

The Challenges Faced by AI Education in China's Liberal Arts Universities

Ning Miao^{1,2,3,a,*}, Jinxian Zhang¹, Qianqian Guo¹, Jingxin Luo¹, Jinwen Zhang¹

¹Tianjin University of Finance and Economics Pearl River College, Tianjin, China

²Tianjin Public Security Police Profession College, Tianjin, China

³Tianjin Chenxing Science and Technology Huayi Co., Ltd., Tianjin, China

^a3051610092@qq.com

*Corresponding author

Abstract: *With the rapid development of science and technology, artificial intelligence education has gradually become a new topic in the field of education. However, the current artificial intelligence education is facing many challenges, such as low acceptance, lack of teachers, poor learning environment and lack of funds, resulting in relatively few practical research. In order to promote the development of artificial intelligence education, we should increase publicity and break the shackles of traditional ideas; Speed up the improvement of teaching system, create a good academic atmosphere; And strengthen cooperation with enterprises, jointly build experimental research base platform. Through these initiatives, we are expected to push AI education to a new level and cultivate more talents with innovative spirit and practical ability.*

Keywords: *Reform in education; artificial intelligence; Liberal arts construction; Future trends*

1. Introduction

1.1. Background of artificial intelligence education

In 1956, artificial intelligence as a discipline began to exist, and since then artificial intelligence has gradually begun to develop; Until 2016, Go champion Shishi Li was defeated by the AI Go program AlphaGo in the human-machine war that attracted the world's attention, which aroused the attention of all parties to artificial intelligence and made people focus on the technology of artificial intelligence. The development of artificial intelligence can not only be separated from the vigorous research and development of technology, but also artificial intelligence education is an important part of the development of artificial intelligence[6]. Because of this, China strongly supports the development of AI education, with particular emphasis on the development of AI in colleges and universities. So, they began to vigorously build the artificial intelligence discipline, plan the layout of the artificial intelligence field, open artificial intelligence majors, and artificial intelligence began to enter university classrooms. More people started to engage with this emerging technology. At the same time, it also encourages the expansion of other fields of artificial intelligence, the formation of other disciplines combined with artificial intelligence, as well as the integration of artificial intelligence with other professions. The utilization of artificial intelligence technology in various ways can promote the development of all parties involved and, in turn, further enhance the development of artificial intelligence education.

1.2. The status quo of the development of AI education

As a perfect combination of science and technology and education, artificial intelligence education is leading a profound educational reform. It not only changes the teaching methods and methods, but also plays a pivotal role in cultivating future talents. Many Chinese and foreign experts and scholars have conducted in-depth discussion and research on the field of artificial intelligence education. For example, Artificial Intelligence Enabling to Create a New Pattern of Future Education, written by scholar Qinghua Zheng, mainly discusses how artificial intelligence technology can empower and create a new pattern of future education. The paper introduces various applications of artificial intelligence in the field of education, including intelligent teaching, personalized learning, virtual laboratories, intelligent assessment, etc. These applications aim to improve the efficiency of education, promote education equity, and enhance students' learning experience and learning effect. Secondly, he proposed that through the

application of AI technology, a new pattern of education will be formed in the future. This new landscape may include personalized learning paths, intelligent teaching environments, more engaged learning experiences for students, and more efficient education management systems[1]. Co-authored by scholars Zhou Jing and Qiguang Yang, *Generative AI enables Paradigm change in education research: Mechanisms, Risks and Countermeasures* explores how generative AI enables paradigm change in education research, and analyzes in detail the mechanisms, potential risks and corresponding countermeasures of this transformation[2]. Among them, the reform mechanism lies in more efficient data collection and analysis, the development of new research methods, as well as educational experiments and simulations based on generative AI, etc., while the potential risks may include data privacy and security issues, algorithm bias and inequity, and the explain ability and reliability of the model. Countermeasures and suggestions include strengthening data management and privacy protection, improving algorithmic fairness and transparency, and strengthening model validation and calibration. Artificial intelligence will also be an important part of education in the future. For example, the paper "Artificial Intelligence and Education" discusses the application of artificial intelligence in the field of education, including teaching design, intelligent assisted teaching, educational evaluation and other aspects, which confirms the importance of artificial intelligence in the field of education[3]. Secondly, artificial intelligence education has an impact on a series of issues such as social structure, educational mode and resource allocation, and how to practice it. For example, the article "Artificial Intelligence and Education: The Impact of New Technologies on Social Structure and its Current Situation and Trend" discusses the impact of artificial intelligence on education from the perspective of broader social structure, including how new technologies change the way of education, the allocation of educational resources, and the equity of education[4]. The *Current Situation of Artificial Intelligence and Rational Thinking on its Application in Education*, written by scholars XF Lin and K Xie, analyzed the latest progress of artificial intelligence technology and gave in-depth thoughts on the potential application of these technologies in the field of education. Among the issues covered are how to effectively integrate AI technologies into educational practices, and how to balance the relationship between technological innovation and educational goals. The future development path of AI education focuses on key aspects such as deepening the application of the technology, expanding the field of education, strengthening international cooperation and improving the quality of education. Through these efforts, AI education is expected to create more possibilities for the future of mankind and send more well-developed talents to society[5].

