Study on Risks of Artificial Intelligence Education in Digital Education Transition—— Artificial Intelligence and Education

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Abstract: AI, as a key driver of the 4th Industrial Revolution and Education Reform, has a huge potential to transform the AI into a powerful one, which can be used in the field of education management and teaching, the study and assessment of students, the development of teachers' profession and the development of life. However, there are also a lot of risks in its educational application, such as data ethics and algorithms, sex discrimination, insufficient proof of the validity of the application, the reconstruction of teachers' role, the weakening of the student's subjective initiative, etc., and the rational planning of AI's educational policy, and the prevention of possible risks, are of particular importance to support the digital transition and modernisation of AI. Therefore, it is necessary for policymakers to understand the structure of AI education and their intellectual transition and innovation potential, to have AI skills, to study the possible technological ethical risks associated with AI training, and to grasp the shapes, features and types of AI educational policy-making both at home and abroad. Therefore, it is necessary to enhance the digital transition of AI education in order to achieve the mutual benefit of education and create a sustainable educational environment for the future. Therefore, it is necessary to enhance the interdisciplinarity and inter-department cooperation in order to transform AI into AI.

Key words: AI Education Applications; Future Education; Human-Machine Cooperative Intelligence; Education Digitalization; Data Ethics

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1. Questions raised

In the context of Industry 4.0, AI, big data, blockchain and other intelligent technologies are starting a new educational revolution and will promote the gradual transformation of human knowledge economy into knowledge economy. In order to adapt to the new trend of teaching reform and fully recognize the tremendous impact of AI in China's development, UNESCO has developed a set of educational strategies on AI. In 2018, UNESCO published the report "Beijing Consensus: AI and Education", which pointed out that AI and education should be deeply integrated to achieve all-round innovation in education, so as to make better application of AI in teaching. In 2020, UNESCO will launch a discussion on future education on the challenges and opportunities faced by AI, and explore its possible impact on education and teaching; According to the implementation of the Beijing Consensus, UNESCO has developed the "Artificial Intelligence and Education: A Guide for Policy Makers" (hereinafter referred to as the "Guide"), with the aim of studying its possible applications and improving the educational level of educational policy makers. In China, the new generation of intelligent technology, such as artificial intelligence, has become an important strategic support for "promoting education digital, building a learning society and learning power". Huai Jinpeng, deputy director of the Ministry of Education, said at the 2021 AI and Education Conference that: strengthen the education policy support for AI, promote the in-depth integration of education and education, use AI to drive lifelong education for all, promote the digital transformation of education, intelligent upgrading, integration and innovation, and accelerate the construction of high-quality education system. Therefore, how to correctly formulate AI education strategies, make full use of its application in the digital economic society, and realize the overall improvement of education has become the consensus of the international community. However, although it has shown its strong potential, it also poses some new problems to the current AI education strategy. Therefore, studying its potential dangers and promoting its digital transformation of education has become a major strategy for the development of China's education informatization.

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According to the implementation of the Beijing Consensus, UNESCO's Guide includes the following four aspects: AI technology that must be mastered by AI policy makers, the impact of AI in four areas on teaching, the problems faced by the strategy of how to promote the sustainable development of teaching through AI technology, and the form, characteristics and types of AI policies. This paper uses the method of literature and content analysis to explain the Guide in depth, with the purpose of discussing the potential risks of AI education implementation from the aspects of AI education collaborative governance, AI monitoring and evaluation, classroom teaching methods, and teacher team construction, and from the aspects of AI education collaborative governance, AI monitoring and evaluation, classroom teaching mode From the perspective of teacher team construction, we will think about how to plan the strategy and plan for the digital transformation of AI enabling education in China, promote the digital transformation of AI enabling education in all directions, and ultimately improve the intelligent education performance of AI education decision-makers, and realize the common interests of education.

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2. AI education decision-makers should have the basic skills of AI

2.1 The connotation, method, technology and application of AI

2.1.1 Meaning of AI

At Dartmouth University in the United States, the concept of AI was first introduced at an academic conference in 1956. Since then, the meaning of intelligence has been further expanded. This paper draws on the view of Ross Luckin and others, and believes that AI is a computer with interaction with the outside world. In recent years, with the continuous improvement of machine learning algorithms, it has played a revolutionary role in artificial intelligence. AI can not only extend the "machine intelligence" of human body to the scope and deeper level of human body, but also reflect the tremendous impact of cutting-edge technology on human social production, life, organization, thinking and other aspects.

