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Challenges and Opportunities of AI-Assisted Learning: A Systematic Literature Review on the Impact of ChatGPT Usage in Higher Education

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Abstract. In recent years, ChatGPT has become a noteworthy subject in the educational field due to the popularity it gained among students all over the world. Applications such as text creation, data processing, and curriculum development, among other applications, prove that ChatGPT is one of the most advanced chatbots available, albeit it posing a series of challenges that prevents students from developing their critical thinking skills in some cases. In this sense, this study's objective is to analyze the current literature regarding the use of ChatGPT in higher education. The study questions its usage, the overall impact it has on education, and the challenges and opportunities of artificial intelligence- (AI) assisted learning, all within the research area of digital education. For this, a systematic literature review (SLR) was conducted across multiple journal databases, analyzing the articles found and filtering them with the use of specific criteria. The results of this analysis afforded the conclusion that ChatGPT can potentially enhance both academic- and librarian-related processes, although it is important to reconsider the ethics of using technology such as this. This is because this kind of AI technology also has the potential to modify the way people take on different jobs, tasks, and processes at an academic level, for which the correct and responsible use of ChatGPT needs to be assessed in the field of higher education.

Keywords: artificial intelligence; ChatGPT; higher education; learning methodologies; smart learning

1. Introduction

In recent years, ChatGPT has remained an interesting subject that attracts the attention of students and teachers alike. Its somewhat controversial introduction to the educational field has spurred the debate of whether its usage for academic work is beneficial or not, considering the potential capabilities of this tool for completing tasks such as research and data comparison, to name a few. In this sense, this form of artificial intelligence- (AI) assisted learning represents a remarkable technological advancement in smart learning. It paves the way for future applications within the field of education, in a world more driven towards the development and optimization of digital tools, with the help of machine learning. Nevertheless, this type of technology should be questioned when its application permeates deeply in the performance and development of students and their learning process, especially when taking into consideration the level of accessibility that ChatGPT has worldwide. Students should have an ethical standpoint on whether they want to use ChatGPT to complement their learning process and how much input this technology will have in their academic work. They can then learn to use it more effectively and avoid the abuse of ChatGPT usage, to seize the benefits that this AI technology may have in higher education.

According to Kung et al. (2023), the past decade has brought many advances regarding deep learning and AI in the way that professionals approach their tasks across different industries. This is due to the ability of AI-assisted tools to build classifications of different objects and subjects regardless of the input, such as images and text, among other media. This enables the development of systems with many applications, such as automated tagging of photographs, translation, scanning, and text generation.

AI technologies have gradually become more visible in various aspects of society, and ChatGPT is part of said technologies. Presented as one of the most advanced AI applications to date, ChatGPT has drawn public attention from every corner of the world, seeing that its applications are developed in different fields, including education (Tlili et al., 2023).

It has always been remarkable how AI is able to reproduce human-like behavior and writing styles that are so convincing that it becomes difficult to tell the difference between machine- and human-produced content. According to Abdullah et al. (2022), machine learning and data processing have come a long way, so much so that the continuous development and evolution of these technologies constantly set new standards for what is perceived of AI. It is not so difficult nowadays to find literature written entirely by AI, and ChatGPT is a clear example of that. This natural language processing model developed by OpenAI in 2022 was created for open-ended conversations, being able to power purely conversational AI applications such as chatbots and virtual assistants (OpenAI, 2022). Nevertheless, its application in the educational field has begun to flourish, as students across different levels of education all over the world use this technology to assist with their academic homework. This transforms ChatGPT into some sort of auxiliary tool that aids them with the completion of certain tasks

that would normally take more time to complete, such as research and data comparison, to name a few examples.

AI is definitely at the helm of digital transformation and machine-powered media content, and the way ChatGPT enables students to complement their learning process is something to take into consideration. ChatGPT allows users to enter text prompts to effectively generate text responses that are drawn from knowledge gathered via machine learning, through the use of the internet (Pavlik, 2023). Its uses and applications are certainly not unlimited, but students' ability to exploit this technology's capability is somewhat of a problematic subject.

