

## Students' Perspectives on ChatGPT in China

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### Abstract

ChatGPT (Chat Pre-trained Transformer) is a chat robot program. It was invented by Americans and announced at the end of 2022. This study explores the impact of ChatGPT, an AI-powered tool, on educational innovation through a quantitative analysis of survey data from 100 students across various regions of China. The research aims to understand the usage, benefits, and challenges associated with ChatGPT in an educational setting. Findings suggest that a majority of the students utilize ChatGPT for homework assistance and find it instrumental in understanding complex academic concepts. Students also appreciate the tool's ability to facilitate round-the-clock learning. However, concerns were raised about occasional inaccuracies in ChatGPT's responses and a potential over-reliance on the tool. Despite these challenges, the study underscores the potential of ChatGPT in fostering engaging, personalized, and accessible learning experiences. It also points out the need for a balanced approach towards AI implementation in education and the importance of continued research in this field. The insights from this study contribute to the growing body of evidence on the transformative potential and inherent challenges of AI in education.

**Keywords:** ChatGPT, Artificial Intelligence, Educational Reform, Practical Problems, Innovation

### Introduction

ChatGPT is an AI program that can bring about significant changes in our education because it will impact the current examination system and force teachers to change the examination mode and avoid certain factual questions. In fact, this represents the change of artificial intelligence technology itself to education methods, and also verifies how teachers should change methods to educate students (Alafnan et al., 2023). Therefore, many practical issues such as AI's promotion of education innovation triggered by ChatGPT (Kovačević, 2023).

### The Educational Concept Has Changed and The Learning Motivation Has Been Improved

ChatGPT is an artificial intelligence technology program that can change today's educational ideas and improve learning motivation. It brings great challenges to teachers because it puts forward high requirements for teachers' teaching activities. In the age of artificial intelligence, teachers, as educators themselves, have changed in terms of identity and role (Anders, 2023).

In the traditional teaching mode, the teaching activities carried out by teachers are from teaching to learning. Teachers are responsible for teaching and students are responsible for learning (Precintha et al., 2019; Yunus et al., 2014). But in the age of artificial intelligence, this order of teaching activities should be changed, and it should follow the concept of "learning and teaching", that is, learning first and teaching later. In the classroom, the primary educational goal of teachers is very simple, is to stimulate students' interest in learning knowledge, to form a motivation for knowledge (Yunus et al., 2019; Zakaria et al., 2016). In real teaching activities, teachers' teaching methods should first hide the answer and guide students to find the answer, creating a kind of "insight moment" for students, which is a unique teaching process of "entering the brain" (Lin et al., 2023). Based on this, students can also gain a sense of success in the learning process, which further stimulates students' subjective initiative in learning and stronger motivation.

To this end, teachers should use ChatGPT artificial intelligence software program to teach students according to their independent learning progress and interests, which is a challenge for teachers, even for the entire education system and education management. In short, teachers need to break their own perceptions and expectations to provide students with a new learning experience through ChatGPT (Casella et al., 2023). Here is an example. In physics teaching, teachers should demonstrate "Newton's First Law" to students. If teaching is carried out with inertial thinking, students will face various difficulties in the process of accepting the learned knowledge, such as difficulties in understanding conceptual formulas and solving problems. Therefore, teachers should use ChatGPT to instruct students to ask questions based on what they have seen, heard, and understood about Newton's First Law, and then learn a little bit about Newton's First Law through ChatGPT's feedback interpretation (Lo, 2023). In this learning process, students need to master more knowledge content, break the cognitive boundary through their own active thinking, and gradually uncover the core content of knowledge points, so that they can have a sense of achievement in learning.

### **Establish Interdisciplinary Curriculum System and Develop Education and Artificial Intelligence Technology Together**

Teachers should establish interdisciplinary curriculum system for students to ensure that education and AI technology can develop together. Objectively speaking, ChatGPT is important for the development of interdisciplinary education. It presents a rich opportunity because it does not follow the traditional discipline training mechanism to prepare students (Casella et al., 2023). Instead, it wants students to keep up with the changes in the world and be prepared to learn new things. In the context of the current educational framework, educational curriculum is facing reform, and teachers are more willing to create immersive learning experience for students, forming a synergistic development effect between education and artificial intelligence technology. At this point, we should also emphasize the interdisciplinary learning process of students and establish an in-depth interdisciplinary education mechanism. For example, subject-related art, technology and other course knowledge can be added to the course teaching (Choi et al., 2023). For example, social health courses can be introduced into medical teaching, and ChatGPT can help students break away from the inherent thinking limits of disciplines. From another point of view, it is to let students no longer pay attention to the subject knowledge itself but pay more attention to the development and changes of the industry in the next 10 years or even longer, so as to

anticipate the future, which reflects the social nature of medical teaching (Rajendran & Yunus, 2021; Said et al., 2013; Yunus & Salehi, 2012).. The introduction of health curriculum content is also to ensure the depth of the subject curriculum, to bring students a better learning experience, to help them better development in the future.

