

## Challenges of using ChatGPT in education: a digital pedagogy analysis

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### ABSTRACT

This research explains into the challenges posed by the increasing utilization of Chat generative pre-trained transformer (ChatGPT) in educational settings and proposes solutions to mitigate its potential negative impacts. The widespread adoption of artificial intelligence, exemplified by ChatGPT, in learning environments from elementary to higher education levels, raises concerns about its impact on critical thinking and reflection among students. Through a comprehensive literature review encompassing journals, scientific articles, news, and previous research, this study identifies the challenges associated with ChatGPT's usage in education in the digital era. One significant challenge is the potential reduction in students' ability to think critically and engage with reality due to overreliance on ChatGPT for assignments. Moreover, excessive dependence on ChatGPT risks diminishing the quality of human resources in education. To address these challenges, educators need to develop strategies to harness technological advancements effectively while fostering critical thinking skills in students. This research underscores the importance of equipping educators with the necessary skills to navigate the digital landscape and prevent academic dishonesty facilitated by ChatGPT.

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## 1. INTRODUCTION

Artificial intelligence is shaping the future of humanity in almost all areas of life [1]. Artificial intelligence was previously described as a technology that has the capacity to mimic human-like responses, such as reasoning, judgment, and human activities [2]. In addition, not all emerging technologies have the potential to change the business landscape, but some of them have the potential to change the way people work and organize the values that already exist in people's lives [3]. The world is currently entering a state where technology is highly influential in everyday life, including in the field of education. For example, in the world of education, it is important to realize that the application of artificial intelligence raises ethical challenges and considerations [4]. Chat generative pre-trained transformer (ChatGPT) technology has the potential to revolutionize various activities such as the teaching and learning process that has been done conventionally [5]. ChatGPT can provide a new experience for the student learning process in the digital era [6]. Technological advances provide novelty in the world of education, with technological advances increasingly applying that the potential for learning resources is not centered on an educator but also on a broader orientation of learning resources and utilizing tools to accelerate the search for learning resources widely. Under these conditions,

technology will become a discipline that must be learned by educators and students as a provision for facing 21st century learning. Technological advances have been growing in recent years. One of the technological tools currently widely used in education is ChatGPT. ChatGPT is a robot or chatbot that utilizes artificial intelligence or artificial intelligence that is able to interact and assist humans in performing various tasks. Lund and Wang [7] revealed that ChatGPT has great power to advance academia and librarianship in new ways. However, it is important to consider how to use this technology to improve the quality of work to create new scientific knowledge and educate future professionals.

While ChatGPT has the potential to advance academia in new ways, it is important to consider how to use this technology responsibly. While students can learn about ideas and theories by using ChatGPT and generating content, it is important to consider how to use this technology responsibly [8]. In addition, ChatGPT is emerging as a technology capable of transforming social interactions in radical new ways [9]. Artificial intelligence has the potential to revolutionize learning and teaching and methods in education. While in education, the use of ChatGPT needs to be discussed further, educators should discuss its use and ethics with students. In this case, it is clear that an educator plays an important role in facing various challenges related to the development of technology and information that will occur in the future [10]. On the other hand, the integration of artificial intelligence and ChatGPT in education can increase the effectiveness of student learning, advance distribution, and improve supervision in the teaching and learning process [11].

