Comparative Analysis of Artificial Intelligence Education Policies in China, the United States and Mongolia

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Abstract: This paper aims to explore the similarities and differences of artificial intelligence education policies and strategic layout in China, the United States and Mongolia. First of all, by analyzing the evolution of AI education policies in the three countries, it is found that China focuses on the combination of technology introduction and independent research and development, the United States emphasizes industry-university-research cooperation and innovation, and Mongolia focuses on infrastructure construction and teacher training. Then, the author makes a comparative analysis of the three countries’ AI educational policies, and points out that the United States and China have achieved remarkable results in the promotion of educational modernization and the improvement of educational quality. Finally, on the basis of comparative analysis results, this article gives some inspiration and suggestions for developing and implementing AI educational policy in the future.

Keywords: Artificial intelligence education, Policy evolution, Strategic layout, Comparative analysis.

1. Introduction

Artificial intelligence (AI) has experienced a tortuous evolution and development since it was proposed in the 1950s and 1960s. Especially after entering the 21st century, especially after 2010, artificial intelligence has ushered in an unprecedented development climax, becoming an important driving force for global scientific and technological innovation and a new plateau for strategic competition among countries. Driven by the wave of artificial intelligence, the field of education has also ushered in profound changes, and the formulation and implementation of artificial intelligence education policies has become the focus of attention of all countries. On a global scale, the development of artificial intelligence education is no longer a simple technical issue, but a strategic issue involving national competitiveness, economic development, social progress and other aspects. Therefore, the United States and Mongolia have their own characteristics and advantages in terms of artificial intelligence education policies and strategic layout, which is worthy of in-depth comparative analysis.

To begin with, let's examine China's policies and strategic framework for artificial intelligence (AI) education. Since 2013, China has systematically released a range of policy directives and research findings pertaining to the internet and AI, laying a solid foundation for the advancement of AI education in the country. Notably, outlined China's strategic approach, objectives, comprehensive planning, priority actions, resource allocation, safety nets, and implementation strategies for AI progress. This comprehensive blueprint has served as a beacon, guiding the direction of AI education in China. The country's AI education policies are centered around the amalgamation of technological breakthroughs and industrial expansion, with a strong emphasis on nurturing AI professionals who possess both innovative thinking and hands-on expertise. This approach is pivotal in bolstering China's economic transformation and upgradation through a skilled talent pool.

As a global leader in artificial intelligence (AI) technology, the United States has garnered significant attention for its forward-thinking AI education policy and strategic approach. The nation's AI education policy is centered around fostering students' innovative thinking and problem-solving skills, aiming to equip them with the necessary tools to thrive in an ever-evolving technological landscape.

The American AI education strategy emphasizes hands-on experience and practical application. It encourages students to engage in AI projects and research, providing them with opportunities to apply their theoretical knowledge in real-world scenarios. By doing so, students develop an understanding of the complexities of AI and how it can be harnessed to solve real-world problems. Moreover, the US policy values interdisciplinary learning. It recognizes that AI is a multifaceted field that requires knowledge from various disciplines, including computer science, mathematics, engineering, and even social sciences. Therefore, it strives to cultivate AI talents with a broad range of knowledge and skills.

In contrast, Mongolia, a landlocked country in Asia, may have started late in the field of AI, but it has demonstrated remarkable progress in recent years. The Mongolian government has recognized the potential of AI in transforming education and has increased its investment and support for AI education. To this end, the Mongolian government has issued a series of policy documents that outline its vision for AI education. These policies encourage schools and enterprises to collaborate and jointly develop AI education programs. The aim is to improve the quality and efficiency of education by integrating AI into teaching and learning processes.