Regarding the impact that ChatGPT could have on the educational field, it is important to assess the ethics behind the correct usage of this tool so that it does not hinder students' ability to write or to conduct academic work without the need of an AI tool. Abusing these technologies can make a student dependent on them. In addition, even though there may be a level of enthusiasm regarding how ChatGPT could change the educational setting, there are some people who advise approaching their use with caution (Tlili et al., 2023). To see the bigger picture regarding the educational transformation, these technologies would need to be implemented to determine the usefulness of its application and the user experiences in the learning process, as scenarios such as cheating and misinformation could create a negative impact in education. In this regard, it is only rational that academics and educational institutions all over the world should consider safe measures to adopt technologies such as ChatGPT in education, or to develop strategies that prevent students from abusing its power.

1.1 Research Questions

To optimize and enhance the process of this research, it was important to apply research questions that would help redirect the findings towards a specific goal and grasp a better focus on this study. These questions were used to filter the results of the research and to make relevant conclusions from the specific literature selected from this systematic literature review (SLR) (Guyatt et al., 2008). This was done by proposing a general research question and dividing it into four specific questions (Q1, Q2, Q3, and Q4) that were used to guide the different aspects of this research, to keep the focus of the investigation. Table 1 shows the research questions proposed to conduct this SLR and each question's purpose.

Table 1: Research questions and their purpose

General research question	Specific question	Purpose of the question
Does ChatGPT impact on higher education?	Q1: How is ChatGPT used and/or applied in education?	In order to understand ChatGPT's impact in education, it is important to know how it can be used in this field
	Q2: What are the risks and challenges of ChatGPT usage in education?	It is necessary to know the risks and challenges presented by using this tool

	Q3: What are the opportunities created by using ChatGPT in education?	It is important to know what kind of opportunities are created by using this tool
	Q4: What is the overall impact of ChatGPT in education?	It is necessary to assess the overall impact ChatGPT has on the field of education

2. Methodology

2.1 Research Approach

This study focused entirely on analyzing the impact of ChatGPT usage in education, while filling the gap left by previous studies regarding the use of ChatGPT in education. The aim was to gain a comprehensive understanding of its potential benefits and challenges within the field. As the integration of AI and machine learning technologies continues to shape the educational landscape, it is crucial to explore the implications of ChatGPT in depth. Addressing this subject will help students and educators harness the full potential of ChatGPT to revolutionize education, while safeguarding its integrity and effectiveness.

Taking into consideration the ethics revolving such matter, an SLR was conducted to look for specific knowledge of the subject at hand, and to have a better understanding of the use of this technology in the educational field through the course of this research (Nightingale, 2009). Additionally, analyzing the ethical considerations surrounding ChatGPT's use can help develop recommendations that ensure responsible implementation of this technology in educational settings.

An SLR, as stated by Moreno et al. (2018), permits investigators to recollect existing studies and articles regarding the subject at hand and enables them to build a curated collection of literature that uses various approaches to assess the same subject, which was the main focus of this research. With all the knowledge gathered from the different literature sources, it is necessary to start filtering every single finding, including or excluding distinct literature through the use of specific criteria and research questions that will enable aiding in the recollection of the exact knowledge needed for this study.

For this research, the SLR was conducted by searching for literature sources through the journal databases of sites such as Scopus, ScienceDirect, ProQuest, IEEE Xplore, and ACM Digital Library. This SLR has opened up the possibility to have a better understanding regarding the way different authors approach ChatGPT application in education and its impact on said field. In addition, with the help of keywords, search filters, and criteria, the SLR was able to focus even more on specific findings, hence the analysis made could assess the subject at hand in the best way possible (Nightingale, 2009).

2.2 Keywords and Criteria Used for Research

With the research question already established, we needed to look through the journal databases selected for this study with the help of a series of keywords that would help gather enough information while keeping the research within the same field (in this case, the educational field). We also had to keep in mind that the information had to be of relevance for later analysis. For this research, the

series of keywords used to filter the search results in each of the different journal databases selected were the following:

(("ChatGPT) AND ("education" OR "learning" OR "e-learning" OR
"teaching") AND ("AI" OR "artificial intelligence"))

These keywords helped to navigate through the results obtained from the databases consulted to categorize the literature found and review the articles that assess the study subject. Nevertheless, these keywords would not have sufficed if the SLR's objective were to obtain more specific and in-depth knowledge throughout this research. With this in mind, therefore, some criteria were applied to exclude articles that did not fall in line with the purpose of this study. Table 2 shows the criteria applied to filter out any unwanted literature that did not contribute any sort of insight for this research.