Looking at the skills generated from ChatGPT, such as creating well-structured papers, essays, and journals, this poses a serious threat in the field of digital education. It has the potential to make students lazy and reduce critical thinking skills. ChatGPT can also mislead students despite excelling in a number of exams, papers, journals or essays and other academic assignments. The system on ChatGPT is fragile and provides inaccurate answers due to some fabrications or untruths [12]. While an educator is expected to have the ability to adapt so that learning is not completely left to artificial intelligence technologies such as ChatGPT. An educator plays an important role in adopting and developing educational innovations; therefore, educators must also be able to integrate technology in the classroom learning process [13]. Digital pedagogy is one of the learning models that is widely practiced in the digital era; this is adapted from the learning process due to the COVID-19 pandemic. The teaching and learning process in the 21st century needs to shift from a conventional approach to a more constructivist and learner-centered approach. Through this emphasis, knowledge can be actively built through meaningful learning and empowering students to learn independently [14]. Digital pedagogy offers more flexible learning that differs from conventional learning processes. Digital pedagogy allows us to consider the value and possibilities of online learning. Through digital pedagogy, we can help develop engaging learning that blends online learning and face-to-face activities effectively and efficiently [15]. Educators will deliver materials through digital platforms, then learners will download the materials. Then the learning is not connected to the educator, so learners can search for materials freely on the internet. Basically, digital pedagogy emphasizes a constructivist approach so that learners build a paradigm of understanding through initiative and collaboration from knowledge gained based on digital learning.

This study aimed to find aspects of challenges and correlations in the use of ChatGPT practiced by students in the digital era. The massive use of ChatGPT will intersect with the digital pedagogy process because, nowadays, learning is mostly done through digital technology. Digital pedagogy has the challenge of creating a learning process that is aligned with the values of honesty, transparency, critical thinking, curiosity, and comprehensive understanding. The presence of digital technology is expected not to construct the paradigm of knowledge that is built, but to be a means to welcome technological developments. Three questions are raised: i) what are the threats of using ChatGPT in education?; ii) what is the impact of using ChatGPT on digital pedagogy?; iii) what factors cause the neglect of digital pedagogy values?

The massive use of ChatGPT poses a serious threat to the digital pedagogy learning process. These threats include the tendency of students to become lazy, lack critical thinking, and decreased enthusiasm for the material presented by the teacher. This happens because students feel that they can search for materials on the internet. These attitudes have implications for the neglect of digital pedagogy-based learning values and children's academic ability to understand learning materials. This trend will impact the quality of education produced by a country.

## 2. RESEACRH METHOD

The use of ChatGPT is currently increasingly massive in the learning process ranging from secondary to tertiary levels. Its use has become a polemic of pros and cons because it has the potential to deconstruct student understanding, so that students tend to be lazy and less critical. This is certainly a serious threat in the future, because currently the learning process tends to be carried out through digital media. Digital learning tends to be favored by students because it can be accessed anywhere without any time and space constraints. Digital pedagogy will become a learning trend organized by many educational institutions because it is more flexible.

This research uses qualitative research methods, which generally include data in the form of words rather than numbers [16]. Data were obtained through information collection from scientific journals, scientific articles, and online news published within the period between 2018 and 2023. Data collection was conducted through online searches to collect data related to various views on the challenges of using ChatGPT in the learning process in educational institutions. In addition, an online search method was used to review the threat of using ChatGPT in education in relation to digital pedagogy. The increasingly widespread use of ChatGPT needs to be reviewed from various aspects of its impact that will be caused. This research focuses on the threat of using ChatGPT in education to analyze digital pedagogy. The use of ChatGPT is slowly changing the habits of students in the teaching and learning process because doing assignments can easily search on ChatGPT. Educators must be aware of the increasingly massive use of ChatGPT because it has the potential to reduce students' ability to absorb learning information. In the process of giving assignments from teachers to students, it is necessary to emphasize that answers are not easily found on the Internet, but encourage students to think critically and reflectively.

Data collection techniques in this study used journal reviews, scientific articles, and online news related to the threat of using ChatGPT in education. A review of journal articles was conducted to map the impact of using ChatGPT in the field of education. The continuous use of ChatGPT will change the way we look at the process of discovering understanding. Before the existence of ChatGPT, students mostly accessed knowledge sources through reading in the library or asking teachers. Unlike the current condition, students tend to prefer to ask questions on Google search engines or ChatGPT. The digitally organized learning process has the potential to cause bias in learning.

