

Navigating the Double-Edged Sword of ChatGPT: Enhanced Learning vs. Ethical Issues

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Abstract

In the present day, artificial intelligence has become a double-edged sword in educational environment. While it provides tremendous opportunities, it also raises serious issues regarding ethics.

Strong arguments for ChatGPT's revolutionary impact on the education system serve as a catalyst for investigating its effects in this context. This study attempts to explore the possible advantages as well as the moral dilemmas related to the use of AI technologies such as ChatGPT in educational environment.

This research demonstrates the transformative educational effects of ChatGPT, such as increased student involvement and critical thinking abilities, through an extensive literature assessment of current studies. Moreover, it also explores the moral dilemmas raised by the use of AI, such as the elevated risks related to educational misconduct and plagiarism. The results highlight the need for educational establishments to tackle these moral dilemmas through the promotion of digital literacy and the establishment of strong regulations.

Key words: Artificial Intelligence, ChatGPT, Education, Digital literacy, Generative AI

J.E.L. classification: I00, I21, I25, O33, O38

1. Introduction

Artificial intelligence (AI) has both a friendly companion and a problematic disruptor in the quickly changing field of education. Leading this transformation is Chat Generative Pre-Trained Transformer, also commonly known as ChatGPT, an advanced language model created by OpenAI that is well-known for producing perceptive and logical answers on a wide range of subjects. A crucial discussion has emerged as teachers as well as students are depending more and more on this AI: Is ChatGPT a useful tool for improving learning or does it jeopardize the growth of critical thinking abilities? This paper explores the dual nature of ChatGPT's influence on education, showing how it can be both a priceless teaching tool and a possible crutch that compromises the critical thinking process and academic integrity.

The present paper objective is to present a balanced viewpoint on this technological phenomenon and its consequences for education in the future by analyzing the advantages and disadvantages of incorporating ChatGPT into educational settings while also showing its significance in students' life. Therefore, in this context, the present study can be divided into three main sections:

- The significance of AI tools in student life
- ChatGPT: A boon for education
- ChatGPT: A bane for education

Every coin has two sides. On one side, this recent discovery has affected students in numerous ways, such as by providing personalized feedback and assistance in completing homework, writing essays, doing other classroom assignments, encouraging interactive learning, clarifying concepts in little time, and thereby increasing efficiency. On the other side, it is associated with plagiarism, lack of academic integrity, data privacy concerns, misinformation, logical inconsistency, inaccuracy of content, threat to job security, copyright infringement, and so on. As a result, it is crucial that students use it under the proper guidance while not raising ethical concerns.

Considering the above drawbacks, it is a challenge for teachers to incorporate generative AI, such as ChatGPT, into the education system. To restore academic integrity, AI detectors are used to prevent plagiarism and cheating. However, it is not enough to address this serious issue. In fact, researchers are of the opinion that there is an urgent need to establish policies, guidelines, and regulations that mention the extent of AI tool usage. Moreover, it is equally essential to inform students as well as teachers regarding these rules to combat a lack of digital literacy.

To summarize, even though ChatGPT has many benefits for assisting students in their learning, it's crucial that they use it sensibly and build their own knowledge and abilities instead of depending just on the AI to solve their problems.

2. Theoretical background

In past few years, the domain of AI has evolved drastically, especially in the field of natural language processing as well as generative AI technologies. These developments laid the foundation for the creation of useful instruments such as ChatGPT, which transformed the way people acquire and search information online (Al Shloul et al., 2024).

Furthermore, it is interesting to observe that even though humans have had access to generative AI for decades, the previous year saw a sudden increase in the number of research contributions that discussed AI (Al Shloul et al., 2024). The reason might be the attention that ChatGPT received from social media, and because of this hype, people started getting more interested in the subject of AI (Statista, 2024). According to Rejab et al. (2024), ChatGPT has emerged as a revolutionary instrument to transform the way people acquire, access, and circulate information.

ChatGPT is a generative AI, which means that it can generate a wide range of content, such as texts, videos, poetry, audio, and images, in all languages with simple human input. Such AI models utilize complex machine learning techniques as well as complex algorithms for identifying and learning different patterns by making correlations in the existing data and producing well-structured, immediate responses based on the provided information (Giordano et al., 2024).