2.1.2 Intelligent technology

The current research methods of AI include classical AI, machine learning, neural network and deep learning. The relationship between them is shown in Figure 1

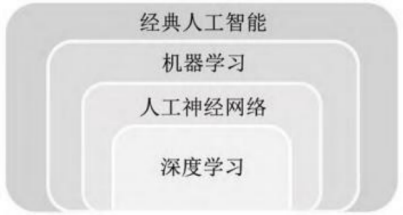

Figure 1 Relationship between classical AI, machine learning, artificial neural network and deep learning

The first is typical AI. Classical AI is called "symbolic AI", "rule-based AI", "efficient traditional AI", "GOFAI", etc. It includes a set of "If, then, then, and other" logics ", which are executed by computers. The classical AI theory believes that the essence of thinking is calculation, which can describe and imitate human actions and control the operation of symbols.

The second is about machine research. Machine learning is a method based on experience or data. It uses algorithms to enable machines to learn rules from massive historical data, so as to automatically find patterns hidden in the data and apply them. Machine learning is the analysis of massive data to determine the model and build an assessment for the future. Therefore, the algorithm of machine learning is more "learning" than the preset program. In fact, machine learning is an artificial way of learning, rather than a real autonomous and personal knowledge. It completely depends on human beings to select, clean and mark, and plan, explain and evaluate intelligent algorithms.

The third aspect is ANN. ANN is a new artificial intelligence technology based on the construction of biological neural network. ANN uses many processing units to make them connect with each other, so as to imitate the neural structure and function of the brain. This processing unit called artificial nerve is a simple parallel processor. Each ANN includes input layer, intermediate operation layer and output layer.

The fourth area is in-depth research. Deep learning is an intelligent technology similar to neural network. It simulates the hierarchical training of human brain and can be extracted from complex abstract features to reach a higher level. Deep learning neural networks or neural networks attempt to simulate the human brain. These elements work together to accurately identify, classify and describe objects in data.

2.1.3. AI technology and its application in China

The above AI technologies have produced seven kinds. The first aspect is natural language processing. AI is used to realize the automation of text and the understanding of natural language, including semantic analysis in such aspects as lawyers and translation, and the generation of text such as automatic generation of information, which are interactive and innovative. The second is voice recognition (Authentication), which uses NLP (NLP) technology to convert human voice into text. It also includes a robot that can talk in a smart phone. The third is image recognition and processing. It is an important technology in face recognition, image processing, automatic driving and other fields to recognize various types of objects and objects through image processing, analysis and understanding. The fourth is an independent agent, which can analyze the user's actions, automatically understand the user's personal information, and put forward corresponding suggestions for specific environments, such as computer game avatars, virtual partners, intelligent robots, etc. Fifthly, emotion detection, which uses artificial intelligence to analyze words, behaviors and facial emotions, such as emotional perception of intelligent learning partners (using biosensors and recorded data to judge students' emotional status), plays a certain role in students' metacognitive strategies. The sixth is data mining, which aims to extract information from data by using a variety of machine learning technologies. Using data mining technology, we can form links between different data, so as to accurately analyze medical diagnosis, weather forecast, smart city construction, etc. Seventh, artificial creativity can identify the creative elements in human works of art and transform them into the algorithms or other techniques mastered by AI, such as creating new photos, music, works of art or stories using AI. In artificial intelligence, this technology is increasingly widely used.

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2.2 Future AI development direction and limitations

2.2.1 "strong" and "weak" AI

At present, AI is divided into "weak" and "strong". "Weak" AI is to solve problems by imitating human and animal intelligence in many ways. "Strong" AI refers to AI and "super intelligence" of AI.

Super Intelligence (ASI).

Although the original plan of scientists was to make AI "strong", the current AI is still at a lower level. There is no independent intelligence and it can only be strictly constrained. Intelligent computers are not universal. For example, AI that can predict weather cannot be used to directly predict the trend of the stock market. In order to better simulate and solve the problem, the mode that makes the intelligent system work efficiently will become more complex and explosive, so that the computing capacity will continue to increase, and even exceed the load of the system. In order to solve the problem of imprecision of intelligent machines, it is necessary to build a huge data structure to overcome the "semantic barrier", resulting in a sharp increase in the amount of data and a reduction in the efficiency of intelligent systems. "Weak" AI lacks emotion, similarity and judgment ability, and does not have accurate prediction ability. If we want to break through these limitations of intelligence, we must carry out long-term human research. Although AI is not "intelligence" in essence, it is often superior to human in efficiency, endurance and finding key laws in a large amount of information.

