

AI usage strategies for college students: the necessity of establishing AI usage standards

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Abstract. Since 2023, generative AI has rapidly penetrated into the field of higher education, providing personalized learning support for college students and improving learning efficiency. However, excessive reliance on artificial intelligence may weaken students' critical thinking ability and academic autonomy, bring negative impacts to the development of learning ability, and lead to academic integrity issues. University teachers are also facing the challenge of how to standardize the application of artificial intelligence in teaching. This article emphasizes that universities should follow the principle of putting people first and using artificial intelligence as a supplement, and develop clear guidelines for the use of artificial intelligence: Students need to take on core argumentation and academic responsibilities, and artificial intelligence should only be used as an auxiliary tool for data collection and text editing. At the same time, it is required to record the creative process, retain intellectual evidence, and disclose the scope of use of artificial intelligence to ensure academic transparency. Only by prioritizing human intelligence can we effectively avoid the academic degradation and ethical risks brought by artificial intelligence, and realize the driving role of technology in education.

Keywords: Generative AI, AI usage standards, Academic Integrity in Higher Education, AI literacy.

1. Introduction

College study is further education and research of college students based on their high school studies, focusing on their chosen academic major. There is a significant difference between the curriculum teaching model led by teachers in primary and secondary schools and university education, which places more emphasis on students' self-learning and thinking extension abilities. Therefore, college students need to rely on themselves and some learning tools to help themselves achieve results in their university studies. Since the emergence of ChatGPT in 2023, generative artificial intelligence has rapidly penetrated into the field of university teaching, providing more personalized technical support for university teaching activities and improving teaching efficiency. Taking the AI Cross Curriculum initiative at the University of Florida in the United States as an example, its core goal is to ensure that every graduate, regardless of their professional background, possesses basic AI knowledge and application abilities, and is a model for applying AI to teaching [1]. Because the application scope of generative AI is very wide, it can provide personalized learning experiences for college students, and even provide materials and learning methods related to other professional fields, greatly enhancing the self-learning ability and learning efficiency of college students [2]. However, at the same time, generative artificial intelligence still has a negative impact on the self-directed learning of college students: firstly, the operating principle of generative AI determines that the data and results it generates are not 100% correct; secondly, the consistency between the quality of the generated content and the context cannot be guaranteed. The dependence on generative AI can also easily lead to data security issues. If students blindly abuse generative AI, it may lead to perceived academic integrity issues and a decline in critical thinking [3]. Therefore, the emergence of generative AI is not only a new learning mode and opportunity for universities and college students, but also poses new challenges to traditional educational learning modes. On the one hand, artificial intelligence literacy and AI teaching models are the development prospects of education and will inevitably be referred to as a part of general education ability; on the other hand, due to its powerful information retrieval and generation capabilities, the effectiveness of traditional written assignments faces significant challenges [4]. Therefore, this article aims to propose a standard framework for the

use of AI by college students, providing guidance for students, teachers, and universities: How to cultivate students' AI literacy, strategies for using generative AI, academic integrity issues in AI-assisted research, and related data security and privacy issues still need to be addressed and improved at the university, student, and even societal levels. The ultimate goal of this behavior is to establish and propose a set of AI usage standards framework for students, teaching, and universities, providing assistance for better utilization of AI-assisted learning.

2. Literature Review

2.1 Opportunities and Risks of Generative AI in Higher Education

Since the birth of generative AI such as ChatGPT, it has had a significant impact on various aspects of higher education, such as generating code or documents, assisting in research and completing assignments, writing papers, and providing powerful search engine functionality and generation capabilities, all of which have been highly welcomed by university teachers and students. But while bringing academic convenience, it also brings many challenges. The second section of this article will provide a literature review of papers related to the use strategies of generative artificial intelligence from 2021 to the present, outlining the current status and feedback on the use of generative AI by college students and university teachers. Emphasize the dual nature of generative artificial intelligence in balancing higher education opportunities and risks, and use this to explain the shortcomings of current university artificial intelligence strategies. This section will ultimately provide targeted recommendations based on the above content.