ChatGPT's popularity has led the masses to believe that it can completely replace human efforts in professions. This will lead to a huge transformation in the demographics of the workforce (Trifan et al., 2023). Others claim that it can revolutionize older search engines such as Bing and Google (Niloy et al., 2024). Due to its significant impact on the education sector, it is essential to study the role of this AI model in students' life to raise awareness regarding its advantages and drawbacks. Moreover, as AI continues to become an integral part of students' life, it is essential for scholars to research the progression of reliance patterns and their influence on the learning process and overall academic results (Stojanov et al., 2024).

3. Research methodology

The purpose of this study is to examine the possible advantages as well as the moral dilemmas that come with using ChatGPT and other AI tools in educational environment. The primary goal of this paper is to understand ChatGPT's role in terms of transformative educational potential for promoting digital literacy while also addressing ethical or academic integrity issues, as well as educational policy and curriculum development. This article is written using a literature review methodology and attempts to address all the areas mentioned above.

The following standards were applied when choosing the papers to guarantee that the literature review is up-to-date and pertinent:

- Sources of research material: Scientific papers and review papers published in journals, as well as reputable studies and survey results on websites such as Statista, were considered.
- Publication period: Papers published in the yearly time frame of 2023-2024 were given preference. The underlying motivation behind this decision was to maintain recency and present the latest trends and relevant, up-to-date information.
- Keywords: Searches were made using keywords such as "ChatGT," "*role of ChatGPT in education*," "*recent surveys on ChatGPT*," and "*ethical issues caused by AI*" to find the relevant materials.

After carefully reviewing the chosen publications, information was retrieved with an emphasis on:

- The underlying advantages of incorporating ChatGPT into the learning process.
- Ethical concerns about AI in education that have been documented, like plagiarism, lack of privacy, and academic dishonesty.
- Best practices and recommendations put out by researchers to address ethical issues and their effectiveness.

Finding recurring themes, patterns, and gaps in the literature were all part of the investigation. The findings were recorded, and a thorough comprehension of the existing literature was made possible by analyzing the research papers selected based on the above criteria.

4. Findings

4.1. Significance of AI tools in student life

Since years, students have been taking advantage of the internet to get creative ideas for completing their assignments and classroom projects, as well as to use educational content and materials available online. There are several websites and search engines that students use, depending on the nature of the given tasks. The internet greatly improves education by giving students access to a variety of resources, facilitating collaborative learning, customizing instruction, and helping them develop critical skills. All of the above factors help to create a more productive and interesting educational setting for students. However, more recently, a shift in this pattern has been observed by researchers. While earlier the students mostly relied on search engines such as Google to find immediate responses, the appearance of AI tools such as ChatGPT has made them rethink their decision. The students are increasingly using such tools, even for the easiest tasks, such as writing essays.

As the AI-based model, namely ChatGPT, first emerged in November 2022, it has been the cause of increased fascination among students. What distinguishes ChatGPT from other AI interfaces is that it can respond to normal language inputs and provide, in return, well-structured, human-like feedback. While other AI interfaces remain limited to finding patterns in data, ChatGPT is superior in the sense that it has been trained to interact with humans and engage with them by adapting to different contexts. This capability of ChatGPT to generate an ongoing conversation with humans provides its users with a different experience in comparison to the traditional search engines that do not consider the chronology of responses (Essel et al., 2024).

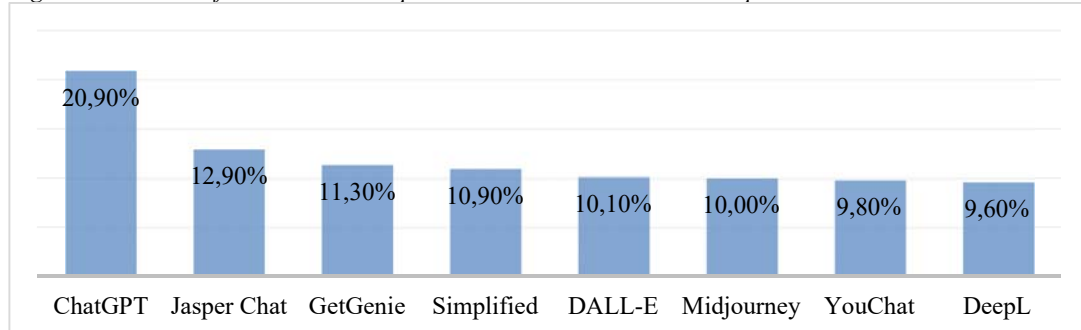
Even though there were other impressive AI tools in the past before the appearance of ChatGPT, none of them received so much attention and recognition. The public hype caused this AI model to gain millions of subscribers within the first week of its emergence. As per the findings of a survey conducted among 1237 United States people last year, around 20% of the respondents claimed to have used ChatGPT during March–April 2023, which positioned it much ahead of its competitors.

