

TEACHER EDUCATION STUDENTS' PERSPECTIVES ON THE USE OF ARTIFICIAL INTELLIGENCE CHATGPT IN THE FIELD OF EDUCATION

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Abstract: *The development of digital technology has significantly impacted the education sector. One of the latest innovations is the emergence of ChatGPT. ChatGPT brings its own acceleration in the realm of digital writing and learning. However, there is still ambivalence and both positive and negative impacts of the emergence of ChatGPT in education. This research study aims to (1) explore the perspectives of teacher education students on the use of artificial intelligence ChatGPT in education; (2) describe the impact of ChatGPT's emergence in education. This research is a qualitative study using a case study approach. Data were collected through open-ended questionnaires with 17 participants who are students of the teacher education program at Muhammadiyah University of Purwokerto. The analysis was conducted by identifying themes and sub-themes in each topic discussed, then determining the relationships between sub-themes to draw a conclusion. The results of the study show that (1) ChatGPT helps in generating ideas or inspiration, shortens the time to complete tasks with various answers, and assists in answering complex questions; (2) The impact of using ChatGPT includes providing convenience but also fostering laziness in finding relevant information from primary and secondary sources, leading to excessive dependency on its use, and the risk of inaccurate information affecting research or discoveries.*

Keywords: *ChatGPT, Artificial Intelligence. Student perspective, Acceleration of digital learning*

ABSTRAK: Perkembangan teknologi digital telah membawa dampak signifikan pada sektor pendidikan. Salah satu inovasi terkini yang muncul yaitu hadirnya ChatGPT. ChatGPT hadir membawakan akselerasi tersendiri dalam dunia kepenulisan digital dan pembelajaran digital. Walaupun demikian, masih terdapat ambivalensi dan dampak positif negatif terhadap kemunculan ChatGPT di dunia pendidikan. Studi penelitian ini bertujuan untuk (1) mengeksplorasi sudut pandang mahasiswa profesi keguruan terhadap penggunaan kecerdasan buatan ChatGPT di dunia pendidikan; (2) mendeskripsikan dampak kemunculan ChatGPT di dunia pendidikan. Penelitian ini merupakan penelitian kualitatif dengan jenis studi kasus. Data dikumpulkan melalui kuesioner terbuka dengan partisipan berjumlah 17 mahasiswa program profesi guru di Universitas Muhammadiyah Purwokerto. Analisis dilakukan dengan mencari tema dan sub-tema di setiap topik yang dibahas, kemudian menentukan hubungan antar sub-tema untuk mendapatkan sebuah simpulan. Hasil penelitian menunjukkan bahwa (1) ChatGPT membantu dalam mencari ide atau inspirasi, mempersingkat waktu pengerjaan dengan variasi jawaban, dan membantu menjawab pertanyaan yang rumit; (2) Dampak penggunaan ChatGPT yaitu memberikan kemudahan namun kemalasan dalam informasi yang relevan dari sumber primer dan sekunder, menyebabkan ketergantungan berlebih pada penggunaannya, dan resiko validitas informasi yang kurang terhadap penelitian atau penemuan.

Kata-kata kunci: ChatGPT, kecerdasan buatan, sudut pandang mahasiswa, akselerasi pembelajaran digital

INTRODUCTION

Education in the era of Industry 4.0 is faced with the demand to adapt to rapidly advancing technology. This era marks a transition from conventional education models to environments that are more digitally connected, creating a new paradigm in teaching and learning. The presence of Covid-19 in 2020 also significantly accelerated the integration of technology in digital environments (Fathoni, Mustadi, et al., 2021; Fathoni & Retnawati, 2021). The Covid-19 pandemic that struck in 2020 hastened this change significantly, forcing educational institutions to adapt to emergencies and adopt technological solutions to continue the learning process.

The development of digital technology has had a significant impact on the education sector. One of the latest innovations that has emerged is the presence of ChatGPT. ChatGPT, or Generative Pre-trained Transformer 3, is a language model developed by OpenAI. The primary advantage of ChatGPT lies in its ability to generate text that is natural and responsive, closely resembling human interaction. In the educational context, ChatGPT has enriched the learning experience through the utilization of artificial intelligence. Its ability to produce natural and responsive text allows students to interact with the system in a more natural and interactive manner (Suharmawan, 2023).