2.2 Students' Use of Generative AI

Firstly, from the perspective of college students, Abbas et al. [5] acknowledge the convenience of generative artificial intelligence, but also believe that it can erode students' learning abilities: they found in a three-wave delay study of 494 college students that using ChatGPT was negatively correlated with academic performance and significantly increased procrastination and memory loss. At the same time, this will also trigger academic integrity issues, endanger the academic reputation of the university, and harm the overall interests of students. Abbas et al. [5] also quantified the two main driving factors for students' use of generative AI: when students face higher academic burdens and time pressures, their likelihood of using generative AI to complete tasks significantly increases. Due to academic workload, time costs, and low sensitivity to content, college students are increasingly inclined to use generative AI to assist or directly generate the required content. When encountering situations where academic tasks are too heavy, time is insufficient, and sensitivity to task completion quality is not high, students tend to adopt surface and heuristic learning methods to use generative AI to help themselves complete tasks. Baig & Yadegaridehkordi [4] believe that this will lead students to gradually give up opportunities to train and develop their academic skills in independently completing academic tasks, resulting in a decline in critical thinking and academic abilities of college students, causing academic procrastination and requiring them to rely on generative AI to complete tasks. The report by Zhai et al. [1] suggests that excessive reliance on generative AI can impair students' critical cognitive abilities, including decision-making, critical thinking, and analytical reasoning. Research has found that students often assume that answers generated by artificial intelligence are correct and accept them directly, lacking critical thinking and verification, which weakens their ability to independently think and evaluate the authenticity of information. However, excessive reliance on generative AI by students may lead to reduced opportunities for training academic abilities, decreased efficiency, and academic procrastination, resulting in a vicious cycle of greater dependence on generative AI. But fortunately, most college students have a rational attitude towards generative AI: after trying to use artificial intelligence, most college students recognize its convenience and learning assistance, such as explaining complex concepts and polishing papers, but their participation in self-reflection during this process is relatively low. The entire process of using artificial intelligence is like a person facing an oven, even in uncertain

situations, maintaining a wait-and-see attitude towards the accuracy of the output content [6]. In a meta-analysis of 51 studies by Wang and Fan [7], it was found that the use of generative AI has a significant positive impact on students' learning outcomes (effect size $g=0.867$) and a moderate positive impact on higher-order thinking (effect size $g=0.457$). This indicates that the educational effectiveness of AI is complex, and its outcomes are influenced by a combination of usage patterns, personal factors, and other factors, but overall, it is beneficial. Generative AI is not only an active application at the student level, but also a challenge that university teachers are exploring in their teaching environment.

2.3 Teachers' Use of Generative AI

Although some universities have banned generative AI such as ChatGPT, many schools have not banned it and rely on establishing academic integrity policies to adapt to new technologies in the field of education. According to a survey report from a university in Bulgaria, 41.4% of teachers maintain a positive attitude towards the application of generative AI in teaching, but 73.6% of them are concerned that students will completely trust the content generated by AI without verifying its authenticity, which may prevent them from fully mastering knowledge and skills. In addition, 60.9% of teachers believe that generative AI can help them complete time-consuming teaching tasks, such as preparing course materials and exam questions [8]. Barrett and Pack [9] point out that university teachers can use generative AI to analyze teaching plans, generate course materials, and create personalized and targeted classroom teaching methods based on students' actual situations. The most common method for teachers to use generative artificial intelligence is to grade students' writing and provide feedback, which can significantly improve the teaching efficiency of university teachers. The principle of doing so is similar to the use of generative artificial intelligence by students, fundamentally shortening the evaluation time and freeing them from tedious thinking processes. Although this greatly improves the efficiency of teachers in evaluating students' learning task results, it also has some implications for college students: students can use generative AI to assist their writing. This further enhances students' recognition of generative AI and subconsciously expands the proportion of its application in self-learning. Therefore, college students often use generative artificial intelligence mainly for inspiration, summarization, and proofreading, using artificial intelligence as material providers and text proofreaders. Due to the uncertainty of AI-generated content, only a few students will directly copy AI content [10]. In addition, university teachers should also be aware that although artificial intelligence detection tools are efficient academic tools, there is still a possibility of error rates and misjudgments. Therefore, they cannot blindly trust the student learning task evaluation results directly generated by generative AI. They should combine self-thinking and authentic research to judge students' learning task outcomes and academic integrity.

3. Discussion

Compared with traditional learning tools, generative AI has high penetration rate and unparalleled convenience in the academic field, including personalized learning services, automation of repetitive tasks, thus improving students' learning efficiency. The explosive development of the digital age and generative artificial intelligence also means that generative AI must become the integration direction for universities to adapt to future development, and it is the only way for universities to develop in the future: generative AI is just a technical tool that can be applied to the field of education, and the failure of many technical tools is not due to technical incompetence or poor quality, but because they cannot meet and adapt to people's thinking and behavior [11]. Therefore, establishing relevant norms and strategies for the use of artificial intelligence is the problem that universities will face next. Heinsfeld and Veletsianos [3] pointed out in a report by UNESCO that higher education should not overly rely on technology, but should always be people-oriented. The UNESCO report emphasizes the irreplaceable role of humans in the use of generative artificial intelligence, denies the exaggerated promotion of AI technology by information media, and once again emphasizes the importance of