At the same time, Mongolia pays special attention to cultivating students' information literacy and innovation abilities. To achieve this, it has established relevant courses and training programs that introduce students to the basics of
AI and teach them how to apply AI technologies in their daily lives. By doing so, Mongolia hopes to improve students' understanding and application abilities in AI, thus laying the foundation for a future workforce that is well-versed in this cutting-edge technology. When comparing and analyzing the artificial intelligence education policies and strategic layout of China, the United States and Mongolia, it can be found that they have certain differences and commonalities in terms of policy objectives, implementation paths and resource allocation. First, all three countries have stressed the importance of AI education in national development and included it in their national development strategies. Secondly, all three countries focus on cultivating students' innovative thinking and practical abilities, and encourage students to participate in AI projects and research. However, in the specific implementation path and resource allocation, there are some differences among the three countries. China pays attention to the integration of technological innovation and industrial development, and emphasizes the cultivation of artificial intelligence talents with innovative spirit and practical ability; The United States emphasizes the cultivation of interdisciplinary knowledge and the improvement of practical ability; Mongolia, on the other hand, focuses more on infrastructure and teacher training. In addition, economy, culture and other aspects is also increasingly prominent. Therefore, when developing artificial intelligence education policies, countries should not only consider the issue of technological innovation and talent training, but also fully consider the ethical and social impact of artificial intelligence technology to ensure the healthy and sustainable development of artificial intelligence technology.

Generally speaking, China, United States, and Mongolia have their own characteristics and superiority in AI education policy and strategy arrangement. Through the comparison analysis, we can draw on the advantages and experiences of the developed countries, and offer beneficial inspiration and advice to China's AI education. Meanwhile, it is necessary to realize the importance and urgency of AI education, and to enhance the study of policy and strategy. This article will make a deep comparison and analysis on the AI education policy and strategy arrangement between China, United States and Mongolia. This paper discusses the differences and advantages of AI education policy, implementation route, resource allocation, ethics and social influence, which will offer beneficial thinking and advice for China's AI education.

2. Comparative Analysis of Artificial Intelligence Education Policies and Strategic Layout in China, the United States and Mongolia

2.1 Evolution of China's AI Education Policy

China's artificial intelligence (AI) education policy, as an important intersection of science and technology and education, its development process not only reflects the evolution of the national science and technology strategy, but also highlights the vitality of educational innovation. This process from the initial exploration and attempt, to the later acceleration, and now the comprehensive deepening, each step is closely linked to China's overall science and technology strategy and national development plan, showing China's firm determination and positive actions in adapting to the global trend of science and technology development and promoting education innovation.

In the last century, the development of China's AI field lagged behind, but with the arrival of the 21st century, the pace of global scientific and technological innovation has accelerated, and the international competition situation has also changed. In this context, China began to realize the importance of AI technology for national development, and began to increase investment and research and development efforts. At the same time, AI education has gradually attracted people's attention and is regarded as an important field for cultivating innovative talents and promoting scientific and technological innovation.

2013 is an important node in the development of China's AI education policy. This year, the Chinese government released a series of AI-related policy documents and research reports, which provided clear policy guidance and direction for the development of AI education. The policy not only covers the research and development and application of AI technology, but also involves many aspects such as personnel training and educational resource allocation. The introduction of these policies has laid a solid foundation for the development of AI education, and also provides a reference for the deepening and improvement of subsequent policies.

In 2017, China's AI education policy reached a major turning point. This year, The State Council issued the "New Generation of Artificial Intelligence Development Plan", which marks the official rise of AI education to the national strategic level. At this stage, and the AI literacy of teachers and students has been improved. In terms of teacher training, various forms of training activities have been carried out to improve teachers' AI education capabilities. In terms of technology application, it has promoted the wide application of AI technology in the field of education, such as intelligent teaching, intelligent assessment, intelligent management, etc. The application of these technologies not only improves the quality and efficiency of education, but also provides students with a more personalized and accurate learning experience.

At the same time, China has also begun to pay attention to the social impact and ethical issues of AI education. With the rapid development and application of AI technology, its impact on society, economy, culture and other aspects is also increasingly prominent. In order to ensure the healthy and sustainable development of AI technology, China has strengthened its attention and research on the ethical and social impact of AI technology. The government has issued documents such as the New Generation of AI Governance Principles - Developing Responsible Artificial Intelligence, which put forward the overall framework and basic principles of AI social governance, providing a guarantee for the healthy development of AI education.