The analysis in this research was carried out descriptively and interpretatively, which emphasizes descriptive data analysis and in-depth interpretation and discusses coherently [17]. The obtained data were subsequently subjected to three stages of analysis. Initially, a reduction stage was implemented, which involved the selection, sorting, and grouping of the data. This stage aimed to identify the correlation between ChatGPT utilization and digital pedagogy learning outcomes. Subsequently, the analyzed data were presented in table format, accompanied by a sequence of focus discussions that explored the potential threats of employing ChatGPT in the field of education. Finally, the verification process entailed drawing conclusions based on the research questions that guided the study.

### **3. RESULTS AND DISCUSSION**

#### **3.1. ChatGPT and student learning process**

First launched on November 30, 2022, ChatGPT is a technology that has never been considered before. The launch of ChatGPT generated pros and cons from various academics and practitioners because it was predicted to have an impact on life processes, particularly in the field of education. The presence of ChatGPT in life has influenced lifestyles that offer unprecedented digital experiences. ChatGPT has influenced the teaching and learning process in educational institutions. Not only that, ChatGPT also has the potential for unemployment and other economic impacts. Not only that, the use of ChatGPT also increases society's dependence on artificial intelligence, which has an impact on critical thinking skills and thinking power [18]. As a result of excessive use of ChatGPT, it has the potential to affect behavioral attitudes and social interactions between humans in life. Therefore, the use of ChatGPT still needs to be studied in depth so that it is not expected to disrupt the order of life that humans have built.

The use of ChatGPT among students is believed to help in the learning process, and some can increase student intelligence. On the other hand, excessive use of ChatGPT can negatively impact students' innovative capacity and collaborative learning competencies [19]. Students who use ChatGPT in doing assignments tend to cheat, plagiarize and be dishonest. This is one of the deviant attitudes towards academic integrity that raises concerns for academics. Students who use ChatGPT may lose the ability to think critically, explore, verify and understand deeply. For example, in terms of accuracy, the accuracy of the system is highly dependent on the quality and complexity of the input data [20]. If there are errors in inputting ChatGPT data, the results shown will be inaccurate. If this trend continues, it will greatly affect the learning outcomes and development of students and the quality of human resources produced [21]. Therefore, policymakers in the field of education need to evaluate the use of ChatGPT so that there are rules that can guide the process of organizing education in the era of technological sophistication.

ChatGPT is designed in a sophisticated way, but it cannot offer the psychological help and social connection that users need [22]. The presence of ChatGPT can never replace the position of humanity in humans. Consequently, the use of ChatGPT creates challenges and problems that humans must face. Some of the challenges arising from the use of ChatGPT in the field of education are summarized in Table 1, which summarizes the impact of ChatGPT in education. It highlights concerns such as increased dishonesty among students who use ChatGPT for cheating, the potential loss of human connection and emotional understanding

in education, the risk of overreliance on technology leading to uniform writing styles, potential negative effects on brain development in students due to reliance on AI, and the absence of clear moral standards in ChatGPT's output, raising questions about its accuracy and ethical implications.

Table 1. Impact of ChatGPT use in education

No	Statement	Value
1	The use of ChatGPT caused great concern as some teachers caught students using ChatGPT for cheating [23]	Dishonesty
2	The use of ChatGPT in education can reduce the human touch in education. AI cannot fully replace the role of human educators in understanding the emotional and social aspects of learning [24]	Loss of humanity
3	The application of Chat GPT technology may also increase people's reliance on artificial intelligence, thus diminishing human thinking and judgement abilities [18]	Reliance on technology
4	ChatGPT has a negative impact on students' brain development when students are at a critical phase of thinking because it relies on artificial intelligence technology [25]	Disrupts the development of children's intelligence
5	The accuracy of using ChatGPT needs to be reviewed because ChatGPT does not have clear moral standards [26]	No clear moral standards

