

# Research on the Impact of AI Tools Represented by ChatGPT on College Students' Learning in the Era of Artificial Intelligence

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**Abstract:** With the continuous development of science and technology, AI tools represented by ChatGPT have brought numerous conveniences to people's lives and learning. However, every phenomenon has its dual nature; while these tools provide benefits, they also introduce various negative impacts and have sparked considerable controversy in society. The emergence of ChatGPT in the era of artificial intelligence presents both opportunities and challenges for college students' learning. This paper analyzes the advantages and disadvantages of ChatGPT and proposes corresponding strategies to ensure the rational use of AI technologies, avoid dependency, and effectively enhance college students' learning abilities and overall quality.

**Keywords:** Artificial Intelligence; ChatGPT; College students

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In recent years, with the rapid development of artificial intelligence (AI) technology, especially natural language processing tools represented by ChatGPT, these tools have gradually entered the realm of higher education. ChatGPT (Chat Generative Pre-trained Transformer), developed by OpenAI, was released on November 30, 2022. With its powerful language understanding and generation capabilities, ChatGPT has become a valuable assistant in college students' daily learning. These tools demonstrate tremendous potential in facilitating learning, providing personalized tutoring, and accessing information. However, alongside these advantages, potential problems and challenges also arise.

## 1. Positive Impacts of AI Tools Represented by ChatGPT on College Students' Learning

As a product of the artificial intelligence era, ChatGPT can leverage its advantages to provide effective pathways for contemporary college students' learning and generate positive impacts.

### (1) Assisting students in daily learning, improving efficiency, and expanding knowledge

College students not only need to learn fundamental knowledge but also theoretical concepts. However, current textbooks often cover limited content, and the latest professional theories and practical applications are rarely included, which affects students' access to various learning resources.

Firstly, by using ChatGPT, students can take advantage of its AI capabilities to quickly search and integrate various relevant resources from the internet, presenting the necessary materials to them. With the highly developed internet technology, a wealth of knowledge and materials is available, but the information students need is often scattered, and they may lack pathways to access certain resources. Traditionally, students would need to identify the type and characteristics of the information they are seeking and collect data from relevant databases and search engines. After gathering the information, they must evaluate and select different sources, then integrate them to obtain the

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required materials. This process is not only cumbersome but also demands high levels of literature retrieval and resource integration skills, making it time-consuming and labor-intensive. In contrast, by utilizing ChatGPT, students can quickly search and integrate a vast amount of resources in a shorter time, obtaining the necessary information and content. The use of ChatGPT in the AI era allows students to organize highly relevant information based on the keywords or sentences they provide and can further expand, extend, and refine the information according to their needs, enhancing resource utilization and enabling students to acquire knowledge more quickly.

Secondly, ChatGPT can play a crucial supportive role in students' learning processes, providing guidance for their reading. Students can input relevant questions into ChatGPT's dialogue window and receive corresponding responses. For instance, while reading, students can clarify their reading preferences, abilities, and needs, and ChatGPT can suggest books and literature that meet their requirements, helping them engage in self-directed learning during their spare time and improve their autonomous learning capabilities. By integrating information from a vast array of resources, ChatGPT can quickly distill key points, allowing students to revise their questions or choose to continue refining or expanding their inquiries based on the content presented. This leverages ChatGPT's advantages in real-time language generation and material summarization, enabling students to acquire various types of knowledge more rapidly and expand their thinking based on the knowledge gained, thus promoting the development of their cognitive abilities.

Finally, during their interactions with ChatGPT, students can address a variety of questions or receive suggestions, resulting in answers that are more targeted, systematic, and comprehensive. This enables students to approach practical problems from multiple perspectives, enhancing their analytical and problem-solving skills. ChatGPT can also provide specific ideas in response to students' inquiries, and its answers are often thought-provoking, guiding students to think critically and, in turn, enhancing their sense of achievement and confidence in their daily learning.