Entering the new era, China's AI education policy continues to deepen and improve. The government continues to increase investment in and support for AI education, and promote the deep integration and innovative development of AI technology and education. At the same time, it has also strengthened the supervision and governance of AI.
technology to ensure the healthy and sustainable development of AI technology. In this process, China not only pays attention to technological innovation and personnel training, but also pays attention to cooperation and exchanges with the international community to jointly promote the development of global AI education.

In general, China's AI education policy has experienced a development process from initial exploration to gradual acceleration, and then to comprehensive deepening. In this process, the government has continuously increased its investment and support for AI education, and promoted the deep integration and innovative development of AI technology and education. At the same time, it has also strengthened the supervision and governance of AI technology to ensure the healthy and sustainable development of AI technology. In the future, China will continue to deepen the research and practice of artificial intelligence education policies, and contribute Chinese wisdom and strength to promote the development of global AI education.

2.2 Evolution of American Artificial Intelligence Education Policy

The evolution of AI education policy in the United States demonstrates an increasing awareness and commitment in this area. Along with the rapid development of artificial intelligence technology worldwide, the United States, as the leading country in science and technology, has gone through a major transformation from initial exploration to comprehensive development. Although the early United States has been the world leader in science and technology innovation, it has fallen behind in the field of artificial intelligence education. But with the continuous breakthrough of artificial intelligence technology and its wide application in society and economy, the United States government started to recognize the importance of artificial intelligence education, and began to invest more and more in this area.

After entering the 21st century, the U.S. government began to issue a series of policy documents and strategic plans related to AI education, aiming to cultivate more talents with AI knowledge and skills, and promote the innovation and application of AI technology. These policy documents not only cover the research and development and application of AI technology, but also emphasize the key role of AI education in cultivating innovative talents and enhancing national competitiveness. At the same time, universities and research institutions in the United States have also actively responded to the call of the government, and have opened AI-related courses to strengthen the construction of teachers in the field of AI, providing strong support for the development of AI education. These initiatives not only enhance the competitiveness of the United States in the global AI field, but also lay the foundation for cultivating more excellent AI talents. However, with the in-depth development of AI technology, its ethical risks and social impacts have gradually become prominent. The U.S. government is beginning to realize that while promoting the development of AI technology, it also needs to pay attention to its impact on society, economy, culture and other aspects, and formulate corresponding policies and norms to address these challenges. To this end, the US government has issued a series of policy documents and guidelines on the ethical and social implications of AI, emphasizing the ethical guidelines and social responsibilities to be followed in the development of AI technology. These policy documents and guiding principles not only provide directional guidance for the development of AI technology, but also provide a strong guarantee for the healthy development of AI education.

In recent years, the US government has further increased its investment and support for AI education. On the one hand, the government encourages universities and research institutions to strengthen the construction of teachers and courses in the field of AI by providing financial support and tax incentives. On the other hand, the government is also actively promoting the application of AI technology in the field of education, such as intelligent teaching and intelligent assessment, to improve the quality and efficiency of education. At the same time, the US government has also strengthened the supervision and governance of AI technology to ensure the healthy and sustainable development of AI technology. The government has set up a special agency to be responsible for the supervision and governance of AI technology, and has formulated corresponding laws, regulations and policy measures to regulate the development and application of AI technology. Overall, AI education policy in the United States has undergone an important transformation from initial exploration to comprehensive deepening. In this process, the US government has not only increased its investment and support for AI education, but also paid attention to the ethical risks and social impact of AI technology.

2.3 Evolution of Artificial Intelligence Education Policy in Mongolia

Mongolia, as a country with a long history and culture, has also made significant progress in AI education policy in recent years. In the early stages of artificial intelligence technology, Mongolia did not pay enough attention to its application in the field of education. However, as the international community's attention to AI technology continues to increase, Mongolia has also begun to realize the importance of AI education. During this period, the Mongolian government began to pay attention to the international AI education dynamics, actively collected relevant information, and conducted preliminary exploration and research. After entering the 21st century, the Mongolian government began to formulate artificial intelligence education policies and included them in the national education development plan. In the early 2010s, the Ministry of Education of Mongolia issued the "Artificial Intelligence Education Development Plan", which clarified the development goals, key tasks and safeguard measures for AI education. The introduction of this plan marks a new stage in Mongolia's artificial intelligence education policy. In order to implement the plan, the Mongolian government has taken a series of concrete measures. First of all, it has strengthened the construction of AI teachers, encouraged teachers to participate in AI training and academic exchange activities, and improved teachers' AI literacy and teaching ability. Secondly, the construction of AI courses has been strengthened, AI courses have been incorporated into the curriculum system of primary and secondary schools, and colleges and universities have been encouraged to open
AI-related majors and courses. In addition, Mongolia has also strengthened cooperation and exchanges with the international community and introduced advanced foreign AI education resources and experience.