Based on Table 1, it can be identified that the use of ChatGPT can be a serious threat in the process of implementing education. This is reinforced by the value impacts arising from the use of ChatGPT, such as dishonesty, loss of humanity, dependence on technology, disrupting the development of children's intelligence, and no clear moral standards in ChatGPT. If there is no clarity of rules in the use of ChatGPT, it will have implications for the implementation of education. Therefore, it is necessary to evaluate from various points of view so as not to cause debate and have a serious impact on the future of education. In addition, the teaching and learning process needs a standardized learning model, so that students are not easily able to access ChatGPT, but require students to learn to think critically and understand the material based on the results of reading and observation. Use of ChatGPT carries additional risks, including providing personal data and sensitive information and violating user terms. The privacy policy for ChatGPT indicates that the company collects a lot of information from users including log data, device information, IP address, date and time of use. The digital divide is also potentially present in the ChatGPT world as it has recently offered the use of pricing plans to provide freedom of access and get faster responses than users of the free version.

The development of digital technology in the current era encourages the implementation of digital-based education. This should also be reinforced in student-centered digital learning needs to be known, understood and practiced by educators as this is the core of mastering learning in the 21st century. Technological sophistication encourages students to learn in a uniquely personalized environment [27]. In the current era, learning is mostly done online, as it is considered more effective and easily accessible without time and space constraints. This emerged as a response to the COVID-19 pandemic outbreak that requires all activities to be carried out online. The new habit of online learning is understood as digital pedagogy. Pedagogy is not just a tool to deliver digital humanities but should be the core of digital humanities as an academic discipline [28]. Digital pedagogy is a branch of pedagogy that explains the essence and regularities of digital education. It aims to develop practical ways to increase effectiveness. In addition, digital pedagogy is also related to the development of digital economy and digital society. The concept of digital pedagogy embeds digital technology in the learning process to enrich the teaching and learning process and assessment to build knowledge through digital-based education system planning [29]. With this goal in mind, digital pedagogy seeks to integrate learning activities that are mostly conducted online.

### 3.2. Digital pedagogy and ChatGPT challenges

Digital pedagogy is an approach that is not only the ability of educators to use digital technology, but educators must be able to utilize technology to build critical thinking skills and reflection of students in utilizing digital technology. Digital pedagogy not only presents learning in digital form, but an educator is also expected to have the ability to use technology. Educators in utilizing digital technology must be balanced with the ability to think critically and encourage educators not to be lazy in preparing learning materials. So that educators in delivering material to students must be able to provide a wise example [30]. Technological sophistication is expected to be a driving force for creativity in utilizing technology. Digital pedagogy also demands an open and networked educational environment that is not just a content repository. Teachers and students must be involved as agents of learning [31]. While conventional learning is more student-centered, in the era of digital pedagogy, students and teachers collaborate in the learning process. The use of technological devices and artificial intelligence assistance in the learning process can provide additional learning experiences for students [32]. Through additional experiences, it is expected to encourage students to be more critical and creative in understanding knowledge.

The teaching and learning process organized in the current era of digital technology cannot be separated from the existence of ChatGPT, which is still a debate of pros and cons because it has the potential to cause laziness, dishonesty, dependence, and no standard of data truth. On the other hand, the presence of ChatGPT in the current digital era can also be a supporting tool in digital pedagogy. Education that is carried out correctly and according to policy rules can improve the quality of learning that is more adaptive. Digital pedagogy-based learning empowers collaboration by using ChatGPT to facilitate the feedback process. It needs to be used wisely and structured. Digital pedagogy studies and uses contemporary digital technologies in teaching and learning. This pedagogical approach emphasizes the wise use of digital tools. The process of digital learning provides learners with the opportunity to transform their educational experience into electronic-based [33]. Experience in the learning process in the digital era, combined with the utilization of artificial intelligence technologies such as ChatGPT that are in accordance with rules and order, so as not to eliminate the habit of critical thinking.

