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# The Use of ChatGPT in Higher Education: Student and Lecturer's Perspectives

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## Abstract

The research aims to compare the perspectives of students and lecturers on the use of Chat Generative Pre-trained Transformer (ChatGPT) in higher education. The research follows a comparative study design with a qualitative method. Purposive sampling is used to select participants, including an English lecturer from a university and the researcher, who is a postgraduate student. Data is collected through a semi-structured interview conducted via Zoom. The interview questions cover topics such as the impact of ChatGPT on education, the most involved subjects for ChatGPT, challenges in using ChatGPT, ethical considerations, and the positive and negative impacts of ChatGPT for students and lecturers. Thematic analysis is used to analyze the interview data and compare the perspectives of students and lecturers. The findings highlight the potential benefits of ChatGPT in enhancing the learning experience, providing access to information and resources, and assisting in various educational tasks. However, challenges such as finding specific materials and the need for appropriate keywords are identified. Ethical use is emphasized, and both positive and negative impacts are discussed, including the risk of overreliance and reduced human interaction.

***Keywords:*** *Comparative Study, Student and Lecturer's Perspective, The Use of ChatGPT*

## INTRODUCTION

The rise of digital technologies and artificial intelligence (AI) has had a transformative impact on various industries, including marketing, healthcare, agriculture, and education. In higher education, the digital revolution has become inevitable, particularly in the post-COVID-19 era, leading to the adoption of celular technologies and digital meeting platforms (Agbaglo & Bonsu, 2022). An AI tool that has attracted considerable attention is the Chat Generative Pre-trained Transformer (ChatGPT), developed by OpenAI. ChatGPT, with its impressive 175-billion parameter architecture, belongs to a family of natural language processing (NLP) models designed to facilitate computer-human interactions (Hosseini et al., 2023; OpenAI, 2022). Through generating conversational-style replies derived from user prompts, ChatGPT proves to be a versatile tool (Gilson et al., 2023). However, Yet, there are growing apprehensions about the trustworthiness, approval, and pertinence of ChatGPT within academic circles. Critics have questioned the capabilities of ChatGPT in academic paper development (Hu, 2023; Khalil & Er, 2023) and the composition of higher-discharge summaries (Grant & Mets, 2022). Issues of this nature affect the credibility of research carried out in educational and other industrial settings. Moreover, Davis

(2023) has highlighted the lack of commonsense reasoning in ChatGPT and raised doubts about its language scope (Jiao et al., 2023).

In spite of these limitations, there is proof illustrating ChatGPT's notable achievements across different domains, with a notable emphasis on its effectiveness in the field of education. Its ability to generate coherent responses and engage in meaningful conversations can be a valuable asset. However, it is essential to exercise caution when using ChatGPT and be aware of its limitations to ensure the credibility and reliability of research and academic work. The advent of AI tools like ChatGPT has brought both advantages and concerns to academia. While ChatGPT offers promising capabilities in generating responses and supporting educational interactions, it is crucial to acknowledge its limitations to maintain the integrity and trustworthiness of research and academic endeavors.

The advantages of utilizing ChatGPT in the field of education have been documented in preliminary research papers as well as numerous online articles and various media sources (Zhang, 2022); others have provided recommendations for incorporating it into classroom settings to support academic investigation (Lopez, 2023; Miller & Miller, 2022). However, due to the novelty of this technology and its related subject matter, there is a scarcity of studies that have specifically the exploration of students' perspectives and their inclination to use ChatGPT. It is important to investigate the controversies surrounding this topic, as it would pave the way for further research opportunities. Furthermore, the growing interest in ChatGPT has primarily been observed among experts in the field of education and academia, rather than undergraduate, graduate, and student researchers. Additionally, this study offers insights into the application of this innovative technology in the context of higher education in Indonesia.