Table 2: Article inclusion and exclusion criteria

Criterion	Criterion description	Inclusion and exclusion status
Language	Articles written in English	Article is included
Year of publication	Articles published in the last year	Article is included
Field	Articles that are related to the educational field	Article is included
	Articles that are related to the learning process, teaching methodologies, or different types of learning	Article is included
	The article is not related to the educational field in any way	Article is not included
Article content	Article does not mention ChatGPT	Article is not included
	The article does not mention ChatGPT or artificial intelligence in any way	Article is not included
	Articles that have high similarities across databases	Article is not included
	Article data are inconclusive	Article is not included
Relevance of content	The article talks about different applications of ChatGPT or AI technology in education	Article is included
	The article talks about applications of ChatGPT or AI in other fields besides education	Article is not included

After applying these criteria, a series of articles were collected. The number of articles found in each database searched are shown in Table 3.

Table 3: Number of articles found in each journal database searched

Journal database	Number of articles
Scopus	5
ScienceDirect	4
ProQuest	4
IEEE Xplore	2
ACM Digital Library	1
Total	16

It is safe to say that the criteria applied helped to narrow down the search results and filter out the best results for this study. Table 4 shows the full list of articles selected from this search, after applying the criteria and categorizing each article by their respective journal database.

Table 4: List of articles selected

Database journal	Article title	Author(s) and year of publication
Scopus	The role of ChatGPT, generative language models, and artificial intelligence in medical education: A conversation with ChatGPT and a call for papers	Eysenbach (2023)
Scopus	Game of algorithms: ChatGPT implications for the future of tourism education and research	Ivanov and Soliman (2023)
Scopus	The future of medical education and research: Is ChatGPT a blessing or blight in disguise?	Arif et al. (2023)
Scopus	ChatGPT in education: Strategies for responsible implementation	Halaweh (2023)
Scopus	Commentary: ChatGPT use in higher education assessment: Prospects and epistemic threats	Benuyenah (2023)
Science Direct	ChatGPT in nursing education: Is there a role for curriculum development?	Thakur et al. (2023)
Science Direct	Chatting or cheating? The impacts of ChatGPT and other artificial intelligence language models on nurse education	Choi et al. (2023)
Science Direct	The promise and peril of ChatGPT in geriatric nursing education: What we know and do not know	Qi et al. (2023)
Science Direct	ChatGPT for good? On opportunities and challenges of large language models for education	Kasneji et al. (2023)
ProQuest	Impact of artificial intelligence on dental education: A review and guide for curriculum update	Thurzo et al. (2023)
ProQuest	Can an artificial intelligence chatbot be the author of a scholarly article?	Lee (2023)
ProQuest	Chatbots in education and research: A critical examination of ethical implications and solutions	Kooli (2023)
ProQuest	ChatGPT utility in healthcare education, research, and practice: Systematic review on the promising perspectives and valid concerns	Sallam (2023)
IEEE Xplore	Use of ChatGPT in ESP teaching process	Kovačević (2023)
IEEE Xplore	Exploring students' perceptions of ChatGPT: Thematic analysis and follow-up survey	Shoufan (2023)
ACM Digital Library	ChatGPT in education: Partner or pariah?	Joyner (2023)

3. Results and Discussion

Collecting the necessary data for this SLR made it possible to gain a clearer understanding of the specific applications of ChatGPT in education and its impact on the educational field. This research aimed to identify the various ways in which ChatGPT is utilized in educational settings, as well as its effects on teaching and learning outcomes. Through a comprehensive analysis of existing studies, this SLR uncovered valuable insights into the benefits, challenges, and implications of incorporating ChatGPT into educational practices.

To answer each of the research questions more directly while keeping the main focus of the SLR, the findings regarding the general view of ChatGPT usage, alongside its risks, challenges, opportunities, and overall impact, were divided and organized into different categories according to the subject and themes they addressed. This categorization of research results is shown in Table 5.