The below figure no.1 shows the opinions of those people who participated in this survey and used AI tools in the past 12 months (Statista, 2023c). It is evident from figure no. 1 that ChatGPT is already leading the generative AI market, followed by Jasper Chat (12.90%) and Get Genie (11.30%). Albayati (2024) also confirms the findings by claiming that ChatGPT has gained significant attention and popularity in a short span of time ever since it was first released by OpenAI and made available for public usage in November 2023. With millions of subscribers

within the first week of launch, it has affected all sectors. However, education is one such domain where its impact is most evident.

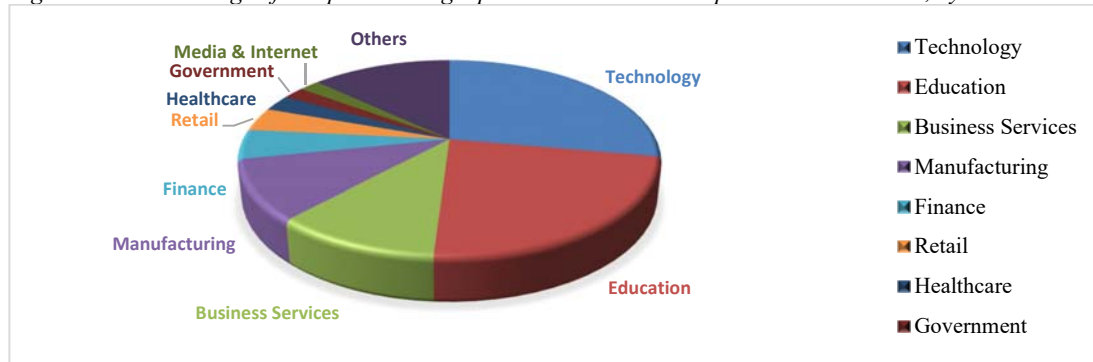
The above statement can be justified by the findings of research conducted in United States of America. A study from last year focused on companies that use OpenAI in their business processes worldwide. The results (figure no.2) revealed that, besides technology, the education services sector is now actively benefiting from OpenAI solutions (Statista, 2023b).

Figure no. 1 Share of United States respondents who used AI tools in the past 12 months



Source: (Statista, 2023c)

Figure no. 2 Percentage of companies using OpenAI in their business processes worldwide, by sector



Source: (Statista, 2023b)

Since ChatGPT is dominating in the education service, it is imperative to study its implications so as to benefit the most from this useful tool. Furthermore, in the educational sector, students are the primary products or customers of the teaching institutions; thus, it is essential to know the role of ChatGPT in their daily lives. Understanding their behavior can open new ways for teachers to improve their learning style and get better outcomes.

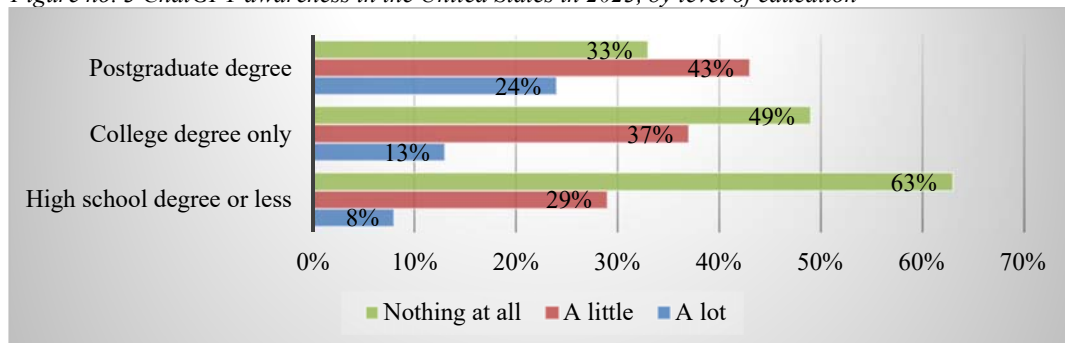
4.2. ChatGPT: A boon for education

AI has revolutionized many fields of activity, and the educational system is no exception. ChatGPT stands out in the educational landscape due to the great assistance that it provides to students as well as to their teachers. With the help of generative AI, teachers may design extensive lesson plans that include goals, exercises, and evaluation strategies customized for various age groups and skill levels. Teachers may save a great deal of time and effort by using it to create educational content like worksheets, question papers, homework, and assignments. In order to keep students interested and make learning more dynamic and pleasurable, AI tools may provide strategies and activities. Al Shloul et al. (2024) explain that ChatGPT can act as a precious educational tool as it facilitates interdisciplinary collaboration, persuades a paradigm shift in what we perceive as learning, eliminates any type of obstacles between different information fields, and also provides new perspectives.