The research is situated within the framework of Artificial Intelligence in Education (AIEd) (Rodriguez et al., 2023), which examines the chances and challenges posed by technology in the education sector. Given these justifications, this study aims to compare the perspectives of both students and lecturers concerning the utilization of ChatGPT. Despite its potential, ChatGPT has faced scrutiny within academic circles. Critics question its capabilities in academic writing and the generation of higher-level summaries, impacting the credibility of research (Hu, 2023; Khalil & Er, 2023; Grant & Mets, 2022). Additionally, Davis (2023) has raised concerns about ChatGPT's lack of commonsense reasoning and language scope, highlighting limitations that affect its academic utility (Jiao et al., 2023). Preliminary studies and media sources acknowledge ChatGPT’s benefits in education, noting its ability to support academic interactions and generate coherent responses (Zhang, 2022; Lopez, 2023; Miller & Miller, 2022). However, there is a noticeable gap in research focusing specifically on students' perspectives and their inclination towards using ChatGPT, particularly in the context of higher education.

## LITERATURE REVIEWS

### Aplication of ChatGPT

Although ChatGPT has currently become available to the public, it has already attracted significant attention in the research community. Recent studies have explored various applications and evaluated the performance of ChatGPT. One study conducted by Thorp (2023) assessed ChatGPT's responses on topics like education, literature, and scientific writing. The results showed that ChatGPT produced engaging writeups when asked to complete scenes from classic plays. In terms of education, it could provide factual answers but still required improvement in essay writing. Another study by Else

(2023) aimed to differentiate between abstracts of scientific papers written by ChatGPT and humans. Surprisingly, human evaluators could only identify 68% of the abstracts generated by ChatGPT. De Angelis et al. (2023) discussed the evaluation of language models with a focus on ChatGPT and emphasized the ethical and practical challenges in fields like medicine and public health. These challenges include the potential dissemination of AI-generated misinformation, often referred to as an "infodemic," which can be challenging to identify.

**ChatGPT in Higher Education**

In the field of education, the emergence of ChatGPT has implications for instructional designers and instructors. While it may seem that ChatGPT could potentially replace the need for experience, knowledge, and traditional instructional design models like ADDIE, this is not necessarily the case. ChatGPT can assist in creating lesson plans and learning materials based on input, but it does not eliminate the need for human expertise in designing effective instruction.

Additionally, while ChatGPT may have the capacity to evaluate students' assignments to some extent, it is unlikely to completely replace the role of instructors in providing feedback and assessment. Human instructors bring valuable insights, contextual understanding, and domain expertise that cannot be replicated by an AI tool. As such, instructional designers and instructors will still have important roles to play in the educational process, even in the era of ChatGPT. They can serve as facilitators, mentors, and guides for students, helping them make sense of the information generated by AI tools and supporting their learning journeys.

As for students, they will still have work to do even with the presence of ChatGPT. While the tool can provide assistance and generate content, it is ultimately up to the students to engage with the material, apply critical thinking, and actively participate in the learning process. The use of ChatGPT should not result in a situation where students no longer need to put in effort or demonstrate their understanding.

It is necessary to consider the potential misuse of AI tools like ChatGPT (Schunk, 2020). Educators should be cautious and actively monitor the use of such tools to ensure that they are used appropriately and ethically. Detecting misuse may involve implementing safeguards, establishing guidelines, and leveraging human judgment to identify instances where the tool's outputs may not align with the intended educational outcomes (Wiley, 2023).

Ultimately, the goal of education in the era of ChatGPT should be to foster enduring changes in students' behavior and promote meaningful learning experiences. While AI tools can enhance the learning process, they should be seen as supportive tools rather than replacements for human educators. Instructional designers can play significant roles in leveraging AI technology effectively, combining their expertise with the capabilities of ChatGPT to create innovative and impactful educational experiences.