In recent years, the Mongolian government has further deepened the implementation of AI education policies. In terms of AI education infrastructure, Mongolia has increased investment in school information construction, and improved the network coverage and equipment configuration level of schools. This provides a strong guarantee for the popularization and application of AI education. At the same time, Mongolia also pays attention to the practice and application of AI education. By organizing students to participate in AI competitions and carry out AI practice projects, students' innovative thinking and practical ability are cultivated. In addition, Mongolia has also strengthened cooperation and exchanges with enterprises to promote the application and development of AI technology in the industrial field. In terms of AI education policy formulation, the Mongolian government has also continuously improved and optimized the policy system. By formulating more specific and detailed policy measures and implementation plans, we will ensure that AI education policies take root and are effectively implemented. At the same time, Mongolia has also strengthened policy publicity and promotion efforts, and increased the awareness and attention of all sectors of society to AI education.

2.4 Comparative Analysis of Artificial Intelligence Education Policies in China, the United States and Mongolia

China's driving force in the field of AI education is mainly responsible for organizational departments such as The State Council, the Ministry of Science and Technology, and relevant leading groups. These institutions have provided strong policy support for the development of AI education through top-level design and overall promotion. In addition, China has also set up new or newly joined institutions such as the Office for the Promotion of Artificial Intelligence Planning and the Artificial Intelligence Strategy Advisory Committee to further promote the development of AI education. As a leader in scientific and technological innovation, the United States is equally strong in the field of AI education. The U.S. government is working with multiple agencies, such as the Department of Education and the National Science Foundation (NSF), to promote AI education. In addition, universities and research institutions in the United States are also playing an important role in the field of AI education, promoting the popularization and application of AI technology by setting up relevant courses and holding seminars. Mongolia's driving force in the field of AI education is relatively weak, but it has also begun to attach importance to the development of AI education in recent years. The Mongolian government has strengthened its investment in the field of AI education through cooperation with international organizations and the introduction of foreign advanced technologies. At the same time, universities and research institutions in Mongolia are also actively exploring the possibilities of AI education to lay the foundation for the development of AI education. In the field of research and development and application of AI education, China pays attention to breakthroughs in basic theories and key technologies. The "New Generation of Artificial Intelligence Development Plan" issued by the Chinese government clearly states that it is necessary to focus on the basic theories and key technologies of AI, and gradually spread the focus to other levels for comprehensive development. At the key application level, China focuses on the development and breakthroughs in intelligent governance, cutting-edge science and technology, and major national strategic needs. The United States also pays attention to breakthroughs in basic theories and key technologies in the research and development and application of AI education. The US government supports basic research and innovative applications of AI through NSF and other institutions, and encourages universities and enterprises to cooperate in AI technology research and development. At the application level, the United States pays attention to the practical application of AI technology in education, medical care, transportation and other fields, and promotes social progress through technological innovation. Mongolia is still in its infancy in the field of AI education research and development and application. The Mongolian government has strengthened its investment in the field of AI education through cooperation with international organizations and the introduction of foreign advanced technologies. In terms of research and development, Mongolia focuses on the practical application of AI technology in education, medical care and other fields, with the goal of solving practical problems.