In the field of education supported by ChatGPT AI technology, there is no discipline opposition, because any discipline can form linkage effect, such as chemistry and medicine, physics and engineering, Chinese and life, music and dance, etc., are closely related and can realize mutual linkage. The above subjects all belong to the technical category, such as music and physics. Vocal music makes sound because human vocal cords produce resonance, which is related to the knowledge of resonance in physics. And the technique in painting is reflected in the quality of oil paint and paper. Therefore, the relationship between art education and science and technology is quite close, even interlinked. In some of the new digital art, it is not difficult to translate traditional art content into digital art. The value of ChatGPT is to establish such an interdisciplinary system to ensure that education and artificial intelligence technology can achieve synergistic development effect and reflect higher educational value.

### **Develop Local ChatGPT and Promote The Process of Educational Reform**

In China, ChatGPT is an imported product, and although we do not encourage or oppose the use of ChatGPT in education (in principle, students are not encouraged to copy), students should be guided to use ChatGPT to solve some practical problems in their study life, to help students learn knowledge content better. In this regard, it requires students to have a sincere learning attitude, establish good and correct values, never take others' learning results as their own. For the development and innovation of education in China, encouraging the use of ChatGPT is the right way (Cingillioglu, 2023). Therefore, China should develop and build indigenous ChatGPT, try to crack some ethical risks existing in the software program. To some extent, ChatGPT is just a tool for learning and communication between teachers and students in the field of education. Therefore, more artificial intelligence technology should be adopted in the field of education to promote the process of education reform and development and establish a lifelong learning education mechanism through the construction of local ChatGPT (Rahman & Watanobe, 2023). ChatGPT is used from kindergarten to preschool through college. In this paper, ChatGPT needs to reflect the change mechanism of education and teaching context in combination with many educational content practical applications, to ensure that students can accept new things in the process of using ChatGPT, constantly seek changes and realize self-appreciation. In other words, it is necessary to prepare for the leapfrog reform of education and reflect the application value of artificial intelligence technology.

### **Literature Review**

#### **The Impact of AI in Education**

Artificial Intelligence (AI) has increasingly permeated various facets of education, showing potential in revolutionizing pedagogy, student learning experiences, and administrative procedures. Research in this realm typically focuses on three primary domains: teaching, learning, and administrative functionalities (Costello, 2023).

Starting with teaching, AI has been leveraged to develop intelligent tutoring systems (ITSs), which can provide personalized instruction to students. These systems, by adopting a

student-centred approach, enhance the learner's autonomy and stimulate deeper cognitive processes (Crawford et al., 2023). ITSs like AutoTutor and Cognitive Tutors have shown substantial efficacy in facilitating the learning of complex topics (Emenike & Emenike, 2023). Furthermore, AI assists teachers in tracking student performance by analysing data in real-time, thus allowing for targeted feedback and interventions, thus transforming traditional assessment practices (Farrokhnia et al., 2023).

From a learning perspective, AI has been utilized to create adaptive learning technologies that tailor educational content to individual student needs. This personalization helps in promoting mastery learning, where the focus is on the understanding of the subject matter rather than the pace of learning (Arif et al., 2019; Lim et al., 2021; Nair & Yunus, 2021). Additionally, the incorporation of AI in educational games and simulations has been found to boost student engagement and improve learning outcomes (Fergus et al., 2023). These technologies gamify the learning experience, making it more enjoyable and stimulating for students.

When it comes to administrative tasks, AI contributes significantly towards streamlining and enhancing efficiency. From managing enrolment and scheduling to resource allocation and early detection of students-at-risk, AI aids in reducing human error and saving time (Fijačko et al., 2023). Moreover, predictive analytics powered by AI can help in making informed decisions for better student outcomes.

Despite these potential benefits, the literature also cautions about the possible downsides of AI in education. Concerns have been raised about privacy and ethics, the need for human-AI collaboration, the lack of interoperability, and the risk of increasing digital inequity (Frith, 2023).

### **ChatGPT: A New Era in Education**

As an advanced instance of AI, ChatGPT, a language model developed by OpenAI, represents a new frontier in education. By combining machine learning and natural language processing, ChatGPT has shown potential in providing personalized learning experiences, enhancing student engagement, and acting as a pedagogical tool (Harrell, 2021).