Table 5: Categorization of selected articles

Research question	Article title	Author(s)	Category
Q1: How is ChatGPT used and/or applied in education?	The role of ChatGPT, generative language models, and artificial intelligence in medical education: A conversation with ChatGPT and a call for papers	Eysenbach (2023)	ChatGPT uses and applications in education
	Game of algorithms: ChatGPT implications for the future of tourism education and research	Ivanov and Soliman (2023)	
	ChatGPT in nursing education: Is there a role for curriculum development?	Thakur et al. (2023)	
	Impact of artificial intelligence on dental education: A review and guide for curriculum update	Thurzo et al. (2023)	
	Use of ChatGPT in ESP teaching process	Kovačević (2023)	
	Exploring students' perceptions of ChatGPT: Thematic analysis and follow-up survey	Shoufan (2023)	
Q2: What are the risks and challenges of ChatGPT usage in education?	The future of medical education and research: Is ChatGPT a blessing or blight in disguise?	Arif et al. (2023)	Risks and challenges of ChatGPT in education
	Chatting or cheating? The impacts of ChatGPT and other artificial intelligence language models on nurse education	Choi et al. (2023)	
	The promise and peril of ChatGPT in geriatric nursing education: What we know and do not know	Qi et al. (2023)	
	Can an artificial intelligence chatbot be the author of a scholarly article?	Lee (2023)	
Q3: What are the opportunities created by using	ChatGPT in education: Strategies for responsible implementation	Halaweh (2023)	Opportunities of ChatGPT in education
	ChatGPT for good? On opportunities and challenges of large language models for education	Kasneci et al. (2023)	

Research question	Article title	Author(s)	Category
ChatGPT in education?			
Q4: What is the overall impact of ChatGPT in education?	Commentary: ChatGPT use in higher education assessment: Prospects and epistemic threats	Benuyenah (2023)	Overall impact of ChatGPT in education
	Chatbots in education and research: A critical examination of ethical implications and solutions	Kooli (2023)	
	ChatGPT utility in healthcare education, research, and practice: Systematic review on the promising perspectives and valid concerns	Sallam (2023)	
	ChatGPT in education: Partner or pariah?	Joyner (2023)	

Table 5 shows the impacts of ChatGPT usage in education. As shown in the table, four categories were generated. The analysis of each article's content helped to answer the research questions of this study. Said analysis and answers to these questions are presented in the following sections of this paper.

3.1 ChatGPT Uses and Applications in Education

Kovačević (2023) stated that ChatGPT emerged recently, bringing with it a large number of opportunities for applications of AI. It deals with text creation and data processing using materials gathered from machine learning, proving effective as a time-saving tool when it comes to the preparation and implementation of teaching units to evaluate students' assignments. Moreover, ChatGPT has also shed some light regarding ideas on how to apply chatbots in education, showing its capabilities to generate virtual simulation and quizzes for students (Eysenbach, 2023). With this said, it is clear that this AI approach to education can help educators evaluate their students, but only if they do not abuse the usage of this tool, as the information supplied by ChatGPT is not always 100% correct.

This AI model has revolutionized education regarding what students and researchers can do to create and process texts and assignments. In this context, universities need to reconsider the way their teaching methods and learning strategies incorporate the use of these kinds of tools in their teaching and become more receptive towards written text that is generated partially by AI. Nevertheless, they need to always remain vigilant so that students do not rely completely on AI (Ivanov & Soliman, 2023).

AI is advancing fast, and students today have become accustomed to using grammar correction tools, style guides, and different kinds of word processing programs. They are not relying on some other person but solely on their own ability to use AI tools such as ChatGPT to complement their student work. In this case, the introduction of ChatGPT is not something new for students that are already accustomed to the use of AI tools. However, the effective usage of said tools is what causes concern among educators, especially when it comes to aspects such as plagiarism (Thurzo et al, 2023). Nevertheless, in the context of AI, such scenario is hard to prove, because there is no original author in an AI-generated

text. In this sense, ChatGPT proves to be useful and without risk when used effectively if a student wishes to use this tool to verify syntax and complement an academic work with additional information. However, it is also crucial to note that students need to be aware of the potential legal implications when using AI-generated text, taking note of their universities' own rules regarding the usage of said tools.

ChatGPT was received with both excitement and skepticism in the educational field. Analyzing its impact on teaching and learning processes is as important as understanding the perception students have of this AI model, as well as the potential challenges they face when using this tool. According to Shoufan (2023), students find ChatGPT's capabilities interesting and helpful for their academic work. They also find this AI tool easy to use and user-friendly, as the human-like interaction when giving the AI-generated answers becomes part of the whole experience. Nevertheless, as Shoufan (2023) stated, many students also feel that these AI-generated answers are not completely accurate and they require additional work to have a good theoretical background. The students therefore need to have a level of understanding of the subject they want to study before using ChatGPT in order to filter out any wrong or inaccurate information that this AI tool may supply them. In this sense, ChatGPT can prove useful in education, but students need to be aware of its limitations.