**Challenges of Generative AI-based Learning**

The increasing popularity of Generative Artificial Intelligence (GAI) tools like ChatGPT and Midjourney has attracted significant attention. ChatGPT can provide comprehensive answers across various subjects, while Midjourney can produce images based on user input. The outputs generated by these AI models closely resemble human-created content, which is both remarkable and worrisome. Although these applications have the potential to produce high-quality articles and artworks, their inappropriate use may have negative implications for education and social security

(Yang et al., 2021). As Hwang (2014), a fundamental use of artificial intelligence in educational environments involves the facilitation of "personalized learning." AI technologies now make it feasible to offer individualized guidance or assistance to learners, tailoring support to their specific learning performances and requirements. In spite of the reservations and debates, it is undeniable that the utilization of GAI applications in educational environments is emerging as a novel trend in technology-driven learning. (Dehouche, 2021; Dwivedi et al., 2023). Numerous academics have highlighted the possibilities of utilizing GAI-driven education to enhance learners' abilities in creative thinking, critical analysis, and troubleshooting skills.. (Eysenbach, 2023). Developing guidelines or templates for GAI-based learning is crucial to eliminate obstacles to the integration of GAI applications in schools.

**Limitations of ChatGPT**

The potential applications of ChatGPT are diverse and intriguing, but it is important for users to be aware of its present limitations. One area of concern is that ChatGPT may exhibit errors in basic reasoning, logic, mathematics, and the presentation of factual information. These limitations should be taken into consideration when utilizing the model (Borji, 2023). ChatGPT currently has a constraint on the amount of text it can process, limited to 5000 tokens. This can be problematic for tasks such as text summarization. Additionally, the existing ChatGPT interface does not have the capability to accept image or audio file uploads. Although ChatGPT has the capability to produce text-based descriptions of visual images through prompts, its ability to create visual drawings is currently somewhat limited (Bang, 2023). In this context, Huang (2023) recently unveiled a multi-modal language model that underwent training on diverse corpora incorporating image-caption pairs, enabling it to recognize various modalities.

These multi-modal systems offer practical applications, such as generating images based on textual prompts and extracting stems from popular music. ChatGPT tends to provide lengthy and detailed answers unless instructed otherwise, and it tends to be objective rather than emotional (Guo, 2023). Therefore, ChatGPT cannot serve as a substitute for human interaction or friendship. Additionally, it is not suitable for personal therapy or counseling, as those require a close and personal human connection.

## RESEARCH METHODS

As the main purpose of this research is to compare between student and lecturer’s perspective on the use of ChatGPT. In line with the research goals, this study employs a qualitative comparative approach to address the research questions. The choice of a comparative study is suitable for the objectives of this research, as the intention is not to make generalizations about a population but to delve into a more focused and detailed understanding of a particular perspective (Hancock and Algozzine, 2006). The current study utilized interview data as its primary source, complemented by triangulation. Consequently, the interview-derived information will be linked to and examined in accordance with the theories and discoveries from prior research. As this study employs the comparative research approach, the researcher's role is limited to that of an interviewer, with no involvement in implementing interventions for the participants (Creswell & Creswell, 2017). This position is undertaken to simplify the process for researchers in generating interpretations from a comparative perspective between student and lecturer’s perspective on the use of ChatGPT.

To select the appropriate participant, purposive sampling has used in this research. The purposive sampling technique is a technique for selecting participants in qualitative research that is carried out deliberately because these participants are considered to have certain understanding and perspective that can support the research. Purposive sampling is a non-random technique that is not based on the number of participants but on the caliber of individuals capable and willing to share information derived from their expertise or personal experience (Etikan, 2016; Arifin, 2019). However, the participant in this study was an English lecturer from one of the universities in Aceh. The English lecturer was chosen because of his extensive experience in teaching English at a higher education institution. His professional background provides a deep understanding of the educational context, pedagogical practices, and challenges in teaching English. Importantly, the lecturer serves as the Head of the English Department, which positions them to influence and implement educational policies and strategies. This role allows him to provide valuable insights into institutional decision-making processes and the practical implications of educational policies on English language instruction.