ChatGPT technology can be used as a reference medium in organizing the educational process. However, digital pedagogy is not expected to have dependence on the use of ChatGPT. In utilizing ChatGPT, the educational process must prepare various policies from the point of view of normative ethics and moral rules so as not to fall into actions that can violate rules such as plagiarism and data manipulation. Therefore, the use of ChatGPT needs to be anticipated through policies taken by stakeholders so as to minimize behavior that leads to cheating. In addition, educators need to understand the development of technology, so that they can make the best use of it and not be left behind. In the era of digital pedagogy, the presence of technology needs to be addressed wisely so that it can be accessed equally by all citizens for the realization of justice to obtain information and knowledge.

Artificial intelligence has undergone significant advancements in recent years, leading to the creation of innovative technologies, such as ChatGPT. These modern technologies have the potential to revolutionize the education landscape [34]. This is because the technology offers features that have never been imagined before. In addition, ChatGPT's ability to perform complex tasks in the field of education has also led to mixed feelings among educators [35]. There are several debates that need to be discussed regarding the emergence of the use of ChatGPT in education. Much of today's learning is virtual which requires new skills such as discipline, motivation, self-management, initiative and independence [36]. These attitudes need to be built in the digital pedagogy learning process because the presence of technology can lead to a tendency to be lazy. If these attitudes are ignored, it can affect the quality of character of each individual. Therefore, in the learning process of digital pedagogy, students and teachers are creative and autonomous individuals. The emphasis of digital pedagogy is on the idea that educational materials should support students to be able to support their intellectual abilities rather than just encouraging dialog between teachers and students.

When the ChatGPT system is integrated into education, it will be a challenge and an opportunity that needs to be anticipated by educators. In addition, in order for the role of educators not to be replaced by ChatGPT, educators must be able to answer important questions about the future of the learning process that will be implemented [37]. Some of the data generated from ChatGPT produces unreliable misinformation as evidenced in previous research [38]. The data generated from ChatGPT is raw data that has not been processed so that it produces inaccurate results. An educator is expected to keep up with technological developments by adopting artificial intelligence to support the learning process in the digital era. Learners are also expected to have critical thinking skills and not just accept information from ChatGPT without re-verification. ChatGPT technology is slowly overhauling current educational norms, causing debate. This is because the existence of ChatGPT can risk reducing critical thinking activities in learning, fostering laziness in students and teachers and reducing analytical skills [39]. The use of ChatGPT in education is feared to pose challenges related to accuracy, contain bias, weaken academic integrity in the educational process, plagiarism is getting higher so that it can encourage students to use ChatGPT as a shortcut so that it has an impact on academic integrity and a culture of dishonesty. In addition, from a digital pedagogy point of view, the use of ChatGPT encourages students to be more indifferent, and has the potential for cyberbullying [40], this happens due to the lack of control in the use of ChatGPT technology.

However, the misuse of ChatGPT has created an unfair academic playing field. This happens because students who use ChatGPT to produce unique content can gain an advantage over others who do not have access or choose not to use it or due to ethical considerations [41]. Such gaps can impact academic grades and recognition, undermining the value of hard work. The challenge for an educator is the ability to accurately evaluate student performance. On the other hand, the use of ChatGPT also assists lecturers in reducing workloads, such as helping to find supporting reference sources for research. Therefore, educators have a duty to model responsible use of ChatGPT, prioritize critical thinking, and clarify expectations. Not only that, an educator must be able to critically evaluate any work produced by ChatGPT and adapt it to a teaching context that fits the curriculum [42]. This affects the learning process in the classroom, which encourages creative thinking and creates a fun learning atmosphere.