The students’ reliance on AI tools also highly depends on their level of education. For instance, students in elementary school might not have access to electronic devices such as mobile phones and laptops, while others might not be aware of such tools altogether. Besides, higher education relies more on AI tools because of the advanced nature of the courses, the demand for specialized tools for analysis and research, the emphasis on self-directed learning, and the need to prepare students for occupations requiring fluency with cutting-edge technologies. Advanced AI techniques may not be as readily available or necessary in elementary education, which places a greater emphasis on core skills.

As per the findings of an online survey (figure no. 3) conducted among Unites States adults with different educational levels, the ones with the highest educational level were more familiar with ChatGPT. Interestingly, more than half of the adults with only high school degree know nothing at all about the AI-tool. It is believed that adults are more aware of the technology because of the substantial coverage it received from the media, thereby, spreading awareness regarding the application (Statista, 2023a).

Figure no. 3 ChatGPT awareness in the United States in 2023, by level of education



Source: (Statista, 2023a)

As per new research, activity-based learning has a positive influence on the students’ performance and motivation level as it encourages them to learn through interaction, collaboration, and critical thinking. This type of learning method is believed to be one of the most efficient in modern education because, during active learning, students collaborate to find solutions on their own, which provides them the opportunity to self-reflect and instill creativity. However, the appearance of ChatGPT in the modern education context has made everyone rethink the definition of “intelligence” (Al Shloul et al., 2024). Some researchers believe that ChatGPT is an effective tool for improving student participation and collaboration. The scholars further claim that ChatGPT provides access to information much easier in comparison to traditional search engines such as Google and Bing. Hence, the tool is almost addicting to users and provides quick access to information regarding any subject (Rejeb et al., 2024).

During a study conducted among dental students, when given the choice to use ChatGPT to solve a quiz, only a few of them were initially interested in using ChatGPT as they lacked trust in its ability to perform and thought that the tool might not be reliable and safe enough. However, later on, reading its description significantly altered their views about the tool and even improved their quiz performance (Roganović, 2024). This shows that along with access to AI tools, students must be educated about their features for better results.

The primary purpose of active learning is to encourage student engagement by involving them in interactive tasks. ChatGPT possesses the capacity to enhance the existing educational experience of students. Research states that by doing real-time chats with students, this AI-wired mechanism allows them to enhance communication skills. Furthermore, it is important to mention that the role of ChatGPT is not to eradicate traditional learning practices but to enhance the existing educational system by integrating AI tools for improving the quality of learning.

In this context, the teachers would have the responsibility to provide proper instructional assistance to students for exercising caution when using ChatGPT for educational purposes such as making assignments (Al Shloul et al., 2024).

Ghafouri (2024) explains that teacher-student rapport plays a crucial role in motivating learners, which ultimately increases the probability of academic success as it creates an atmosphere of trust, understanding, and compassion between learners and teachers. The latest papers have been focusing on how AI-wired mechanisms such as Chat GPT can potentially impact this teacher-student rapport.

As per the results of a recent study, ChatGPT has been proven beneficial in improving the cognitive skills of students. Furthermore, the scholars claim that by using AI chatbots at school premises to perform tasks, skills such as self-reflection and creativity can be developed (Essel et al., 2024). According to Albayati (2024), ChatGPT helps students gain insights about different subjects in depth and lends a helping hand in completing academic assignments. Moreover, it also assists researchers in their understanding of a topic by analyzing huge amounts of information, such as scientific papers, posts on social networking sites, and news articles in different languages. Another interesting feature of the tool is that it can quickly summarize the data for the users to gain a better understanding of a subject in very little time. In this context, the Chatbot saves time for scholars and leads to increased efficiency.

To adapt to the digital era, educational environment must incorporate AI and benefit from its transformative capabilities rather than dismissing or prohibiting its usage. In fact, ChatGPT is already being used in various school courses because of its positive influence on student learning. Moreover, the tool helps the students in real-time by providing them assistance when they face some difficulties and require an immediate response (Al Shloul et al., 2024).