In order to respond to the national policy and fully implement the important exposition on education and the spirit of the National Education Conference, Tianjin has deeply implemented the national informatization development strategy; Not only vigorously develop artificial intelligence education, but also held many artificial intelligence education achievements display activities, and vigorously cultivate students' interest in artificial intelligence. At the same time, Tianjin colleges and universities have taken the initiative to adapt to the new requirements of education reform and development, and implemented important goals and tasks such as "Education Modernization 2035" and "Education Informatization 2.0 Action Plan" of the State and Tianjin. Tianjin University, Tianjin University of Science and Technology and other colleges and universities have set up schools of artificial intelligence to promote the construction of artificial intelligence talents and vigorously develop artificial intelligence technology.

2. Existing problems in artificial intelligence education

2.1. The emerging subject of artificial intelligence is difficult to be accepted

Although from the current form, the future society will be affected by artificial intelligence in various industries; However, the development of new things is difficult to be accepted by people at the beginning, and the resistance is also great. In the same way, the development of artificial intelligence, a new discipline, is bound to face certain obstacles at the beginning. From the perspective of traditional Chinese concept, many people believe that stability and stability are the most important; So in order to be conservative, when something rises, they will choose to watch it far away, and then contact it according to the situation after the development of a certain period of time and the future form is really clear. Therefore, it can be seen that although the development of artificial intelligence must have a great situation, only a very small number of people will have the courage to take the first step, and most people choose to follow the pace of others. This will lead to very few people involved in artificial intelligence, which will hinder the pace of the development of artificial intelligence, and is a major problem in the development of artificial intelligence.

2.2. Lack of teachers and poor environment for students to learn artificial intelligence

As a newly emerging technology, AI has a smaller talent pool compared to other traditional disciplines in terms of teacher talent reserve, resulting in fewer channels for many students to access AI, and many students interested in AI may not find the threshold to enter the industry. And the teaching system of related artificial intelligence is lacking, the teaching method needs to be explored, the relevant textbooks are relatively few, the relevant theoretical research results are far lower than other disciplines, and the relevant information that students can find is less than that of other disciplines that have developed relatively mature, so that students want to develop in artificial intelligence, spend relatively more energy. It also results in relatively limited technical exchange and cooperation between schools, as well as decreased idea exchange among them. Consequently, many schools may end up exploring the same path, potentially making the same mistakes, leading to a partial waste of resources, and ultimately causing a decline in the promotion of artificial intelligence education.

2.3. Lack of funds, artificial intelligence practice research is less

In the research of the early stage of artificial intelligence, the discipline of artificial intelligence is not advantageous in terms of funds compared with other disciplines. As a result, the construction of research bases such as artificial intelligence laboratories and the implementation of artificial intelligence projects have relatively tight funds, and the relevant artificial intelligence research platform cannot be well constructed. The lack of experimental bases and platforms also leads to less practice of artificial intelligence for teachers and students in colleges and universities, and more time is spent on learning the theoretical knowledge of artificial intelligence; Moreover, there are relatively few related innovation, entrepreneurship, and skills competitions, leading to a lack of practical skills among students. This prevents them from effectively combining theory with practice, significantly hindering the progress in cultivating artificial intelligence talents, and slowing down the growth of high-level artificial intelligence talents. This is a very important problem in artificial intelligence education, we must solve the problem of practical research and practice caused by the lack of gold as soon as possible, in order to effectively promote the development of artificial intelligence education.