In learning, ChatGPT can be utilized as an auxiliary tool to provide additional explanations, answer students' questions, or even create interactive scenarios to enhance engagement. ChatGPT offers benefits such as personalized learning, accessibility, and affordability. By using ChatGPT, students can access interactive learning resources that enable them to study independently and effectively (Suharmawan, 2023). The use of this technology not only expands access to information but also enhances the effectiveness of learning by providing personalized solutions tailored to each student's needs. For example, ChatGPT can offer interactive exercises, support homework, or even provide constructive feedback in the development of specific skills.

Additionally, the presence of ChatGPT has also triggered a paradigm shift in student assessment and progress measurement. With its ability to respond contextually, ChatGPT can understand students' questions more deeply, allowing for a more holistic assessment of understanding and application of lesson concepts. Furthermore, students are more engaged in the learning process, thereby enhancing their involvement in evaluation and assessment (Nailus & Hasanudin, 2023).

Previous research has shown that ChatGPT offers advantages such as providing up-to-date information, helping users save time and effort (Fauzi et al., 2023), boosting productivity and creativity (Misnawati, 2023), accelerating the writing process (Setiawan & Luthfiyani, 2023), facilitating innovative teaching (Rudolph et al., 2023), and inspiring ideas when designing lessons, rubrics, and quizzes (Cooper, 2023). However, achieving appropriate and high-quality outcomes from ChatGPT requires prompt formulation grounded in the user's critical thinking skills (Setiawan & Luthfiyani, 2023). ChatGPT also presents risks, such as the potential for students to use it for cheating in exams, as it can generate responses indistinguishable from those of a human (Susnjak, 2022). Concerns regarding the use of

ChatGPT include violations of academic regulations and ethics, issues of plagiarism, and the potential decline in reasoning ability, critical thinking, and creativity (Maulana et al., 2023).

However, alongside its benefits, it is important to remember that the use of ChatGPT in education also introduces challenges in assessment, digital literacy, and ethical considerations (Firat, 2023). Special attention is needed regarding the ethical use of this technology, including data security, student privacy, and the sustainability of artificial intelligence development. Therefore, integrating ChatGPT into education requires a careful approach, collaboration, and thorough planning to ensure its positive utilization in shaping a generation that is competent and adaptable to the evolving times. Based on the complexity of the issues that have arisen and the limited exploration of ChatGPT's perspectives in the field of education, this article aims to (1) explore the perspectives of teacher education students regarding the use of artificial intelligence ChatGPT in the field of education; and (2) describe the impact of ChatGPT's emergence in the field of education.

METHOD

This research is a qualitative study employing a case study approach conducted between May and June 2023. The participants of this study comprised 17 students from the second cohort of the Teacher Professional Education program at Universitas Muhammadiyah Purwokerto. Respondents were selected using purposive sampling, considering the objectives of the study. The chosen respondents were students who were capable of and had utilized Chat-GPT multiple times to facilitate the learning process, both in their university courses and in schools.

Data from this study were collected through open-ended questions administered online via Google Forms, with additional confirmations gathered through WhatsApp to supplement the information. The researcher served as the primary instrument in this study. However, an interview guide was developed to facilitate the extraction of information from the respondents. The interview guide was created by the researcher and validated by peers. The construction of the interview guide and some of the questions can be seen in Table 1.

Table 1. Construction of the Interview Guide

Expert Name	Researcher Interpretation	Research Questions
Misnawati (2023)	- Displays up-to-date information	- What do you know about ChatGPT?
	- Helps save time and effort	- Where did you get information about ChatGPT and its usage?
	- Enhances productivity	- In what contexts do you use ChatGPT?
	- May introduce information bias	- Has the use of ChatGPT been helpful to you? Please explain why!
	- A tool for humans, still reliant on human validation	- Does ChatGPT enhance your productivity in learning/work? Why or why not?
		- How has your time and effort in completing assignments/work changed before and after using ChatGPT?
		- What has been your experience with ChatGPT so far? Has it met your expectations for the information you seek?