The postgraduate student from one of universities in Bandung was selected due to his advanced academic background in English education and his firsthand experience using ChatGPT. As a student who is actively engaged in the latest educational technologies and methodologies, he brings a contemporary and practical viewpoint to the research. Their dual role as both a learner and a practitioner allows him to offer insights from both perspectives, enriching the study with a comprehensive understanding of the use of ChatGPT in language learning.

The current research utilized semi-structured interviews as a means of data collection, a method recognized for its naturalistic approach. Employing this tool could potentially enhance the comprehensiveness of insights into the studied phenomenon (Alshenqeeti, 2014). The semi-structured interview was used to obtain data about student and lecture's perspective on the use of ChatGPT. The interview session was conducted once on June 27$^{th}$, 2023, around 55 minutes. The interview was conducted via Zoom due to the geographical separation of the participants and the researcher. The interview questions broadly addressed the following topics:

- The impact of ChatGPT on education
- The most involved subject on ChatGPT
- Challenges on the use of ChatGPT
- The etical use of ChatGPT in education
- Positive and negative impacts of ChatGPT for student and lecturer
- Future perspective on the evolution of ChatGPT
- Advice from students and lecturers

The mentioned points above developed into seven themes based on 15 specific interview questions. The interviewer documented the conversation, noting key highlights for enhanced ease of analysis in subsequent stages.

The procedures for collecting data in for this relevant study refer to Taherdoost (2021). There are five steps, as briefly mentioned below.

- Recognize issues or potential areas for data collection.
- Choose specific issue(s) or opportunity(ies) and establish objectives.
- Develop a strategy and methods for planning.
- Gather the necessary data.
- Evaluate and interpret the collected data.

During this phase, semi-structured interview data were processed and analyzed using thematic analysis (TA). In general, thematic analysis generates insight and understanding from collected data and enables researchers to uncover patterns from all collected data, including what study subjects believe, feel, and do (Braun & Clarke, 2006). Based on the data gained from the semi-structured interview, the theme analysis was used to compare the student and lecturer's perspective on The use of ChatGPT based on the data obtained through the semi-structured interview. The analysis steps refer to the process of interviewing, analyzing, comparing and reporting the data patterns (themes) through familiarizing with the data, generating initial codes, searching for themes, seviewing themes, naming themes, comparing the perspectives and producing the report.

## RESULT AND DISCUSSION

This research aims to compare between the student and lecturer's perspective on the use of ChatGPT. The current investigation uncovered certain results via conducted interview (See appendix 1 for questions and transcription). Below is a description of the results obtained.

### The Impact of ChatGPT on Education

Technology in education is seen as helpful and signifies continuous advancement. However, ChatGPT can enhance the learning experience for students by providing direct discussions and detailed examples:

> *"Perhaps, it can be a tool to conduct a survey in terms of exploring creative ideas. I think, it's not only used for university students, but also for school students. Even so, the main idea is still from us, ChatGPT is just a learning assistant".* (Lecturer)

It can assist in creating various educational materials such as essays, research drafts, and PowerPoint presentations. Besides, It can provide access to information and resources, making learning easier and more efficient:

> *"Many things can be done with ChatGPT including creating essays, short stories, and many other literary works such as rhymes and poems. I've found that ChatGPT can even create research drafts and materials for power point presentations. In addition, we can also create books using ChatGPT".* (Student)

ChatGPT serves as a powerful tool for accessing information and resources. With its vast knowledge base and ability to understand and respond to queries, students can benefit from instant gratification to diverse educational resources. (Ramanathan, 2021), This accessibility promotes independent learning and empowers students to explore topics of interest in depth.

### The Most Involved Subject on ChatGPT

ChatGPT is mostly useful in writing subjects, where it can quickly generate essays, articles, and discussions. Hence, It can also be utilized in marketing courses, English for tourism, and IELTS learning in the speaking question section.