Research into ChatGPT's role as an educational tool is emerging, and initial findings are promising. For instance, the use of ChatGPT for tutoring purposes seems to be particularly effective, as the model can provide immediate feedback, clarify complex concepts, and offer alternative explanations based on the learner's responses (Gašević et al., 2023). Its potential as a supplementary tool in distance learning contexts is also noteworthy, providing opportunities for student-teacher interaction even in asynchronous learning environments.

Further, ChatGPT's role in creating interactive learning scenarios is an exciting development. Its ability to simulate a wide range of characters and situations makes it an asset in role-play exercises, particularly in language learning and social science education. This potential for fostering active learning environments may lead to improved student engagement and understanding (Gentile et al., 2023).

However, despite these encouraging initial findings, the study of ChatGPT's educational applications is still nascent. While the potential for transformative impact is immense, there's a need for rigorous, empirical studies investigating its long-term effectiveness and potential pitfalls in educational settings.

### **Identifying the Gap**

Although the literature outlines a promising landscape for AI in education, including the potential role of ChatGPT, a more comprehensive understanding of the latter's influence on educational innovation is still underexplored. The identified gaps in the literature are

- The lack of empirical studies investigating the direct impact of ChatGPT on student learning outcomes.
- The absence of research into administrative applications of ChatGPT within educational settings.
- The limited discussion of the ethical and societal implications of incorporating ChatGPT in education, including data privacy and fairness concerns.

The current study is aimed at addressing these gaps, aiming to provide a holistic view of ChatGPT's influence on education. This includes an investigation of the technology's pedagogical and administrative applications, as well as an exploration of its potential pitfalls and ethical implications. By doing so, the study contributes to the nascent but rapidly growing body of literature on the role of AI, and particularly ChatGPT, in driving educational innovation.

### **Methodology**

#### **Data Sources**

For this research, data were collected from a specific primary source, that is, a group of students from different regions of China. Primary data was gathered via an online survey, which was the primary instrument for collecting quantifiable data. The primary method of data collection was an extensive survey distributed to approximately 100 students from various regions across China. The survey aimed to collect quantifiable data on the experiences, perceptions, and usage of ChatGPT in the educational sector. It comprised questions about the frequency and nature of ChatGPT usage, perceived benefits and drawbacks, and potential areas of improvement.

#### **Data Collection and Analysis**

Given the quantitative nature of our study, our approach to data collection and analysis was based on statistical methods. Primary data was collected through an online survey using the "Questionnaire" platform, a popular online survey tool in China. The survey was disseminated, and responses were collected over a period of two months. The student participants were selected to ensure a variety of experiences and uses of ChatGPT across different educational contexts.

By focusing on a specific demographic group — students across various regions of China — this study aims to provide insights into the potential influence of ChatGPT on educational outcomes in this context. The quantitative nature of this study allows us to make generalizations about the broader population, thus making the findings more applicable to similar educational contexts.

### **Result and Discussion**

The data gathered from approximately 100 students across various regions of China provided valuable insights into the role of ChatGPT in education. Respondents demonstrated diverse experiences with ChatGPT, but several common themes emerged.

Most students reported using ChatGPT for homework assistance, specifically for explaining complex concepts and answering subject-related queries. A majority of the students (72%) found ChatGPT useful in understanding challenging topics, especially in Science, Technology, Engineering, and Mathematics (STEM) subjects. Approximately 65% of respondents agreed that ChatGPT had made studying more engaging and interactive, transforming the typical monotonous learning experience into a conversational, dynamic one.

Additionally, 60% of students reported that they used ChatGPT for general knowledge expansion beyond their school curriculum, indicating its role as a lifelong learning tool. Around 54% of students expressed satisfaction with the quick response times and the 24/7 availability of ChatGPT, aiding in uninterrupted study sessions.

However, concerns were also raised, notably around the accuracy of responses and reliance on the AI tool. About 48% of students reported occasionally receiving misleading or incorrect answers from ChatGPT. Furthermore, 30% of students expressed concerns about developing an over-reliance on ChatGPT for their educational needs, potentially undermining their independent problem-solving skills.

### **AI in Education**

Our findings align with existing literature on the integration of AI in education. Previous research has shown that AI can make education more engaging and personalized, and our study supports this, particularly regarding the role of ChatGPT. The observation that students are using ChatGPT for lifelong learning corroborates previous studies suggesting that AI can cultivate continuous, self-directed learning.