		<ul style="list-style-type: none"> - Have you ever verified the accuracy of the information provided by ChatGPT? Why or why not? - Have you encountered any bias or errors in the information provided by ChatGPT? Why or why not?
Setiawan & Luthfiyani (2023)	<ul style="list-style-type: none"> - Command formulation requires critical human construction - Can increase writing speed 	<ul style="list-style-type: none"> - How do you formulate commands or provide instructions/questions in ChatGPT? Do you have a specific method for posing questions to ChatGPT?
Rudolph et al. (2023)	<ul style="list-style-type: none"> - ChatGPT has good grammar and language structure. - ChatGPT is useful for teachers in facilitating more innovative teaching and learning. - Concerns about assessment and evaluation as traditional methods may become obsolete due to AI-generated answers 	<ul style="list-style-type: none"> - How do you perceive the grammar and language structure provided by ChatGPT? - How much knowledge have you gained from ChatGPT? - What do you think about the potential of integrating ChatGPT into classroom learning now and in the future? - How would you evaluate the integration of ChatGPT into classroom learning, including its use by students to answer questions for homework? - How do you address the challenges of assessment and academic ethics in the use of ChatGPT?
Firat (2023)	<ul style="list-style-type: none"> - Enhances learning experience, personalizes instruction, and changes the role of education - Poses challenges in assessment, digital literacy, and ethical considerations 	<ul style="list-style-type: none"> - What benefits do you perceive from using ChatGPT? - What impact have you experienced from using ChatGPT? - What are the positive and negative aspects of using ChatGPT? - Are there any threats or dangers associated with ChatGPT in the field of education? Why?
Maulana (2023)	<ul style="list-style-type: none"> - Increases efficiency and effectiveness of time - Potential to violate academic rules and ethics, issues of plagiarism, reduced reasoning ability, critical thinking, and creativity - Facilitates assignment completion, educational processes, and accelerates educational development - Speeds up the process of writing scientific papers or essays using appropriate prompt techniques 	<ul style="list-style-type: none"> - Does ChatGPT have the potential to reduce your or your students' reasoning abilities? Why? - What is your opinion on ChatGPT's impact on the originality of written work? - How do you respond to ChatGPT's challenges related to assessment, digital literacy, and ethical considerations in academia?
Cooper (2023)	<ul style="list-style-type: none"> - Introduces some reference biases 	<ul style="list-style-type: none"> - What is your opinion on the reference biases present in ChatGPT 3.5?

(Source: personal construction)

After successfully collecting data through questionnaires from each respondent, the next step was to perform data reduction. The reduced data were then presented in a table format consisting of several sub-themes. Data analysis referred to the analytical model of Bogdan & Biklen (1982) and adaptations from the studies by Ramadhanty et al. (2023) and (Fathoni, Mustadi, et al., 2021; Fathoni, Surjono, et al., 2021; Fathoni & Retnawati, 2021; Fathoni & Safitri, 2022). The Bogdan & Biklen model of analysis involves the processes of data reduction,

identification of sub-themes, and exploration of relationships among sub-themes. Triangulation was conducted by comparing responses across respondents, with triangulation strength established when the information provided by respondents showed relevance to one another. Data saturation occurred when several respondents provided similar or nearly identical information. The scheduling for the distribution of open-ended questionnaire links was adjusted to the availability of each respondent. The Teacher Professional Education students who participated as respondents agreed to their participation voluntarily and without coercion. The researcher emphasized that the information provided by respondents would be used solely for this research and that their identities would be kept completely confidential. All information related to participant responses was kept confidential and would not affect the respondents' future.

RESULTS AND DISCUSSION

RESULTS

The findings of this study are categorized into three main themes: (1) perspectives on the use of ChatGPT; (2) positive and negative impacts of ChatGPT's emergence in the field of education; and (3) negative consequences of ChatGPT's emergence in the field of education. The research results were then subjected to data reduction, and sub-themes were identified within the main themes discussed. Subsequently, the sub-themes were interconnected to derive final conclusions for each topic. Each theme discussed is presented in greater detail in the following discussion.

PERSPECTIVES ON THE USE OF CHATGPT

Based on information from respondents, initial knowledge about ChatGPT was first acquired through WhatsApp, led by the class representative, and through chain information from fellow students. Further details about ChatGPT and its usage were obtained from various connections and social media, indicating that this knowledge is widely disseminated among students. The use of ChatGPT has been reported to alleviate academic tasks, with this information coming from classmates who shared positive experiences. Data analysis on the perspectives regarding the use of ChatGPT revealed five sub-themes, as presented in Table 2.