## **(2) Stimulating students' interest in learning and desire to explore**

College students are vibrant and possess a strong curiosity and desire to explore new things. As a chatbot program, ChatGPT facilitates human-computer interaction, making it inherently appealing to contemporary college students. Based on its practical applications, ChatGPT not only offers the advantage of human-computer interaction but is also highly engaging. By using ChatGPT, students can increase their enjoyment of learning by seeking answers to questions, obtaining study materials, and receiving advice on academic and personal matters. For students, ChatGPT serves as an encyclopedia, a mentor, and a source of wisdom. In their studies and lives, ChatGPT effectively addresses students' various questions, providing personalized learning content that aligns with their learning needs and interests, thus promoting a deeper understanding of the material. Additionally, the learning materials provided by ChatGPT encompass various formats, including text, images, and videos, enhancing students' interest and learning experience.

With its AI advantages, students can engage in discussions and analyses based on their specialized knowledge while using ChatGPT. This interaction allows them to articulate their viewpoints and, through ChatGPT's responses, clarify any misunderstandings they may have regarding certain concepts, particularly in complex and specialized topics. This engagement can facilitate students' understanding and provide references for their projects and thesis writing. The rich functionalities of ChatGPT can attract students to incorporate it into their daily learning, increasing their interest in studying and encouraging them to utilize ChatGPT for knowledge acquisition, skill enhancement, and cognitive expansion, thereby fostering their exploration of how to effectively use AI tools.

## **(3) Providing emotional support for students**

College life is colorful, but students inevitably encounter psychological and emotional challenges in their studies and daily lives. When they seek to confide in others, they may fear exposing their privacy or becoming the subject of ridicule. In such situations, using ChatGPT can offer emotional support to students.

During their interactions with ChatGPT, students can alleviate stress from academic and personal pressures and address negative psychological issues. For example, students may feel anxious before exams; through interaction with ChatGPT, they can understand that anxiety is a normal physiological response and receive guidance on measures to alleviate exam pressure, such as deep breathing, adequate preparation, and engaging in physical activities. Some students may face emotional confusion or setbacks; in these cases, ChatGPT can provide various suggestions on how to navigate emotional difficulties and cope with relationship challenges, helping students find their way out of tough situations. When misunderstandings or conflicts arise between students, ChatGPT can also offer valuable advice, providing emotional support.

## **2. Negative Impacts of AI Tools Represented by ChatGPT on College Students' Learning**

As a language model, ChatGPT can offer diverse and high-quality services to students. However, if students become overly reliant on ChatGPT in their studies and lives, it can lead to various negative consequences.

### **(1) Increased dependency on chatgpt, affecting critical thinking skills**

While students may appreciate the convenience and numerous advantages that ChatGPT offers, constant reliance on it can lead to a dependency that undermines their independent thinking abilities. If students habitually turn to ChatGPT for guidance in learning, life, and emotional matters, their critical thinking skills, autonomy, decision-making abilities, and cognitive processes may deteriorate. Instead of reflecting on issues, students may resort to ChatGPT for immediate answers. Frequent use of ChatGPT can adversely affect their thinking skills and cognitive patterns.

Although ChatGPT possesses AI advantages, it cannot replace human judgment. Typically, students should engage in critical thinking to assess the correctness of different answers. However, as ChatGPT provides seemingly flawless responses, students may gradually lose their capacity for critical analysis.

### **(2) Impact on students' interpersonal communication skills**

While ChatGPT is engaging and feature-rich, prolonged use may cause students to become increasingly disconnected from society. When faced with problems or seeking help, they may instinctively think of ChatGPT, leading to an inability to engage in meaningful communication with peers, roommates, and others, thus impairing their social interactions. For instance, when experiencing psychological issues, students should seek help from teachers or classmates, but an over-reliance on ChatGPT can create a vicious cycle that is hard to escape.

### **(3) Influence on students' value system**

While ChatGPT offers significant advantages, its use can impact students' value systems. For example, some students may use ChatGPT to assist in project design and academic writing, contributing to academic dishonesty. Others may perceive ChatGPT as a panacea that can solve all problems, leading them to believe that learning loses its significance and value. This is particularly true for high-achieving students who may find that the answers obtained through ChatGPT seem more satisfactory than those derived from their own critical thinking, diminishing their appreciation for the value of learning and negatively affecting their motivation and enthusiasm for their studies.