There are several studies that show that AI tools can also play a critical role in enhancing the language learning process by eliminating various obstacles that a learner usually comes across. The chatbot does not cause any shame or embarrassment among language learners, as is the case in public settings such as classrooms. Oftentimes, students feel ashamed of making mistakes while speaking in a foreign language. Personalized assistance and immediate feedback provided by the AI tools are proven to be helpful and eliminate any type of distraction in the process of language learning.

Grit has been defined by several researchers as the incorporation of persistence in making considerable efforts for achievement of success in accomplishing long-term objectives. It has a strong correlation with positive teacher-student rapport. As per the findings of a study, ChatGPT fosters language learners by providing an emotionally supportive atmosphere. Its integration in the language learning process results in higher grit among learners, which ultimately assists them in achieving objectives in the long run and pushes them towards a sense of satisfaction and accomplishment (Ghafouri, 2024). According to Ghafouri (2024), the emergence of chatbots provides students with the opportunity to have a more personalized self-regulation process, which can assist them in learning without being bothered by any external stressor, for instance, teachers' immediate feedback or interference from classroom peers.

It is a well-known fact that technological innovations have always transformed jobs, besides improving work productivity. Hence, for the companies to completely ignore such inventions might not be a good (profitable) idea. Similarly, educational institutions must adapt to external environments. Hence, studying how ChatGPT can be incorporated into educational systems and improve students' performance is a subject worthy of research (Giordano et al., 2024).

4.3. ChatGPT: A bane for education

Opinions regarding this technological advancement are divided, especially in educational settings. For instance, regardless of its capacity to generate personalized responses, inculcate self-learning processes, increase student engagement, and improve cognitive skills, some educators still see its usage in classrooms negatively. This might be due to their lack of willingness to adopt new teaching practices or their lack of expertise to integrate such modern technologies into daily teaching practice (Essel et al., 2024).

Albayati (2024) expresses his concern as follows: "it is essential to examine the user privacy and security of using ChatGPT". To support this, another study (Rejeb et al., 2024) shows that while chatbots can potentially uplift the learning atmosphere of classrooms and make everything appear more interesting, they can also serve as a threat to students' privacy. Moreover, such privacy concerns are not limited to the education sector. Most companies expressed privacy-related issues and a lack of trust in this relatively new tool.

Since ChatGPT provides shortcut solutions for a variety of tasks, numerous workers worldwide have begun to use it to perform better at work. However, people may accidentally reveal confidential company information if the technology is misused. Users frequently believe that the information they share stays private when utilizing the service's premium edition. Nonetheless, ChatGPT gets aware of the exchanged data in general. According to research, as of June 2023, more than 10% of responding employees globally had used this AI tool at least once at work, and about 5% had entered sensitive company information into the platform (Statista, 2024). Furthermore, in 2023, around 80% of Germans expressed that they were not prepared yet for such advanced technology, while 76% believed that AI tools were not protecting personal data.

The above arguments explain why lack of adequate privacy, trust, transparency in operations, and security measures are the primary concerns that scholars usually raise in their research papers, besides the ethical debates associated with their usage (Sinaci et al., 2023). Even though Generative AI is great at offering quick and well-structured responses to all questions and regarding any subject, it provides no details regarding the source of the information that was collected, analyzed, and used to generate the feedback. Therefore, this technology presents several risks, among which we can include misinformation and credibility issues, academic integrity, inaccurate data sets, etc. (Albayati, 2024).

While some view generative AI as an instrument for humans to increase productivity and efficiency, others claim that its usage may replace researchers as well as their creativity completely (Albayati, 2024). As discussed earlier, the application of this AI tool for research-related purposes has ignited a huge ethical debate in academics (Niloy et al., 2024). More precisely, some authors also express issues regarding misuse of this AI tool, for instance, students cheating to finish assignments, which ultimately demands the educators seriously address the associated ethical risks. Researchers also emphasize the significance of informing students as well as teachers regarding the correct usage of AI tools to avoid any potential ethical risk or threat associated with them.

Consequently, teachers need to come up with modern techniques to teach and assess students' abilities in the presence of ChatGPT to avoid situations in which pupils cheat or copy the assignments from AI-driven tools. There is a growing need for proper regulations, policies, and guidance that limit the usage of generative AI to restore academic integrity in educational settings (Rejeb et al., 2024). Stojanov et al. (2024) also support the above statement by adding that with AI evolving at an alarming pace, educational institutions are required to establish proper policies that show the limits of using ChatGPT for school assignments.