3. The solution to the problem of artificial intelligence education

3.1. Vigorously publicize and support artificial intelligence to break traditional concepts

The relevant information and publicity departments of the government should vigorously publicize the application and advantages of artificial intelligence, so that the masses can deeply understand the convenience brought by artificial intelligence to life. It can not only break the shackles of people's traditional ideas in the process of understanding, but also improve the ability to accept new things. It is believed that the development of artificial intelligence plays a promoting role in life. Therefore, they are willing to join the artificial intelligence research team and promote the development of artificial intelligence. And the education department should also vigorously publicize and promote artificial intelligence in high schools, and popularize the prospect and development of artificial intelligence to students who are about to enter the university. Many high school students have never thought about their future development in the learning process, so students can be interested in artificial intelligence by recommending artificial intelligence majors to students who are about to study professionally, and encourage them to become involved in the realm of artificial intelligence. At the same time, we strongly support universities to set up artificial intelligence majors, so that more college students can choose artificial intelligence majors and carry out professional study, so as to join the team of artificial intelligence research. At the same time, it is also necessary to promote the integration of artificial intelligence and various industries, and ensure that students studying artificial intelligence can see the prospects and advantages of artificial intelligence. In this way, a virtuous circle can be formed, a good learning atmosphere can be created, more people are willing to join the subject of artificial intelligence for learning, and the education of artificial intelligence can be well developed. Only in this way can the country promote the training of artificial intelligence talents, vigorously develop artificial intelligence technology, and seize the forefront of artificial intelligence science and technology for our country, accelerate the realization of leading major breakthroughs in original artificial intelligence achievements, and obtain more adequate talent support. Therefore, in order to solve the problem of the development of artificial intelligence in the early stage, we must vigorously publicize the development advantages of artificial intelligence and break people's traditional ideas. So that artificial intelligence in education can reduce obstacles to development and accelerate the training of artificial intelligence talents.

3.2. Accelerating the improvement of the teaching system and creating a favorable academic environment

The reserve of teachers in the subject of artificial intelligence cannot be rapidly increased in a short period of time, but the training of artificial intelligence talents can be enhanced by strengthening the improvement of the teaching system. Therefore, it is necessary to accelerate the transformation of scientific and technological achievements and resources in the field of artificial intelligence to education and teaching; Improve the construction of teaching materials, especially the construction of teaching materials in the important direction of artificial intelligence, and improve the subject layout in the field of artificial intelligence; Improve the dynamic adjustment mechanism of discipline professional structure based on the basic theories of artificial intelligence and the needs of industrial development, and lay a solid foundation for a new generation of major theoretical innovation in artificial intelligence; At the same time, it is also necessary to carry out the construction of online classroom, build a national quality open classroom, and incorporate artificial intelligence knowledge into the basic computer teaching content, so that more people have a rough understanding of artificial intelligence, and more people interested in artificial intelligence can access to the learning of artificial intelligence knowledge. And establish a professional platform for artificial intelligence, concentrate the theoretical knowledge and technical achievements, focus on the major scientific frontier issues of artificial intelligence, and carry out strategic research and policy research on all aspects of the development of artificial intelligence; In this way, it is convenient for students to search the relevant materials of artificial intelligence and discuss the doubts in learning together, so as to improve learning efficiency. The Ministry of Education should make overall planning and coordination, promote cooperation and exchanges among universities, pool resources to build a high-quality teacher team, jointly discuss the construction of AI related disciplines and personnel training plans, formulate practical implementation plans, and strengthen the improvement of AI teaching system. Only in this way can the problem of lack of teachers be solved, the current learning environment be optimized, and the education of artificial intelligence be carried out smoothly. Only in a short period of time can a group of strategic scientific and technological talents on artificial intelligence technology be quickly cultivated, and a group of outstanding young backbone talents be brought up, so that China's artificial intelligence can go to the forefront of the world as soon as possible.