## **3. Analysis of Existing Problems in Higher Education**

Currently, there are several major issues in higher education regarding the use of AI tools to enhance learning:

**(1) Outdated educational concepts**

Although many educators have recognized the value of artificial intelligence, a conservative attitude persists among some, leading to criticism of students' use of these tools. This outdated mindset limits students' ability to effectively utilize AI technology for learning.

**(2) Increased student dependency**

Surveys indicate that some students have developed an excessive reliance on AI tools, resulting in a lack of initiative when facing complex problems. If this trend is not addressed, it may negatively impact students' cultural literacy and independent thinking abilities.

**(3) Lack of usage guidance**

Many students lack systematic and effective guidance when using AI tools, preventing them from maximizing the benefits of these resources. This necessitates deeper research and exploration by educational leaders regarding usage norms and teaching methods.

**4. Strategies and Recommendations**

In response to the aforementioned issues, we propose the following strategies and recommendations:

**(1) Shift in educational philosophy**

Higher education institutions should actively transform their educational philosophies, focusing on the positive roles of AI tools in learning while granting students the freedom and support to use these resources. Educators and students should collaboratively explore new applications of AI in classroom learning.

**(2) Effective usage guidance**

Colleges should provide systematic training on the use of AI tools tailored to different academic disciplines, helping students understand the characteristics and methods of these tools to improve their efficiency and reduce blind dependency. Elective courses could be established to teach students how to utilize AI for efficient learning. Through project-based and case-based learning, students can learn to use AI tools in practice and cultivate independent thinking and innovative capabilities when addressing complex problems.

**(3) Teacher-student interaction and collaboration**

Educators can incorporate AI tools as supplements to teaching, enhancing interaction with students. Class discussions can be set up to encourage students to share their experiences and insights gained from using AI tools, thereby fostering communication and understanding between teachers and students.

**(4) Promoting critical thinking**

While guiding students in the use of AI tools, colleges should also emphasize the cultivation of critical thinking skills. Interdisciplinary courses can be developed to raise students' awareness of ethics and social responsibility, encouraging them to be more rational and responsible in their use of AI tools. Through extracurricular reading and research projects, students can be guided to think independently about the limitations and potential risks of AI, maintaining a rational and critical attitude in their learning.

**5. Conclusion**

In the era of artificial intelligence, ChatGPT, as an emerging learning tool, has positively influenced college

students' learning while also presenting new challenges. Through effective strategies and guidance, we can maximize its advantages, helping students better adapt to the learning environment of the AI era and enhance their overall quality. Higher education institutions should actively explore and practice the deep integration of education and artificial intelligence to create better learning experiences for students.

## References

- [1] Zhu Xiaohong. Digital Literacy of College Students in the AI Era: Framework, Value, and Enhancement Pathways. *Journal of Honghe University*, 2024, 22(01): 74-77.
- [2] Jiang Weizhe. The Dilemma and Breakthrough of Labor Education for College Students in the Era of Artificial Intelligence. *Vocational Education Research*, 2023, (12): 35-38.
- [3] Guo Jianan, Zhao Shan. Education in the Era of Generative Artificial Intelligence: Opportunities, Challenges, and Responses of ChatGPT in Promoting College Course Creation. *Exploration in Educational Science*, 2023, 41(06): 89-97.
- [4] Zhou Hongyu, Chang Shunli. Future Scenarios, Potential Risks, and Governance of Generative Artificial Intelligence in Higher Education. *Modern Educational Management*, 2023, (11): 1-12.
- [5] Zhou Quan, Feng Song, She Huijuan. Opportunities and Risks of Ideological and Political Education for College Students in Hunan in the Era of Artificial Intelligence. *Journal of Hubei Open Vocational College*, 2023, 36(20): 149-151.
- [6] Zhong Binglin, Shang Junjie, Wang Jianhua, Han Yunbo, Liu Jin, Zou Hongjun, Wang Zhenglu. Challenges of ChatGPT to Education: A Discussion. *Chongqing Higher Education Research*, 2023(03): 3-25.