphasize that ChatGPT should be used thoughtfully keeping in mind that ethical considerations and teacher’s judgement remain central. AI when used appropriately can provide opportunities for student learning but it cannot replace the role of teachers (Utami et al., 2023). Also, as mentioned in the findings and supported by past research ChatGPT should be considered as a supplemental tool and not as a replacement or primary tool (Ajose et al. 2026; Ogurlu & Mossholder, 2023). Overall, when used with awareness and pedagogical intent, ChatGPT has the potential to transform teaching practice by enriching planning and supporting more equitable student-centered learning.

Based on the results of this study, it can be concluded that ChatGPT has the potential to improve instructional planning by reducing teachers’ workload and assisting them with superior lesson plans that support differentiation and student-centered learning. It can help teachers regain significant time that can be used for instructional delivery and meaningful student engagement. However, the results also highlight the importance of preserving teacher independence, originality, and professional judgement. While AI-generated lesson plans can be efficient and well-organized, overreliance on AI may hinder teachers’ critical thinking and responsiveness to students’ needs. As found in existing research, this study emphasizes that ChatGPT is most effective when used as a supplemental or additional resource rather than a replacement or substitute for teacher expertise. Eventually, ethical and thoughtful integration of ChatGPT can support more equitable and enriched learning experiences, while reaffirming the unique role of teachers in guiding and adapting student learning.

This research was specifically designed with the intent of understanding in-service teachers' experiences of using ChatGPT for creating lesson plans and was only limited to fifteen students who participated in the study. Although this study had notable findings, the small sample size and the specific context warn against the application of the results to a larger population. Future such research with a larger sample size is recommended to entirely understand the experiences of using ChatGPT for creating lesson plans. Moreover, comparative studies with pre-service and in-service teachers may help identify the differences and or similarities between their experiences of using ChatGPT for creating lesson plans.

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