> *"In addition to writing courses, we can also use it in marketing courses such as how to promote products and also English for tourism on how to guide visitors to come to tourism places. We can get many good ideas from ChatGPT. It can also be used for IELTS learning in the speaking question section".* (Lecturer)

While ChatGPT can generate essays, articles, and engage in discussions on various subjects, it is essential to note that it is an AI language model and not an expert in any specific field.

> *"In my opinion, ChatGPT is mostly used in writing subject for ChatGPT can quickly create essays, articles or certain discussions".* (Student)

ChatGPT can assist in generating sample responses, discussing potential strategies, and providing language support for learners (Alkaissi et al., 2023).

**Challenges on the use of ChatGPT**

Chalanges faced by students and lecturer are finding specific materials and need to use appropriate keywords for desired results because ChatGPT tend to provide the same discussion.

> *"The difficulty is that when, for example, I write a scholarship essay, we will find the same discussion. Therefore, we have to be really critical to ask about certain topics. Of course the machine has its weaknesses".* (Lecturer)

These challenges are inherent to the nature of ChatGPT and its training data. ChatGPT is a language model trained on a large corpus of text from the internet, and while it can provide general information and generate coherent responses, it may not always meet the specific needs of academic research or specialized topics.

> *"Sometimes, it's not easy to find specific material. We have to try to use certain keywords so that ChatGPT can present the definition or example of what we want".* (Student)

It is necessary to note that the responses provided through ChatGPT are generated based on patterns and examples it has learned during training (Haleem et al., 2022).

**The Etical Use of ChatGPT in Education**

Measures such as using Turnitin and careful examination by lecturers can help ensure the ethical and responsible use of ChatGPT. However, students should avoid simply copying provided information and instead develop their own writing skills.

> *"It can still be used but students must really understand and be responsible for what is made".* (Lecturer)

Transparency and disclosure are crucial aspects of the ethical use of ChatGPT in education (Mhlanga, 2023). It is essential for educational institutions to clearly communicate to students and users that they are interacting with an AI-powered chatbot and not a human.

> *"Maybe by using turnitin and I think lecturers should also read in details about the assignments given by students. Similar to translation assignments, lecturers should be able to identify whether the translation is totally from Google translate or not".* (Student)

However, the users should be aware that their interactions are being processed by an AI system and that their data may be collected and used for improvement purposes (Aczel et al., 2023). Providing clear information about the capabilities and limitations of ChatGPT helps users make informed decisions and manage their expectations.

**Positive and Negative Impacts of ChatGPT for Student and Lecturer**

Positive impacts of ChatGPT include easy access to information, enhanced understanding, and support for personalized learning. Meanwhile, the negative impacts include potential laziness and carelessness in verifying information, as well as potential

overreliance on ChatGPT. For lecturers, ChatGPT provides efficient teaching support, personalized feedback, and opportunities for pedagogical innovation. Yet, there is a risk of reduced human interaction and the potential propagation of biases or inaccuracies if lecturers solely rely on ChatGPT without independent verification.

> *"Maybe, the positives of using ChatGPT is helping the user in terms of publication. In addition, it can also be used to find materials for teaching writing and speaking. The point is, it's really helpful if we understand it. Especially in terms of writing, many people think that writing is difficult. even though they have ideas, it is difficult to put them into writing. Then ChatGPT can help people with that".* (Lecturer)

For students, it offers easy access to information, allowing them to quickly find resources and explanations on various subjects. It also enhances understanding and learning by providing interactive conversations and personalized guidance, helping students grasp complex topics more effectively.

