

Research on the Strategy of Introducing ChatGPT into Teaching and Learning

-- Based on SWOT Model

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Abstract

ChatGPT, as a new dialogue tool of artificial intelligence, has entered our life, bringing a brand-new experience of knowledge integration to both teachers and students in teaching. SWOT model is used to analyze the existing foundation and experience of ChatGPT in education, the problems to be solved, the opportunities brought by globalization and the international and domestic challenges it faces. This paper explores the strategy of introducing ChatGPT into education from the aspects of rational use of ChatGPT, implementation of the fundamental task of educating people, strengthening the cultivation of students' innovative consciousness and strengthening academic integrity education.

Keywords

ChatGPT, Teaching, SWOT.

1. Introduction

ChatGPT is an artificial intelligence technology launched by OpenAI, which has been available for nearly two years. Since it was put into service, ChatGPT, GPT-4 and other artificial intelligence chat robot programs have caused different discussions in all walks of life. In April, 2023, China Payment and Clearing Association proposed that practitioners in the payment industry use ChatGPT cautiously, and its use exposed risks such as cross-border data leakage. A number of academic journals have issued statements completely prohibiting or strictly restricting the use of artificial intelligence robots such as ChatGPT to write academic papers. How does ChatGPT affect education? What challenges does it bring to teaching and learning? How should we deal with these challenges? How can education seek new development in the interaction with ChatGPT and realize the symbiosis between people and ChatGPT? These questions are in urgent need of our answers.

2. What is ChatGPT and What Are Its Application Scenarios?

ChatGPT is a natural language processing tool driven by artificial intelligence technology. It can carry out dialogue by understanding and learning human language, interact according to the context of chat, chat and communicate like human beings, and even complete tasks such as writing emails, video scripts, copywriting, translation, code and writing papers. However, today's GPT seems to have comprehensive and universal functions. It can listen to different people's questions and demands, collect data and answer questions immediately, and can also directly write letters, articles, do copywriting, write poems and paintings, and write quite complicated programs. It can also guide the offline work, just like the management,

commanding all kinds of robots without having to execute them in person. Although some scholars believe that GPT is a tool made by human beings, it is impossible to shake human status. However, GPT seems to be becoming a "superior person" among robots, and may be unified into a "superman" with extremely powerful functions in the future, which is superior to other robots.

The conclusion that previously established machines may replace manual work in human society doesn't work here in GPT, and GPT may even take the lead in influencing those jobs that seemed complicated and laborious in the past. According to a report released by OpenAI on March 20, 2023, "the most affected occupations include interpreters, translators, poets, lyricists, public relations experts, writers, mathematicians, tax payers, blockchain engineers, accountants and auditors, and journalists". [1]

3. The Influence of GPT on Education

As a silicon-based life form, GPT is difficult to obtain the abilities of carbon-based life forms based on physical feelings, such as emotion, intuition and experience. It may form a kind of self-consciousness, which includes sociology, morality and emotion, but these contents are presented after training and are limited to a great extent.

First of all, GPT provides convenience for teachers' teaching preparation, but there is also the problem of information fraud. ChatGPT has the ability to process information quickly, which can process a large amount of text information in a short time, making it more convenient and fast for teachers to consult and obtain information, and saving teachers' time and labor costs in consulting materials. In the past, search engines could only search the existing information on the Internet, which was stored on the Internet, and it would not generate new information. ChatGPT has human-like intelligence, and uses its powerful information combination ability to recombine existing texts and generate new knowledge information. The answer generated by ChatGPT is based on the information it stores. If the question is beyond the knowledge information it stores, it cannot answer. It may also be because the quantity and quality of the knowledge information it is "fed" are insufficient, which leads to problems such as factual errors, blind spots of knowledge, misuse of concepts and even fabrication of information. [2]

Secondly, GPT provides students with personalized learning experience, enriches students' access to knowledge and provides students with a relatively complete framework and system. ChatGPT can provide customized learning content and strategies according to students' learning needs and levels; We can infer students' knowledge level according to their feedback and questions, and adjust the difficulty and rhythm of teaching content accordingly; Through timely feedback, communication and suggestions in the teaching process, students can be helped to better improve their learning and realize personalized learning. Different students have different gains from the interaction with GPT, which requires students to think deeply. Simple questions often correspond to general replies, and profound questions can lead to creative answers.

What's more, some students rely on GPT to write their homework and papers. Such artificial intelligence gives birth to people's inertia and ignores students' mastery and understanding of knowledge. It has caused some moral and academic misconduct problems, and students put more energy into dealing with duplicate checking and avoiding checking, which makes the cart before the horse. Therefore, it is proposed to ban and strictly investigate the use of ChatGPT to write academic papers.