Concerns about accuracy and reliance, which emerged from our study, also resonate with broader discussions about the challenges of AI in education. The potential for misinformation and the risk of over-dependence on AI tools have been consistently highlighted in the literature. Our findings underline the necessity of these ongoing discussions (Halaweh, 2023). However, it is important to note that our findings contribute to a more nuanced understanding of these challenges. For instance, the concern about over-reliance on ChatGPT emerged not just from educators, as is often the case in existing literature, but from the students themselves.

### **The Contributions of ChatGPT to Educational Innovation**

ChatGPT's most significant contribution to educational innovation lies in its capacity to foster personalized, engaging, and accessible learning. By providing explanations, answering queries, and enabling exploration beyond the curriculum, it transforms the educational process into a more student-centric one. This is particularly relevant in the context of STEM education, where complex concepts often pose significant learning challenges (Hwang & Chen, 2023).

Moreover, ChatGPT's 24/7 availability addresses the demand for round-the-clock learning assistance, a need not easily met by human tutors due to time and resource constraints. This suggests that AI tools like ChatGPT can play a crucial role in supporting anytime, anywhere learning, a key aspect of educational innovation in today's digital age. Despite these advantages, our study also reminds us that embracing such innovation requires careful consideration of potential challenges. The issue of accuracy and the risk of over-reliance on ChatGPT are vital points of concern. These concerns indicate that while ChatGPT

can be a powerful tool in the educational toolbox, it should be used in conjunction with other resources, including traditional human guidance.

Overall, our findings suggest that ChatGPT, while not without its challenges, has the potential to drive significant innovation in education, particularly in terms of enhancing student engagement, personalization, and accessibility of learning.

### **Conclusion**

This study undertook a comprehensive examination of the role and impact of ChatGPT in educational innovation, as experienced by a sample of students across different regions of China. The primary aim was to evaluate the perceptions, usage, benefits, and drawbacks associated with the implementation of this AI-powered tool in the educational landscape. A majority of the respondents reported using ChatGPT for academic assistance, particularly in understanding complex concepts in their curriculum. A significant portion of students found that ChatGPT transformed their learning experience, making it more engaging, interactive, and self-directed. Moreover, its round-the-clock availability proved to be a substantial benefit, facilitating uninterrupted study sessions. However, it's essential to balance this positive feedback with the challenges and concerns that also surfaced. Notably, concerns regarding occasional inaccuracies in ChatGPT's responses and potential over-reliance on the tool underline that, while AI can significantly contribute to the learning experience, its integration needs careful consideration and moderation.

### **The Implications of the Study**

The findings of this study hold several implications for the future of AI in education and the role of tools like ChatGPT. First, it demonstrates the potential of AI to revolutionize education by making it more engaging, personalized, and accessible. For educators, policymakers, and edtech developers, this underscores the value of investing in AI tools and incorporating them into teaching and learning environments. However, the findings also emphasize the necessity of a balanced and cautious approach. The concerns raised by the students themselves about potential over-reliance and the issue of misinformation stress the importance of having safeguards and complementary educational resources in place (Ibrahim et al., 2023). This is a crucial reminder that while AI tools can enhance the learning process, they should not replace traditional educational methods entirely but rather augment them. Finally, the study adds to the growing body of evidence supporting the potential of AI in fostering lifelong learning. Students using ChatGPT to explore knowledge beyond their curriculum signifies that AI tools can be leveraged to nurture curiosity and promote continuous learning – a key competency for the 21st century.

### **Advancing Future Research in AI Tools like ChatGPT within Education**

While our research provides valuable insights, it also opens up multiple avenues for further investigation. Future research can explore more diverse demographic groups and include different geographical contexts to obtain a more global perspective on the use of AI tools like ChatGPT in education. Studies focusing on specific educational levels (primary, secondary, tertiary) or on particular subjects (STEM, humanities, languages) can also yield valuable insights. Furthermore, it would be beneficial to conduct longitudinal studies to understand the long-term impacts of AI tools on learning outcomes and skill development. Comparing the effects of various AI tools can also be a productive area of investigation. Investigating the

concerns highlighted in this study more deeply could also yield crucial insights. Researching methods to minimize misinformation risks, developing guidelines for appropriate AI usage to prevent over-reliance, and evaluating the effectiveness of these measures can significantly contribute to our understanding of how to optimally integrate AI into education.

To conclude, our study demonstrates the significant potential of AI tools like ChatGPT in driving educational innovation. However, it also highlights the need for cautious integration and the importance of continuing research in this field. As we stand on the cusp of an AI-driven revolution in education, ongoing research, experimentation, and dialogue are vital to harness this potential responsibly and effectively.

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