> *"On the other hand, the negative impact is that users, especially students, will feel lazy and careless to the accuracy of the information provided by ChatGPT".* (Student)

In summary, ChatGPT has both positive and negative impacts on students and lecturers. It offers easy access to information, enhances understanding, and provides personalized learning support for students (Wang et al., 2023). For lecturers, it provides efficient teaching support, personalized feedback, and opportunities for pedagogical innovation. However, there are concerns about potential laziness and carelessness in verifying information, as well as overreliance on ChatGPT. Lecturers also need to be cautious of reduced human interaction and potential biases. To maximize the benefits and mitigate the drawbacks, it is important to strike a balance by using ChatGPT as a valuable tool while fostering critical thinking skills and independent evaluation of information among students and lecturers.

**Future Perspective on the Evolution of ChatGPT**

The future evolution of ChatGPT is uncertain, but it should be utilized responsibly to prevent misuse. In this case, universities and schools have a responsibility to educate students about the wise use of ChatGPT and other similar technologies.

> *"I am the type of person who love to try to explore technology, chatgpt should help and facilitate students. Don't let ChatGPT be misused".* (Lecturer)

In this context, universities and schools play a significant role in educating students about the responsible use of ChatGPT.

> *"I see the use of ChatGPT will have a bad impact especially for school students. So, this must be balanced with an understanding of its wise use. In this case, universities and schools have a responsibility to socialize the use of ChatGPT. Because it's impossible to be prohibited. If it's not with ChatGPT, maybe there will be new technologies that appear and we have to ready for that".* (Student)

However, it is crucial to approach the evolution of ChatGPT and similar technologies responsibly (Islam, 2007). As AI becomes more advanced, there is a need to ensure that it is used ethically and with proper oversight. This is particularly important in educational settings, where students may interact with AI systems like ChatGPT.

**Advice from Students and Lecturers**

Students should use ChatGPT smartly and wisely, staying updated on technological advancements. Moreover, lecturers can use ChatGPT to expand their teaching abilities, but they should also rely on their own experience and expertise. It is believe that personal interactions with educators are essential for gaining valuable experience and becoming educated individuals.

> *"Teachers are the best experience and you can't gain experience from machines, but from people. And to become an educated person, you can only learn from educators".* (Lecturer)

In the discussion, it was emphasized that students should use ChatGPT smartly and wisely while staying updated on technological advancements. While ChatGPT can be a valuable tool for accessing information and guidance, it is important for students to approach it critically and supplement its responses with information from reliable sources.

> *"Indeed, technology is a modern tool and we must be open and updated on its development. If not, we will be left behind. We don't have to be proficient in every new technology, but at least knowing the types and benefits to support our education. In this case, I'd like to advise everyone to use ChatGPT smartly and wisely".* (Student)

However, it was emphasized that educators should rely on their own experience and expertise, as personal interactions with them are crucial for students to gain valuable experiences and become educated individuals (Jerkovic et al., 2023). Overall, the majority of the results conformed to the theoretical framework proposed by Emmanuel Mensah (2023) and other related research on the perspective of ChatGPT usage. It found that there were students' favorable views of ChatGPT stemming from its influence, challange, ethical use and future evolution for education. Concerning the student and lecturer's perceptive on the use of ChatGPT, It found ChatGPT was used to in developing theories, creating an essay or even a draft of power point. Moreover, it also helped the lecturer to creat a teaching method and subject materials.

There is existing literature that has documented students' apprehension and unease when it comes to adopting novel technologies in educational settings (Liang et al., 2022; Siddique et al., 2022). In order to address the lack of confidence, an assertion regarding the students' ease demonstrated favorable responses, reflecting their attitudes towards ChatGPT. The findings suggest that ChatGPT, an AI-powered chatbot, has a significant impact on education. It has the potential to enrich the educational journey through facilitating immediate dialogues and detailed examples, creating it an impactful media for lecturers and students (Awad, 2022). As one of the ost powerful benefits of ChatGPT is the ability to assist in developing various educational resources such as essays, research drafts, and PowerPoint presentations. Agyei, (2020) argued that ChatGPT offers convenient access to information and resources, promoting independent learning and empowering students to explore topics of interest in depth. This accessibility and support can greatly benefit students in their academic writing (Straume, 2022). The study also highlights that ChatGPT is most commonly used in writing subjects, where it can quickly generate essays, articles, and engage in discussions. Additionally, it can be utilized in marketing courses, English for tourism, and IELTS learning in the speaking question section. This versatility makes it a valuable tool across multiple subjects and can support students' learning in various domains.