Table 2. Reduced Findings on the Perspective of ChatGPT Usage

No.	Sub-theme	Relationship between sub-themes
1.	Assists in completing coursework	The perspective of teacher education students indicates that the use of ChatGPT is beneficial in completing coursework, planning assignments, finding answers or information that is difficult or complex, and can be utilized in urgent situations with tight task deadlines.
2.	Assists in task planning	
3.	Helps in finding answers or information that is difficult or complex	
4.	Provides inspiration for completing tasks	
5.	Can be used in urgent situations with short task deadlines	

ChatGPT's usage is predominantly observed in the context of completing academic assignments. Respondents consistently reported utilizing ChatGPT to assist with coursework tasks. The platform is employed for tasks such as searching for references, explaining lecture topics, and generating ideas for articles or discussion materials. Respondents also use ChatGPT to help organize assignment plans, indicating its role in the planning phase prior to task execution. Additionally, ChatGPT is used to find answers or information deemed difficult to address, demonstrating the platform's capability in handling complex queries. It also aids in understanding specific course material. Furthermore, ChatGPT is utilized in urgent situations, providing assistance with coursework or assignments under tight deadlines.

POSITIVE IMPACTS OF USING CHATGPT

ChatGPT is considered helpful because it allows respondents to obtain various answers without the need to open multiple browser tabs or use other search engines. The use of ChatGPT facilitates the search for information related to assignments, making it an efficient tool for supporting academic work. Data analysis on the positive impacts of using ChatGPT identified five sub-themes, as presented in Table 3.

Tabel 3. Reduced Findings on the Positive Impact of ChatGPT Usage

No.	Sub-theme	Relationship between sub-themes
1.	Provides broader insights and perspectives on information.	The positive impact of using ChatGPT includes offering broader insights, making information search easier, providing ease of use, helping with sentence structuring and definition searching, as well as increasing productivity and shortening task completion time.
2.	Offers ease in searching for information and answering tasks.	
3.	Ensures ease of use or accessibility.	
4.	Assists in sentence structuring and definition searching.	
5.	Enhances productivity and shortens task completion time.	

Respondents felt supported as ChatGPT provided a broader perspective on the topics discussed, which is beneficial in overcoming cognitive blocks. They also appreciated that ChatGPT simplifies the search for information, answers to assignments, translation of foreign languages, paraphrasing, and providing additional references. Additionally, ChatGPT is user-friendly, free, and accessible from anywhere, at any time. Respondents acknowledged that ChatGPT assists in sentence construction and finding definitions, especially when faced with difficulties. Moreover, ChatGPT helps to expedite the completion of tasks by offering varied responses.

NEGATIVE IMPACTS OF USING CHATGPT

Although ChatGPT presents various positive aspects, it also has negative impacts as reported by teacher education students. Data analysis on the negative impacts of using ChatGPT identified four sub-themes, as outlined in Table 4.

Table 4. Reduced Findings on the Negative Impact of ChatGPT Usage

No.	Sub-theme	Relationship between sub-themes
1.	Ease of use leads to a decline in critical thinking.	The negative impact of using ChatGPT includes ease of use leading to less critical thinking, limited support in enhancing cognitive abilities, becoming the go-to option for information retrieval despite more valid sources being available from primary and secondary references, and fostering dependency on ChatGPT.
2.	Helps complete tasks but does not significantly enhance thinking skills.	
3.	Becomes the primary choice for information retrieval, even though more valid sources are found in primary and secondary references, not from ChatGPT.	
4.	Creates excessive dependency on ChatGPT usage.	

Some respondents felt that ChatGPT was less helpful because it made them complacent in their learning, particularly due to its ease of use. There is an awareness that, despite ChatGPT's assistance in learning, users need to be cautious not to rely solely on ChatGPT without considering the accuracy of its responses. Several respondents mentioned that while ChatGPT helps in completing tasks quickly, it does not contribute significantly to enhancing critical thinking skills. Respondents acknowledged that, although ChatGPT is useful, it should be cross-referenced with more valid sources, as sometimes its answers can be overly rigid. Additionally, some respondents perceived that ChatGPT reduces stress from excessive assignments, but there is a potential for dependency on ChatGPT for completing tasks.