Thakur et al. (2023) indicated that, as an innovative AI model, ChatGPT can facilitate different areas in the field of education, such as curriculum development, undergraduate education, professional development, admissions process, etc. However, to do this, it needs to be given the correct prompts to effectively aid the processes in which this tool is used, hereby acknowledging ChatGPT's limitations and opportunities.

3.2 Risks and Challenges of ChatGPT in Education

The appearance of ChatGPT caused great reactions in the educational field, as this chatbot proved itself to be very capable regarding the usage it could provide. However, it also proved capable of deception, making its way into academic papers, putting at risk the integrity of many researchers' credibility when using this tool for academic work (Lee, 2023). With the rapid evolution of technology, authors have become more reliant on AI as an easy-to-use tool that complements their work. However, a raising concern is the ethical aspects of these AI tools, where misuse can lead to the lack of creative thinking and research integrity, not to mention the inaccuracies this technology yields when not given exact prompts. Moreover, students can also lose their ability to produce original ideas and to present correct arguments to prove their research (Arif et al., 2023). There has yet to be implemented a correct way to manage AI-assisted learning and to control AI tool usage in educational institutions, but the risks that are present in its implementation are visible and worthy of attention and analysis.

For instance, while ChatGPT is a powerful tool that can provide assistance and information, its misuse undermines the principles of academic integrity and critical thinking. Students who rely heavily on ChatGPT for completing their

homework assignments may succumb to a dependency that inhibits their own intellectual growth. It affects their ability to engage with the material, explore different perspectives, and develop their own ideas. In this sense, it is important for educators and institutions to emphasize the responsible and ethical use of ChatGPT, encouraging students to utilize it as a resource for understanding and inspiration, rather than a shortcut to completing assignments.

ChatGPT is one of the most advanced chatbots available, but it poses a series of challenges that prevents students from developing their critical thinking skills. Students start to rely even more on this AI tool to answer questions during their learning process, instead of engaging actively with the materials given to them by their educators (Choi et al., 2023). Students must hone their independent thought to learn to identify, analyze, and synthesize information on their own. Another concern regarding the use of ChatGPT is the academic dishonesty, as students rely on this tool to generate their written assignments, submitting them as their own work. In this sense, educators need to play an important role in teaching their students about academic honesty and the importance of critical thinking, while also teaching them the consequences of the misuse of AI-generated texts.

Nevertheless, ChatGPT has proven advantageous to facilitate continuing education, so its benefits should not be dismissed. Especially in an era when it is unrealistic to ban the use of new technologies, teachers need to enhance their efforts to teach their students regarding the correct use of chatbots and other AI tools to complement their learning process and its potential uses in education. In addition, as AI technology continues to grow and students become more comfortable with its use, it is important to note that AI-assisted learning, even though it can enhance teaching and learning processes, cannot replace human interaction in the educational field (Choi et al., 2023).

AI application in education has become even more relevant with the constant technological advancements. ChatGPT helps to surpass challenges due to its potential applications to augment students' learning experience, but it is important to emphasize that relying completely on this technology can affect the learning process (Qi et al, 2023), as AI tools are susceptible to misuse and prone to be exploited by students to cheat in their exams. ChatGPT, like any AI model, is susceptible to errors and is not 100% infallible, as many of the answers generated by it need to be corrected. The phenomenon called "hallucination effect", which causes an AI technology to invent terms that it is familiar with, is present in many AI models and is a risk that needs to be assessed when implementing these tools in an educational context.

With this said, although ChatGPT has proven to effectively assist students with writing text from online research, it is necessary to acknowledge that this chatbot cannot conduct comprehensive and thorough literature analyses or critical discussions of the articles it uses to generate their answers. Many scientific communities thus reject the use of ChatGPT due to its irrational behavior and lack of critical thinking (Qi et al., 2023).

3.3 Opportunities of ChatGPT in Education

Ever since ChatGPT was launched, teachers have expressed their concern regarding its applications in the educational field. As critical thinking and originality are necessary skills that need to be harnessed by the students, and as it was discussed before, said skills can be put at risk when using ChatGPT to generate academic work. Plagiarism is another concern, although students and academic writers alike can still plagiarize without using ChatGPT, which is why it may be better to assess the conduct behind these actions before banning an AI tool without considering its benefits. For instance, Halaweh (2023) explained that ChatGPT could be used to recollect potential ideas and issues of one subject to be studied furthermore in the future; this would just be an aid for students to kickstart their research without being dependent on these technologies. Even so, teachers could also benefit from using different prompts to generate new ideas and arguments to assess and discuss with their students in class, without putting creativity at risk. ChatGPT's quickness regarding these scenarios could prove beneficial if used correctly, while understanding the potential misuse it could have but emphasizing its positive uses.