However, there are challenges associated with the use of ChatGPT (Cheng, 2023). Users, both students and lecturers, may face difficulties in finding specific

materials and need to use appropriate keywords for desired results. ChatGPT's responses are based on patterns and examples learned during training, which can limit its ability to meet specific research or specialized topic needs. It is important for users to critically evaluate the information provided by ChatGPT and not rely solely on its responses. The ethical use of ChatGPT is also a significant consideration. Measures such as using plagiarism detection tools like Turnitin and careful examination by lecturers can help ensure responsible use. Mhlanga (2023) explained that ransparency and disclosure are crucial, as users need to be aware that they are interacting with an AI system and that their data may be collected for improvement purposes . Providing clear information about the capabilities and limitations of ChatGPT helps users make informed decisions and manage their expectations (Er, 2023).

The impact of ChatGPT on students and lecturers is both positive and negative. For students, it offers easy access to information, enhances understanding, and provides personalized learning support. However, there is a risk of potential laziness, carelessness in verifying information, and overreliance on ChatGPT. For lecturers, ChatGPT provides efficient teaching support, personalized feedback, and opportunities for pedagogical innovation (Lin, 2023). However, there is a concern about reduced human interaction and potential propagation of biases or inaccuracies if lecturers solely rely on ChatGPT without independent verification. To maximize the benefits and mitigate the drawbacks, it is crucial to strike a balance in using ChatGPT as a valuable tool while fostering critical thinking skills and independent evaluation of information among students and lecturers. Universities and schools play a significant role in educating students about the responsible use of ChatGPT and similar technologies (Singh, 2017).

Looking towards the future, the evolution of ChatGPT and similar technologies is uncertain. However, it is important to approach their use responsibly and prevent misuse. Universities and schools should continue to educate students about the wise use of these technologies. The acceptance of technological advancements is necessary, while maintaining the significance of personal interactions with educators and the nurturing of critical thinking skills should remain indispensable for students' development and educational progress. Contrary to the existing literature highlighting concerns regarding the incorporation of technology in education, alternative studies have presented contrasting results (Essel et al., 2022; Tlili et al., 2023). The participant asserts that the utilization of ChatGPT may yield potential implications in the field of education, particularly in relation to customized learning, academic guidance, language acquisition, research, and academic references.

The findings highlight the positive impact of ChatGPT on education, such as easy access to information, enhanced understanding, and personalized learning support. However, challenges exist, including the need for critical evaluation of information and potential overreliance. Ethical use, responsible implementation, and a balanced approach are necessary to maximize the benefits of ChatGPT while ensuring students' continued growth and education. The verifiability lies in the satisfaction derived from utilizing innovative of various technologies (Fathema et al., 2015; Tlili et al., 2023), the enhanced outcomes affiliated with their usage (Pavlik, 2023), and the superior experience of the users (Biswas, 2023; Tlili et al., 2023), all of which contribute to students' advocacy for the incorporation of ChatGPT in higher education.

**Pedagogical Implications of AI in Education**

The integration of AI tools such as ChatGPT in education provides transformative opportunities for both students and lecturers. However, the potential

benefits must be balanced with a commitment to ethical and responsible use. AI can serve as a valuable aid in enhancing learning experiences by offering immediate access to vast amounts of information, generating ideas, and assisting with writing tasks. For students, ChatGPT can facilitate the development of critical thinking and creativity when used as a supportive tool rather than a crutch. Educational institutions should prioritize teaching students how to effectively incorporate AI into their studies, emphasizing the importance of cross-referencing AI-generated information with other credible sources to ensure accuracy and depth. As Straume (2022) points out, digital literacy and critical evaluation skills are essential in navigating the complexities of AI-enhanced learning. By fostering these skills, educators can help students use AI to supplement their learning, encouraging them to engage deeply with content and develop original ideas. This approach not only enhances the learning process but also prepares students for a future where AI will be an integral part of their professional and academic lives.