3.3. Strengthen cooperation with enterprises to build experimental research base platform

Universities are encouraged to make overall plans for various funds such as scientific research, tilt funds toward artificial intelligence majors, accelerate the construction of innovative research bases such as frontier science centers and key laboratories of artificial intelligence, carry out basic and frontier research on artificial intelligence, develop the characteristics of competitive disciplines, and promote the penetration and integration of artificial intelligence into more disciplines. At the same time, guided by the major needs of national and regional development, enterprises are encouraged to participate with universities, and enterprises will provide more support in terms of artificial intelligence funds and projects; The university uses investment funds, market financing and other channels to guide social enterprises to participate in the implementation and construction of artificial intelligence projects in colleges and universities, increase support for the construction of applied research bases and platforms, implement joint scientific research on major issues, breakthrough directions and key industry applications of artificial intelligence, and strengthen the construction of conditions for artificial intelligence experiment environment, to establish an innovative platform and training hub dedicated to artificial intelligence, and collaboratively create a top-tier research institution specializing in AI advancements. Universities also support other disciplines to conduct integrated research on artificial intelligence on the original basis, and jointly promote the development of artificial intelligence. At the same time, innovation and entrepreneurship activities and skills competitions in the field of artificial intelligence are organized and encouraged to actively participate in innovation and entrepreneurship activities and competitions in the field of artificial intelligence, and students are guided to conduct innovation and entrepreneurship practice and research on the actual problems encountered by enterprises in the field of artificial intelligence based on the theoretical basis and core keys in the field of artificial intelligence. The government should actively promote national students' interest in participating in artificial intelligence technology competition activities. It should establish an effective exchange mechanism between college teachers and students, as well as industry talents, to encourage students to combine theory with practice and integrate knowledge across various fields. Additionally, through diverse channels, the government should strive to foster artificial intelligence talents in multiple industries. Therefore, cooperating with enterprises to build experimental research bases and platforms can solve the problem of lack of funds faced by artificial intelligence at the present stage, and also increase practical research on artificial intelligence.

4. Conclusion

The development of artificial intelligence has a huge impact on our lives, and today's world is driven by science and technology, so the development of artificial intelligence has a very broad prospect. At present, the development of artificial intelligence in China is at a key stage in the beginning. If we want to develop artificial intelligence as soon as possible and let artificial intelligence take a leading position in the world, we must vigorously develop artificial intelligence education, and put education in a priority position for economic and social development in order to lay a solid foundation for the development of artificial intelligence. Therefore, we must solve the current problems of artificial intelligence education and make artificial intelligence education better. Therefore, we should vigorously promote artificial intelligence, let more people understand the application and technology of artificial intelligence, break the traditional concept, let people avoid the panic of artificial intelligence, and enter the artificial intelligence industry with a more positive attitude to explore. At the same time, it is necessary to accelerate the construction of the teaching system, improve the subject system of artificial intelligence, and create artificial intelligence online courses, so that more people can accept the systematic learning of artificial intelligence as soon as possible; At the same time, we should also create a good academic environment, so that more people are willing to learn the knowledge of artificial intelligence, so as to send more talents for artificial intelligence. Finally, it is necessary to strengthen cooperation and exchange with enterprises, ensure sufficient funds for artificial intelligence research, and jointly build artificial intelligence experimental research bases and platforms with enterprises to enhance cooperation on artificial intelligence. At the same time, we can also carry out more artificial intelligence innovation and entrepreneurship practice activities, so that schools can strengthen practical exchanges with enterprises, which can not only promote the development of artificial intelligence in enterprises, but also promote the artificial intelligence education in colleges and universities. It is believed that the education of artificial intelligence will have a great space for development and a better and better social environment in the future. With the joint efforts of many parties, we can achieve a good plan for the cultivation of artificial intelligence talents and improve the education mechanism in the field of artificial intelligence; It can train multi-level artificial intelligence talents for the country, jointly improve the basic concept of artificial intelligence, build the world's leading artificial intelligence experiment base, and let the country's artificial intelligence technology walk in the forefront of the world.

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References

- [1] Menekse M .*Envisioning the future of learning and teaching engineering in the artificial intelligence era: Opportunities and challenges*[J].*Journal of engineering education*, 2023.DOI:10.1002/jee.20539.
- [2] Jing Zhou, Yang Qiguang. *Paradigm Change in Generative artificial intelligence enabling education research: Mechanism, risks and countermeasures* [J].*China Audio-visual Education*, 2024, (03):68-75.
- [3] Florea A M, Radu S. *Artificial Intelligence and Education*[C]//2019 22nd International Conference on Control Systems and Computer Science (CSCS). 2019.DOI: 10.1109 / CSCS. 2019.00069.
- [4] Hong-Yan S , Guo-Fu Z , Shuang L ,et al.*Current Situation and Trend of Artificial Intelligence and Education: The Impact of New Technology on Social Structure*[J].*Journal of Jiamusi Vocational Institute*, 2018.
- [5] Xiao-Feng L , Kang X .*The Current Situation of Artificial Intelligence and the Rational Thinking of Its Educational Application*[J].*Modern Educational Technology*, 2019.
- [6] Zhang Jinbao, Li Kaiyi. *China's artificial intelligence reflection on the status of education* [J].*Journal of electrochemical education research*, 2022 lancet (8): 21-28. DOI: 10.13811 / j.carol carroll nki. Investigate. 2022.08.003.