The appearance of ChatGPT also caused a debate on whether AI technology can completely replace employees and wipe out many jobs or can be served as an instrument to increase human productivity at work (Giordano et al., 2024). In the education sector, professionals are concerned that AI might replace some teaching positions, especially those that entail repetitive duties. However, it's unclear whether AI will be able to fully replicate the complex and compassionate parts of education.

Stojanov et al. (2024) are of the opinion that when discussing about higher education, ChatGPT is often associated with its potential misuse and how it may lead to academic dishonesty. However, scholars emphasize that a more important question to ask in this context is how reliant are students on this tool? Unfortunately, the literature does not provide a clear answer to this question. According to Stojanov et al. (2024), reliance on ChatGPT depicts the extent to which a student is dependent on the tool for finalizing the tasks. To shed some light on this topic, research claims that a student's knowledge about AI and his attitude towards this useful tool can impact the extent to which he will depend on it to perform different tasks.

In their paper, Stojanov et al. (2024) explain that the students have been using a variety of tools to get assistance during the learning process and when writing assignments or projects. For instance, as per a research conducted in Germany, mostly students use non-institutional resources, such as databases and search engines, on a regular basis. Nevertheless, they are not good at making the best use of these resources. It is more important to discuss how students use ChatGPT rather than asking how frequently they use it. This is because once we know how they use this technological tool, we can acquire a deeper understanding regarding their interaction with this AI-wired mechanism.

To address the above issue, it is high time for the authorities to increase digital literacy, especially among educators and students. Niloy et al. (2024) support the idea by writing that teachers and instructors should focus more on providing digital literacy to students for taking well-informed decisions regarding the usage of Large Language Models (LLMs) such as ChatGPT. This may encourage students to utilize ChatGPT without causing any type of ethical misconduct. Nevertheless, there are scholars such as Roganović (2024) who claim that in order to restore academic integrity in the education sector, proper guidelines and regulations must be established. Regardless of the widespread use of AI-based educational systems, according to Rejeb et al. (2024), plagiarism and cheating will be facilitated on their own among students by permitting AI-driven tools for educational purposes.

Besides ethical and privacy-related issues, generative AI has also faced other allegations. For instance, it is often associated with logical inconsistency, plagiarism, and misinformation. Regardless of all these disadvantages, students are becoming highly dependent on ChatGPT as it provides them with quick responses. This requires the publishers to come up with strict regulations for including ChatGPT as a co-author in research papers. As a defensive response, AI detection tools can be used to identify text generated by chatbots. For instance, Turnitin has AI detectors for identifying responses or text generated by ChatGPT. However, this has failed to limit its usage. Traditional plagiarism checkers should be enhanced to recognize AI-generated content.

5. Conclusions

This study sheds light on the ways in which generative AI benefits the educational environment, thus playing a key role in the lives of students and teachers. Even if it can be seen as an effective tool, it is important to realize that technology has a darker side. Regardless of all the advantages that AI tools like ChatGPT offer, there are several risks associated with them that cannot be ignored. These include lack of data privacy, inaccuracy of content, threat to job security, copyright infringement, bias, misinformation, logical inconsistency, cybersecurity risks, transparency in operations, etc. However, academic dishonesty is the most widely discussed issue in educational settings. Depending on ChatGPT to finish homework, copying assignments and cheating can eliminate creativity and hinder the development of students altogether. However, this is primarily because of the lack of proper guidelines, regulations, and policies that draw a clear line for students when using generative AI.

As AI advances, its impact is felt in all fields, including the educational sector. Therefore, educational institutions must make sincere attempts to adapt accordingly and find solutions to new problems that are arising with the use of AI tools. Enhancing traditional plagiarism checkers can be proven useful, but it does not represent a long-term solution for restoring academic integrity. People are already realizing this, which is why plagiarism detectors such as Turnitin are enhancing their features to detect AI-generated content. It is imperative to keep in mind that temporary solutions do not provide long-term benefits, and therefore, to restore academic integrity, it is essential that schools and universities educate their staff and students regarding the potential consequences of plagiarism. Moreover, digital literacy will allow students to make the best use of AI tools by teaching them how to retrieve effective information, which can ultimately encourage critical thinking. By incorporating ChatGPT into the curriculum, teachers may prepare their students for dealing with the complicated dynamics of the digital world with consideration and responsibility.

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