4. Opportunity and Challenge Analysis Based on SWOT Model

The meaning of SWOT model is: strength, weakness, opportunity and threat. It is divided into two parts: SW and OT, which are used to analyze internal conditions and external conditions respectively. This paper analyzes the advantages and disadvantages of ChatGPT and the opportunities and challenges it faces with SWOT model, and explores the relationship between artificial intelligence and education.

4.1. Internal condition (SW)

(1) Strength: Existing experience and foundation

In the era of globalization, information technology has developed very rapidly. ChatGPT is not so much a science as a science. The core of science and technology is people, and so is creation. The upgrading of artificial intelligence will make GPT more and more adapt to the development of the times and technology, so as to truly "replace" human beings. Fundamentally speaking, the development of science and technology is the torrent of history, which cannot be stopped, and can only be adapted and embraced.

In recent years, the education industry has also actively embraced the Internet and the information age, and changed education from face-to-face communication to screen communication, which has brought about a lot of resource sharing and great development in the education field, and a number of network platforms such as "China University massive open online course mooc" have been born, realizing the resource sharing of national-level excellent courses. In the future, ChatGPT will weaken the knowledge barrier between teachers and students, open up the restrictions of knowledge reserves, provide students with more ways to acquire knowledge and experience, and also let learning break through the limitations of the classroom, and realize the acquisition and accumulation of knowledge through "question-answer". More adapt to the development of the times, free teachers from the role of knowledge broadcaster, and do more things related to knowledge processing, creation and teaching to improve the efficiency of education.

(2) Weakness: Problems to be solved

ChatGPT, if used well, can become a good learning tool and break down the information barrier. If used badly, it will also open Pandora's Box, which will bring many destructive and unethical behaviors and lead to serious consequences. Writing academic papers mentioned above is an example. When using GPT, students may be curious to ask some questions or do some practical jokes, and GPT will visualize these wrong views, which is a great danger to minors to a great extent. Therefore, it is necessary to restrict the use and continue to plan, just like setting up the "setting the youth mode", and output the content that conforms to the basic values and moral sense.

Education is that one life affects another, and one tree shakes another. ChatGPT can be used as a dialogue partner to help students learn, but it doesn't communicate feelings or make moral judgments. ChatGPT's instrumentality determines that it can't accomplish the task of cultivating people with virtue, and talents with virtue are the foundation of education. Therefore, ChatGPT cannot change the essence of education, nor can it replace the existing educational model.

4.2. External conditions (OT)

(1) Opportunity: the opportunity brought by the trend of globalization

Compared with the changes in people's lives caused by driverless cars, ChatGPT has a wider range of applications and more diverse functions. GPT is moving towards the stage of General Artificial Intelligence (AGI). In the paper "Sparks of Artificial General Intelligence" written by Microsoft researcher, [3] the author thinks that GPT-4 can already be regarded as an early

version of general artificial intelligence. The test proves that GPT-4 is not only proficient in language, but also can perform well in various and difficult tasks such as mathematics, programming, vision, medicine, law and psychology. In addition, it can unify skills and concepts in many fields, and has the ability to generate new knowledge, and can also apply these to many fields. The times and economic development increasingly need talents who are proficient in professional knowledge and interdisciplinary ability. It can be predicted that as GPT becomes easier to use, it can be used in education to raise various questions, which will stimulate the rapid development of research in related fields, and it will become more and more "universal" until it covers almost all human fields.

(2) Threat: International and domestic challenges

However, ChatGPT is still controversial. More than a thousand scientists and entrepreneurs called for a six-month moratorium on GPT development. Some public schools in New York, Seattle and Los Angeles prohibit students from using ChatGPT. Some universities, such as the University of Hong Kong, also explicitly prohibit students from using ChatGPT in class, homework and evaluation. ChatGPT can complete knowledge problems such as brushing questions well. But if it is an open, situational and creative problem, ChatGPT can't be completed well.

China has promulgated relevant legal clockwork, and made detailed legal and ethical provisions on artificial intelligence and algorithm technology to deal with the possible ethical risks brought by ChatGPT. Recently, the state issued the "Management Measures for Generative Artificial Intelligence Services (Draft for Comment)", which made corresponding provisions on how to provide generative artificial intelligence, explicitly requiring "to take measures to prevent discrimination such as race, nationality, belief, country, region, gender, age and occupation in the process of algorithm design, training data selection, model generation and optimization, and service provision"; The use of generative artificial intelligence, "respect the legitimate interests of others, to prevent harm to the physical and mental health of others, damage to the right of portrait, reputation and personal privacy, and infringement of intellectual property rights. It is forbidden to illegally obtain, disclose and use personal information and privacy and trade secrets." [4] These laws and ethical norms promulgated by the state can not only deal with ethical risks, but also protect personal privacy and reproductive information disclosure to a great extent.