In the new era of AI education, China issued the "New Generation of AI Governance Principles-Developing Responsible Artificial Intelligence", marking that China's AI education has entered a new stage of focusing on social impact and social governance. The document emphasizes the ethical norms and social responsibilities of AI technology, providing a strong guarantee for the healthy development of AI education. At the same time, China has also released the "New Generation of Artificial Intelligence Development Plan", which has made phased target planning and top-level design for the future development of AI education. The United States has also released a series of important policy documents and strategic plans in the new era of AI education. The U.S. government has strengthened its investment and layout in the field of AI education by formulating AI education policies and setting up AI research centers. At the same time, the United States also pays attention to the ethical risks and social impacts of AI technology to promote the healthy development of AI technology. Mongolia has also strengthened its investment and layout in AI education in the new era of AI education. The Mongolian government has strengthened its investment in the field of AI education through cooperation with international organizations and the introduction of foreign advanced technologies. At the same time, Mongolia also pays attention to the practical application and social impact of AI technology, and promotes the popularization and application of AI technology in the field of education.

3. Revelation and Suggestion

3.1 Main Inspiration
After an in-depth analysis of the EU and China's artificial intelligence (AI) policy document promotion and development strategy layout between 2013 and 2020, we draw several profound main implications. These Revelations not only provide insight for us to understand the AI development path under the two different systems, but also provide an important reference for the future global layout and cooperation of AI technology.

First of all, although China's development in the field of AI started late, it has gradually emerged on the global AI stage with its strong national strength and unremitting spirit of catch-up. The Chinese government has shown great determination and action in promoting the development of AI technology, by formulating a series of policy measures to strengthen infrastructure construction, attract and train talents, and promote the deep integration of AI technology and industry. These efforts have enabled China to achieve world-leading results in certain key areas such as natural language processing, computer vision, machine learning, and more. This achievement not only highlights China's great potential in scientific and technological innovation and industrial development, but also injects new vitality into the development of global AI technology.

Second, the EU's emphasis on the legal, moral and ethical aspects of AI development is worth thinking about. Since 2013, the EU has actively formulated legislation and norms on AI development and ethics, providing a solid legal guarantee for the healthy development of AI technology. The EU focuses on the social applicability and ethics of AI technology, emphasizing that while promoting the development of AI technology, it must consider its impact on society, economy, culture and other aspects, and ensure the justice, transparency and explainability of technology. This development strategy, which focuses on ethical norms and social applicability, not only contributes to the healthy and sustainable development of AI technology, but also provides valuable experience for countries. In recent years, China has also begun to pay attention to the ethics and social impact of AI technology, and while strengthening the development of AI technology, it has also actively promoted the formulation and implementation of AI ethical guidelines. This change shows that China is gradually strengthening the comprehensive scientific governance of AI technology to achieve a win-win situation between technological development and social stability.

Third, China's emphasis on the ethics and social impact of AI technology in recent years has also brought us profound Revelations. With the rapid development of AI technology, how to ensure that it meets social ethical and moral standards, and how to prevent the abuse and misuse of technology has become the focus of global attention. In 2019, the Chinese government launched a programm-based policy document on AI ethical guidelines almost at the same time as the European Union, which clearly put forward ethical guidelines and ethical requirements for the development of AI technology. This change shows that China is gradually strengthening the comprehensive scientific governance of AI technology, combining technological development with social responsibility and ethics to realize the long-term benefits of technological development. This emphasis on the ethical and social impact of AI technology is of great significance in promoting the healthy development of AI technology.

Fourth, the European Union, as a regional national alliance organization, pays more attention to the call and guidance in the development of AI, and promotes the joint and cooperation between countries and regions. This development model is of great significance for promoting the popularization and development of global AI technology. China can learn from this, strengthen cooperation and exchanges with other countries and regions, and jointly promote the global development of AI technology. Through international cooperation and exchange, we can not only share our respective experiences and achievements in the development of AI technology, but also jointly cope with the challenges and problems brought about by technological development and promote the common progress of global AI technology.

Finally, the specificity and thoroughness of China's AI policy and strategic layout deserve recognition. By formulating a series of policy measures and strategic plans, the Chinese government has clarified the goals and directions for the development of AI technology, providing strong support for the rapid development of AI technology. However, it is also necessary to continue to strengthen this advantage, and at the same time pay attention to guiding and promoting multi-dimensional and short-cycle cooperation between institutions and organizations in various fields and at all levels. This will help better respond to the challenges and opportunities brought about by the development of AI technology, and promote the continuous development of China's AI cause. At the same time, we also need to recognize the complexity and long-term nature of AI technology development, strengthen interdisciplinary and cross-field cooperation and exchanges, and jointly promote the innovation and application of AI technology.