Equally important is the ethical consideration surrounding the use of AI in educational settings. Transparency and accountability must be at the forefront of AI integration, with clear guidelines on data usage, privacy, and the ethical implications of AI-generated content. Lecturers play a crucial role in modeling ethical behavior by using AI to augment their teaching while maintaining a strong emphasis on human interaction and personalized feedback. According to Mhlanga (2023), institutions should implement robust policies to prevent plagiarism and ensure academic integrity, such as using plagiarism detection tools and requiring proper attribution of AI-assisted work. Moreover, experts like Cheng (2023) argue that understanding the limitations of AI is crucial to prevent overreliance and ensure the authenticity of academic work. By establishing a framework for the ethical use of AI, educators can help students understand the boundaries of AI capabilities and the importance of originality and critical thinking. This balanced approach ensures that while AI tools like ChatGPT enhance educational practices, they do not replace the essential human elements of mentorship, guidance, and intellectual development. Ultimately, the responsible use of AI in education can lead to more innovative and effective teaching and learning practices, provided that ethical considerations are thoroughly addressed and integrated into the educational framework.

## CONCLUSION

The findings discussed above indicate that ChatGPT, an AI-powered chatbot, has the potential to significantly impact education. It offers various benefits, including enhancing the learning experience, providing access to information and resources, and assisting in the creation of educational materials. Its versatility allows for use across multiple subjects, making it a valuable tool for students and lecturers alike. However, challenges and considerations accompany the use of ChatGPT. These include the need for users to critically evaluate information, the limitations of ChatGPT's responses, and the ethical use of the technology. Users must be aware of its capabilities and limitations, while educational institutions play a crucial role in educating students about responsible use and fostering critical thinking skills. While ChatGPT can provide personalized learning support and efficient teaching assistance, it is important to strike a balance between its use and maintaining human interaction and independent verification. The future evolution of ChatGPT and similar technologies remains uncertain, but responsible implementation and prevention of misuse are essential. In summary, ChatGPT holds promise for education, offering benefits such as easy information access and personalized support. By addressing challenges, promoting

ethical use, and maintaining a balanced approach, ChatGPT can maximize its positive impact while ensuring students' growth and education continue to be fostered.

To address these limitations and advance the field, several suggestions for further research emerge. Firstly, conducting comparative analyses of various AI tools, beyond just ChatGPT, would offer insights into their distinct functionalities and effectiveness in educational settings. Such studies could highlight how different AI systems contribute to or hinder learning and teaching across various subjects and educational levels. Secondly, expanding research to include diverse educational environments, from primary schools to higher education institutions, would provide a more holistic view of AI's impact. This could involve exploring AI's role in different curricula and learning contexts to better understand its versatility and effectiveness. Thirdly, long-term studies tracking the use of AI tools in education would offer valuable insights into their evolving role and sustained impact, addressing the current gap in understanding how AI affects educational outcomes over time.

Furthermore, it is crucial to delve into the ethical implications and practical concerns associated with AI use in education. Research should address issues such as data privacy, algorithmic bias, and the potential reinforcement of existing inequalities. Exploring how educational institutions can develop robust policies and practices for ethical AI use would help mitigate these concerns. Additionally, investigating effective training and support strategies for users both students and educators could enhance responsible AI use and promote critical thinking skills. By addressing these aspects, future research can contribute to a more nuanced and responsible approach to integrating AI technologies into educational practices, ensuring their benefits are maximized while mitigating potential drawbacks.

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