5. Strategy Analysis Based on SWOT Model

Based on the aforementioned SWOT analysis, the application of ChatGPT in education should make strategies and tactics on the basis of fully understanding its own advantages in order to better promote the development of teaching.

5.1. Use the characteristics of ChatGPT to become a teaching tool

Machines have replaced part of human physical labor, and artificial intelligence has replaced part of human intellectual labor. ChatGPT is an advanced artificial intelligence, which is instrumental and human-like. In teaching, we should make better use of the characteristics of GPT, and ask questions-answer questions-think about further questions-and then answer them Form a closed loop to achieve a deeper understanding of a problem. An important part of learning is to be able to ask good questions. In this instant communication process, students' ability to ask questions is exercised. Teachers, on the other hand, make use of the better discipline integration ability in GPT to upgrade simple knowledge summary and application to complex knowledge summary and multidisciplinary application, so that teachers' lesson preparation content is more diversified and can better respond to real problems in real life. It

should be noted that this is all on the premise that students can master and understand the most basic knowledge.

5.2. Make up for ChatGPT's shortcomings by cultivating virtue through education

ChatGPT is human-like artificial intelligence, but it still lacks human emotion, consciousness, morality, feelings and other characteristics. In the process of teaching, teachers' concern for students and emotional support are more important than imparting knowledge itself to become a model of students' morality and behavior. Although ChatGPT is superior in information integration and processing, education puts more emphasis on interpersonal communication and care, which can only be replaced by manpower. In the process of teaching, the three core elements of knowledge, ability and emotion are emphasized. ChatGPT can only cultivate knowledge and ability, and the transmission of values and emotions is still inseparable from teachers' teaching and students' understanding. To implement the fundamental task of cultivating people by virtue, virtue is to adhere to moral education first and guide, influence and inspire people through positive education. Cultivating people means adhering to the people-oriented principle and cultivating socialist successors in the new era.

5.3. Strengthen the cultivation of innovative thinking and consciousness, and avoid relying on ChatGPT

ChatGPT, as a tool with a high degree of intelligence, can replace people to complete many primary intelligent tasks, such as providing convenience for teachers to prepare lessons, collect data, design lesson plans, grade exams, correct homework, provide answers for students to do homework and answer questions, provide timely feedback on students' learning situation, and facilitate teachers' and students' learning. Traditional exam-oriented education emphasizes the mastery and memorization of knowledge, and future education and assessment should pay more attention to the processing, understanding and application of knowledge. In this process, the cultivation of innovative thinking and innovative consciousness is particularly important. Encourage students to use ChatGPT to process knowledge, but the core creative thinking must be put forward by students. Only in this way can we use ChatGPT better and avoid the dependence on tools.

5.4. Strengthen the education of academic integrity and avoid the academic misconduct that ChatGPT may bring

Many students use ChatGPT to finish their homework and write papers. This convenience also brings problems of homework cheating and academic integrity. In the process of using ChatGPT, we should strictly limit its use scenarios and put an end to the phenomenon of using ChatGPT to complete homework and write papers. Use more advanced artificial intelligence software to supervise and put an end to academic fraud. The problems brought by ChatGPT have forced education to make reforms: first, reform homework and evaluation methods; second, strengthen academic integrity education. Homework and evaluation should face real problems and strengthen the investigation of students' core literacy, especially the investigation of creative literacy and personality development. In the process of teaching and learning, we should use ChatGPT to provide help, ensure the use of ChatGPT in a reasonable range, formulate the norms for the use of ChatGPT, strengthen the education of academic integrity, and try to avoid academic misconduct and academic plagiarism when using ChatGPT.

6. Conclusion

ChatGPT, as a general artificial intelligence tool, represents the most advanced artificial intelligence technology in the world, which brings a lot of convenience to teaching, but also

brings more risks and uncontrollable factors. It will be an irresistible trend that ChatGPT will be widely used in computers, mobile phones and other terminals in the future. But it is our proper meaning in education to use the function of ChatGPT and be its master. With the powerful data integration function of ChatGPT, leaving creative and in-depth thinking topics to teachers and students is the key consideration for future education supervision to deal with academic misconduct. Take ChatGPT as a favorable tool for knowledge processing, and make good use of it. Moral education, emotional education and values in education are the key points, which ChatGPT can't do.

Acknowledgments

Fund project: Ankang University's 2020 Course Ideological and Political Demonstration Course Construction Project, No.: 2020KCSZ10, Course Name: Introduction to Social Policy.

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