To sum up, through the comparative analysis of the promotion and development strategy layout of AI policy documents between the EU and China, we have gained profound enlightenment. These Revelations not only help us better understand the development path of AI under the two different systems, but also provide an important reference for the global layout and cooperation of AI technology in the future.

3.2 Policy Recommendations

China should increase investment in the research and development of key fields and core technologies of artificial intelligence, especially for the "bottleneck" technology problems in the development of national science and technology and national economic and social development. This includes two aspects: First, the use of AI technology to solve the key areas of national and social needs, such as health care, education, agriculture, etc.; The second is to strengthen the research and innovation of core technologies such as AI basic theories and algorithms, and improve the overall level of China's AI technology and independent innovation ability. To this end, it is recommended that the government increase its support for AI research and development projects, encourage enterprises, universities and scientific research institutions to carry out joint research and development, and form an
innovation system that integrates production, study and research.

In order to realize the wide application of AI technology and maximize economic and social benefits, China should promote the deep integration of AI with the virtual economy and the real economy. It is recommended that the government introduce relevant policies to encourage enterprises to use AI technology to promote digital transformation and industrial upgrading, especially in finance, manufacturing, logistics and other fields. At the same time, a national-level large-scale AI integrated development public service platform can be built to promote the deep integration of AI technology and the real economy, improve the precise docking of market supply and demand and the healthy and orderly development of the socialist market economy. In addition, the formulation and improvement of relevant laws, regulations and ethical norms should be strengthened to reduce the ethical problems and moral risks brought by advanced technology and virtual economy.

In view of the relative lack of AI talents in China, it is recommended that the government increase its support for the training and introduction of AI talents. In the short term, the talent gap can be made up by introducing international top AI talents, while encouraging enterprises, universities and scientific research institutions to strengthen exchanges and cooperation with international advanced teams. In the long run, artificial intelligence education and talent training should be vigorously strengthened, AI education should be incorporated into the national education system, and the popularization and promotion of AI courses in primary and secondary schools should be strengthened. At the same time, it supports universities and scientific research institutions to set up AI-related majors and research centers to cultivate AI talents with interdisciplinary backgrounds and innovative capabilities. In addition, a sound talent incentive mechanism and evaluation system should be established to attract more outstanding talents to join the AI cause.

In order to cope with the social governance challenges brought by AI technology, China should strengthen the research and practice of AI social governance. It is suggested that the government issue relevant policy documents to clarify the goals, principles and tasks of AI governance, and guide organizations from all walks of life to strengthen the research and practice of AI governance. At the same time, a cross-departmental coordination mechanism for AI governance can be established to strengthen the coordination of various forces such as policy making departments, educational research institutions, and enterprises. In addition, it is also necessary to strengthen international exchanges and cooperation on AI governance, learn from foreign advanced experience, and jointly promote the improvement and development of the global AI governance system.

To foster the healthy and orderly progress of AI technology in China, the establishment and enhancement of AI standardization and governance systems are paramount. It is imperative for the government to intensify efforts in formulating and promoting AI technical standards, aiming for a unified and comprehensive system. Simultaneously, the development of AI ethical norms must be prioritized to ensure clarity in moral boundaries and ethical principles for AI applications. To guarantee the safe, reliable, and compliant use of AI technology, robust supervision and evaluation mechanisms must be established. This includes the development of a risk assessment framework and strengthened oversight of AI implementations.

China is embracing the AI revolution with unique vigor and dynamism. We recognize that AI presents both challenges and opportunities. As we move forward, we will uphold innovation, promote open cooperation, and prioritize secure and controllable development. We will continually refine our talent cultivation system, deepen the integration of AI with real-world applications, and advance the modernization of our social governance framework. Furthermore, we are committed to active participation in global AI governance and cooperation efforts. We firmly believe that through the collective efforts of the Chinese government and society, AI will breathe new life into China's development and contribute significantly to its progress.

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