### 3.3. Critical reflection on the future of ChatGPT and education

Artificial intelligence technology integrated in education offers a specialized pedagogy that is tailored to the interests and needs of students, just as ChatGPT is designed to fulfill unlimited learning so that it can foster an atmosphere of independent learning [43]. Digital pedagogy emphasizes the importance of digital transformation of education in creating non-standard algorithms to solve conventional pedagogical problems. So as to shape and develop an innovative learning process based on artificial intelligence. In digital pedagogy, the learning process must be innovative starting from how to teach, create questions to give assignments. In addition, the process of making questions is expected to no longer make answers that are easily found on the internet. However, teachers must be able to create tasks that can direct students to be able to process both in reading, collecting data, and listening to other people's opinions. In other words, the tasks given should no longer explain about definitions, but rather be reflective and critical thinking [44].

Digital pedagogy in the learning process should no longer recognize one-way learning, but more participatory two-way learning. Students are expected to quickly absorb information and knowledge by themselves and support the creativity of other students. Digital pedagogy aims to empower students to think critically and take responsibility for the use of digital technology, supported by campaigns to promote social justice and equality. Digital pedagogy emphasizes the importance of student-centered learning, active engagement, and collaboration and encourages the development of critical digital literacy skills such as the ability to evaluate and analyze information from digital sources [45]. Through the various challenges and opportunities that occur from the use of digital pedagogy, it provides a basis that there is a need for provision of understanding related to the ability to use the ChatGPT application so that human abilities are not rivaled by artificial intelligence technology [46]. Therefore, a multidimensional approach is needed as an effort to improve academic integrity in the era of digital pedagogy. The presence of technological advances such as ChatGPT cannot be separated, it can be used to complement the learning process but not to replace the role of human educators [47]. Thus, the digitally organized learning process encourages educators to understand and master technology [48]. Digital pedagogy in relation to the widespread use of ChatGPT in the field of education provides guidance in the use of artificial intelligence that is more structured and wiser, so as not to eliminate the substance of learning. However, it provides new understanding and experience in accordance with the conditions and situations of technological development.

Moreover, reflection on this case and how it should be interpreted as well as the integration of ChatGPT and digital pedagogy might offer opportunities to reshape the learning process towards a more student-centered, participatory, and critical-thinking-oriented approach. This integration aims to empower students to become independent learners, enhance critical digital literacy skills, and foster collaboration and social justice awareness. The evaluation on some evidence presented includes insights from literature on digital pedagogy and ChatGPT's role in education, emphasizing the shift towards innovative and student-centered learning methodologies. This highlights the importance of tasks that promote critical thinking and reflection over traditional rote learning as well as the need for educators to adapt their teaching methods to incorporate technology effectively. It emphasizes the complementary role of technology alongside human educators, reinforcing the importance of academic integrity and responsible use of AI tools. Therefore, future research could delve deeper into specific strategies for effectively integrating ChatGPT and digital pedagogy into educational practices, as well as exploring the long-term impacts on student learning outcomes and the evolving role of educators in the digital age. Additionally, considerations regarding privacy, ethics, and equity in the use of AI tools such as ChatGPT should be further examined to ensure inclusivity and fairness in education.

## 4. CONCLUSION

This study found that the massive use of ChatGPT in education poses a threat to the quality of human resources. The attitude of dependence on technology needs to be avoided because it can reduce the ability to think critically and sharpness in making decisions. An educator in the era of technological advancement is expected to have the ability to utilize digital technology, so that they can be a role model for students. If an educator has a lazy attitude in terms of creating learning materials, then students will tend to imitate the teacher's behavior. Digital pedagogy emphasizes two-way learning. Thus, digital learning is expected to maintain interaction and communication between students and teachers, and vice versa.

This research is limited by the reliance on descriptive analysis of limited journals, scientific articles and online news. Therefore, further research is needed related to the impact caused by the massive use of ChatGPT in the education sector on a broader scale and can be complemented with in-depth interview informant data. Analysis related to the challenges of using ChatGPT in the education sector should be able to support the process of formulating policy standards in the education sector. In addition, other researchers can use analysis from various perspectives to complement data related to the use of ChatGPT for education in a more detailed and broad manner.





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