DISCUSSION

Research findings indicate that the use of ChatGPT from the perspective of student teachers has had a significant impact on helping them complete various academic assignments. In the context of assignment planning, ChatGPT offers convenience by providing relevant guidance and ideas, thereby speeding up the planning process. This correlates with Cooper's study (2023), which suggests that the use of ChatGPT sparks ideas in learning. Additionally, when faced with complex questions or topics, ChatGPT is capable of providing in-depth answers, making it easier for students to understand difficult material. This aligns with previous studies that have noted ChatGPT's ability to help students grasp complex concepts in a more interactive and enjoyable manner (Gaol & Manalu, 2024; Manu et al., 2023). This capability is especially useful in urgent situations where assignment deadlines are tight. This finding is consistent with Setiawan & Luthfiyani (2023) research, which found that writing processes become faster, helping users save time (Fauzi et al., 2023). Students can use their time more efficiently and reduce the stress that typically arises from time pressure.

The positive impact of using ChatGPT is not only limited to the ease and speed of completing tasks but also includes the broadening of perspectives. The acceleration of work correlates with previous research indicating that ChatGPT can accelerate task completion and increase productivity (Fauzi et al., 2023; Setiawan & Luthfiyani, 2023; Suryono et al., 2023). With the help of ChatGPT, students can access a broader and more diverse range of information,

which can open up new perspectives in their thinking. ChatGPT's ability to quickly construct sentences and provide definitions also assists students in composing tasks more accurately and precisely. Additionally, the ease of accessing ChatGPT anytime and anywhere enhances students' productivity, allowing them to complete more tasks in less time. This efficiency is one of the main advantages of integrating ChatGPT into the learning process.

The integration of ChatGPT into education offers significant potential both now and in the future. Currently, ChatGPT can function as a dynamic educational tool, providing instant feedback, personalized guidance, and support across various subjects. This integration enhances accessibility to learning resources, enabling students to interact with content interactively and receive explanations tailored to their individual needs. Looking ahead, as technology advances, ChatGPT's capabilities are expected to evolve, with the potential to incorporate more sophisticated AI-based insights and adaptive learning features. This could further revolutionize education by facilitating more personalized and effective learning experiences, bridging educational access gaps, and supporting educators in delivering innovative and engaging instruction. Thus, integrating ChatGPT not only addresses current educational challenges but also paves the way for a more adaptive and inclusive future in education.

However, alongside its benefits, there are also negative impacts that need to be considered. The ease of using ChatGPT can make students lazier in critical thinking, as they tend to rely on the instant answers provided by AI. This can diminish the development of analytical and critical thinking skills that should be nurtured during their studies. Gaol & Manalu's (2024) research correlates with this, noting that users become excessively dependent on ChatGPT, thereby reducing their cognitive abilities. Furthermore, over-reliance on ChatGPT can diminish students' critical skills in analyzing and solving problems without AI assistance (Alves de Castro, 2023). Additionally, although ChatGPT provides quick answers, this can lead students to prioritize information from ChatGPT as their primary source, despite the existence of more valid primary and secondary sources. This dependency can decrease the quality of learning and deep understanding of the material, as well as increase the risk of plagiarism.

CONCLUSION

Based on the findings and discussions, the general conclusions of this study are as follows: (1) ChatGPT aids in generating ideas or inspiration, shortens task completion time with varied responses, and helps answer complex questions; (2) The impact of using ChatGPT includes providing convenience but also leading to laziness in seeking relevant information from primary and secondary sources, causing excessive dependency on its use, and posing risks regarding the validity of information in research or discoveries. This study demonstrates that the use of ChatGPT has a significant impact on the learning process of student teachers, particularly in completing academic assignments and planning tasks. ChatGPT has proven effective in providing guidance, ideas, and solutions for complex topics, thereby making it easier for students to understand material and complete tasks in a short time. However, the study also identifies the negative impacts of dependence on ChatGPT, such as a decline in critical and

analytical thinking abilities. Students tend to rely on instant answers from AI, which can hinder the development of deeper thinking skills. Additionally, reliance on ChatGPT as the primary source of information can reduce the use of more valid primary and secondary sources and increase the risk of plagiarism. Overall, while ChatGPT offers great potential in education, it is crucial for educators and students to use this tool wisely, ensuring that it supports rather than replaces the development of critical and analytical cognitive skills. A careful and measured integration of ChatGPT into learning will be key to maximizing its benefits while mitigating its negative impacts.

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