New technologies are key to progress innovation, and despite the critical views that many educators and institutions may have, the overall impact of AI-assisted learning can benefit the educational field, only if students and teachers alike deeply understand the possibilities that this technology can bring in the future. Perhaps the development of competencies directly linked to the use of chatbots and large language models for education could help to better understand this technology and exploit its advantages and new dynamics that can be brought to the learning process (Kasneci et al., 2023). This should be coupled with the continuous oversight of responsible tutors and educators that watch over the correct use of AI applications in education, remaining vigilant so that these models are used in the most ethical and responsible manner by students, teachers, and academics alike.

3.4 Overall Impact of ChatGPT in Education

New technologies diminish the importance of previous methodologies, and teachers who are against change force themselves and their students to be against new skills that can be taught to make effective use of said technologies. This is a common phenomenon, in which educators will need to create new skills to adapt to the constant technological changes (Joyner, 2023). For example, the computer lowered the importance of the traditional pen and paper, but it allowed for the non-linear construction of written essays at a much faster rate. Even though it had its detractors, with time, the computer was welcomed by everyone in the educational field. Alarmists often threaten the educational systems with risks that can be surpassed by learning, understanding, and adapting to the new technologies. In that regard, learning ChatGPT's limits and potential advantages could only help educators and students optimize its use and lower the risks of its usage.

Furthermore, as a new era of education is just around the corner, with AI-based learning experiences growing in every corner, teachers and students need to learn to adapt to these changes quickly. However, as Kooli (2023) indicated, the main

issue regarding the limits and risks of ChatGPT and other AI-based technologies when applied to education will mainly be related to ethics. The ethical challenges of these systems thus need to be surpassed with specific strategies that help the educational community adapt to new technology, mitigating the potential risk for misuse and exploitation. What is important here are the constant use of ChatGPT in education, the potential misuse of this tool, and the regulations applied for those who need to learn how to use this technology correctly and ethically. This is because, when properly implemented, ChatGPT has the potential to promote innovation in the educational field (Sallam, 2023).

While living in an era of AI-assisted learning, digital assessments will only begin to be more innovative and engaging. Adaptability is therefore extremely important for the educational field to adopt these technologies correctly and to let AI systems such as ChatGPT create opportunities for development, raising awareness of its misuse and improving the learning process. Benuyenah (2023) indicated how, just about 23 years ago, the impact of computer usage on teachers was met with similar disbelief at first, with the same concerns that are presented against AI tools such as ChatGPT. Yet, teachers slowly adapted to this technological change and continue using computers to this day, because new tools will always emerge. If educators want to prevent potential risks, they need to implement strategies that control AI-assisted learning and the usage of ChatGPT to improve the learning process for their students to be prepared for new challenges within the context of constant technological change.

4. Conclusion and Recommendations

ChatGPT is still an emerging innovation, and it will stay as an application in many fields, education included, for a long time, as it has the potential power to enhance both academic- and librarian-related processes. However, this potential needs to be considered along the risks and challenges of AI-assisted learning, ensuring the ethical and responsible use of this technology. In this sense, AI technology has the potential to modify the way people assess different jobs, tasks, and processes, both at a professional and academic level. ChatGPT has the special advantage that its public availability makes it one of the most popular tools among professionals, scholars, and students alike.

Educators should train themselves and their students to understand and properly use the functions of this technology, depending on the scenario in which it may be used. To stop students from misusing ChatGPT, educators could also inform them of the difference between text generation (such as writing, editing, and paraphrasing) and idea generation (related entirely to creativity). The further development of tools such as this will continue, and teachers and students alike need to be constantly educating themselves in the use of these technologies, without putting their learning process at risk. Due to the fast transformation and emergence of new technologies, advancements in AI technology are going to keep improving upon what is already established, and students and educators need to be prepared for that scenario.

With time, AI-assisted learning will not necessarily be a subject of debate, but maybe just part of the new normality. Nevertheless, it is still necessary to acknowledge that AI implementation in education needs to be overseen by educators that understand the risks and potential benefits of these technologies to adapt to this constantly changing world in the face of emerging new technologies that can change the course of the educational field.

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