placing human expertise at the core of educational practice. That's why universities need to establish a new governance model to adapt to the development of education in the era of artificial intelligence. Generative artificial intelligence also has a dual application impact in the field of educational equity. Zhao et al.'s research reviewed the application of artificial intelligence in supporting disabled students and provided specific successful cases: the study pointed out that generative artificial intelligence tools can improve the accessibility of education through various personalized educational support. On the one hand, it provides unprecedented opportunities to support disabled students and promote equal learning opportunities; on the other hand, it may also exacerbate the existing digital divide and educational inequality. Santiago Ruiz's research suggests that unrestricted promotion of artificial intelligence may also exacerbate current socio-economic inequality and the digital divide: unequal access to digital learning resources and differences in digital literacy may exacerbate inequality in higher education and the digital divide in education [12]. Therefore, it is necessary to develop supporting artificial intelligence policies to ensure that all students can benefit equally from technological progress.

The study by Wu et al. on the AI education system construction achievements of 14 top Big Ten alliance universities in the United States reveals a new generative AI governance model [13]: Firstly, through collaborative governance among multiple units, including the IT department, teaching center, library, AI research center, etc., each performing their own duties. The IT department focuses on data security and promotes legal AI in accordance with national regulations; the teaching center focuses on teaching methods and provides AI usage strategies for teachers; the library focuses on academic research standards and guides university teachers on how to use generative AI under the premise of academic integrity. Secondly, customized guidance is provided for different roles such as teachers, students, researchers, and administrative staff, clarifying their respective responsibilities and rights: emphasizing the triple responsibility of teachers to learn AI, integrate AI, and guide students; emphasize the responsibility of students to actively understand and comply with the rules for using generative AI. The success of the education AI system established by the Big Ten Alliance lies in recognizing the widespread impact of AI through this distributed and collaborative governance model, and providing more in-depth and targeted guidance through professional division of labor, utilizing the complex organizational structure between university alliances to digest the impact of AI.

It is precisely because of the inevitability of the explosive development of generative artificial intelligence and its role in promoting the development of higher education that it is even more necessary to establish corresponding regulations for its use. For example, the principle of human-machine division of labor: the selection of key core arguments, thematic evidence, and academic responsibility must be borne by students [14], while generative AI is only used for material collection and text polishing; It is also necessary to track the entire creative process and submit evidence that can prove one's personal ideas, such as outlines, notes, search records, etc., to control one's thinking ability; Finally, it is necessary to disclose compliance, clarify the purpose and scope of the use of artificial intelligence in this task, and ensure that all evidence and references can be found in the corresponding literature. In addition, universities should not view generative artificial intelligence as an enemy and should ensure students' right to use AI, especially when accessing, selecting, and summarizing large amounts of data. The attitude of universities towards generative artificial intelligence should not be negative, but should establish usage norms for it: the focus should be on limiting abuse rather than completely prohibiting it. University teachers and education centers must develop guidelines and related guidance for the use of generative AI for learners, ensuring that the generated content meets the actual needs of learners and includes specific teaching content, using technology to promote the improvement of teaching efficiency. In addition, universities should analyze the thinking gap between university teachers and learners in order to develop appropriate usage methods and standards for generative artificial intelligence [15]. The ultimate goal of establishing usage standards is to make users of generative AI realize that the knowledge or information obtained through generative artificial intelligence is not absolutely correct. It is necessary

to conduct critical thinking and judgment based on one's own experience and personal qualities to ensure the reliability and authenticity of the output content of artificial intelligence.

4. Conclusions

In summary, universities must explore the application norms and regulations of generative AI in education based on the principles of people-oriented, student-centered learning and AI assisted tools. As a new type of learning tool, generative artificial intelligence has brought personalized learning support and a significant improvement in learning efficiency to higher education. However, it has also led to a lack of critical thinking ability and academic autonomy in the case of AI dependence and improper use. Therefore, it is necessary for university alliances to establish clear guidelines and boundaries for the use of artificial intelligence by students and teachers, ensuring that AI applications contribute to educational progress and digital equity: students are responsible for academic work, leadership, core argumentation, and viewpoint formation, while artificial intelligence is only used as an auxiliary tool for material organization and text optimization, and teachers are no exception. Universities around the world are also establishing corresponding academic policies and testing tools around AI to ensure that generative AI serves school education rather than replacing students' learning and thinking - establishing usage norms, strengthening academic testing, maintaining academic integrity, avoiding AI academic degradation and ethical risks, and truly utilizing technology to promote education.

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