2.2.2 Man-machine joint intelligence

The main body of human-machine cooperation is human, which promotes the coordination between human and machine. Although a lot of work can be done by AI, people still need to play an important role in judging common sense and values. As the connection between AI and people becomes closer and closer, we should reorganize it and call it "improving intelligence". In the process of improving intelligence, we will pay more attention to the development of AI technology to enrich and expand human understanding, create a more efficient human-machine cooperation model, and combine AI with group intelligence to solve all problems.

3. Four important application fields of AI in teaching

3.1 AI empowerment and application of education management and teaching

In order to reduce teaching burden, improve teaching quality, improve teaching quality and improve teaching quality. Through the analysis of education, we can promote the transformation of the traditional teaching management mode from the technical and social aspects, so as to improve the efficiency of teaching and improve the teaching time. In terms of technology, based on intelligent technologies such as big data, learning analysis and blockchain, we have carried out intelligent research on school teaching. In the intelligent ecosystem, managers can expand human thought and behavior through intelligent perception, intelligent decision-making, intelligent decision-making and implementation, so as to realize the management of schools; At the level of social relations, it will reconstruct the form and shape of society, highlight the role of multiple core and multi-system cooperation, and thus break through the traditional social relations. From the perspective of teaching, AI may also personalize large-scale education. In the learning process, the learning and analysis capabilities based on artificial intelligence

are used to track and count the students' learning data through multi-mode data acquisition, mining, emotional computing and other technologies to form learning images, provide important decision-making basis for students' learning management and teaching, and develop personalized learning routes for students.

Application fields such as educational chat robots and learning analysis applications are all enabled by AI. Teaching chat robots provide new ways for learners' personalized learning, such as establishing an immersive learning situation, analyzing students' needs, starting support sessions, timely diagnosis and intervention, etc. The learning analysis software is used to analyze the massive data in the university MIS to meet the expectations of students' academic performance. Through this software, teachers can better understand the problems that students encounter in learning and develop their own learning routes for them.

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3.2 AI empowering students' learning, evaluation and practice

With the strong support of artificial intelligence technology, the traditional education model will undergo structural changes and the improvement of intelligence, so that students' learning and evaluation will be greatly improved. First, it can conduct in-depth learning for learners. In the process of learning, it combines virtual reality technology with AR technology, expands the spatial dimension of the learning environment, and creates an immersive and intelligent learning environment for learners. In terms of the processing of learning materials, it adopts a variety of modes of data collection and mining, emotional calculation and learning analysis, intelligently analyzes the multi-mode learning materials of learners, and produces personalized learning portraits, and develops targeted learning route plans for students. In terms of the matching of learning resources, adaptive technology and machine learning technology are used to intelligently diagnose and analyze learning paths and learning materials, and to intelligently configure learning resources. In the aspect of learning path intervention, AI technology is used to comprehensively understand students' learning difficulties, and accurate portrait analysis, group layering suggestions, diagnostic reports, personalized learning path suggestions and other methods are used to build an intelligent adaptation education ecosystem of "teaching according to learning - teaching according to aptitude - promoting teaching by evaluation". Secondly, AI-enabled learning evaluation can improve result evaluation, strengthen process evaluation, explore value-added evaluation, improve comprehensive evaluation, and make traditional teaching evaluation intelligent and digital. The intelligent teaching diagnosis assisted by intelligence can record the learning track and multi-mode learning materials of students in the whole teaching, and establish the personality characteristics of students according to the big data of education, intelligent algorithms, knowledge maps, etc., and display them through the learning analysis instrument. The learning and evaluation of intelligent students can be divided into four types. First, through the use of special disciplines and special technologies of cognitive science, according to the problems arising in the learning process of students, formulate appropriate teaching contents and teaching routes, and provide personalized and step-by-step guidance. Second, it has a variety of applications such as emotion recognition, voice recognition, personalized customization, and docking with various cloud computing. It can provide support for innovative talents in the era of artificial intelligence, and change school teaching, learner learning, teaching evaluation and management. The third is the virtual identity of teachers, which provides students with cognitive support at the cognitive level in the context of online learning. It is usually used by teachers to stimulate students' learning motivation and communicate with students through words and expressions. Fourth, virtual reality and virtual reality teaching are often closely linked with artificial intelligence technologies such as machine learning. Changing the online learning space, changing the human-computer interaction mode, building the entity model of virtual learning, and integrating virtual learning and virtual learning into teaching practice can help students learn better, learn and use more easily.

3.3 AI Empowerment and Application of Teacher Professional Development and Education

In the era of intelligent education, AI proposes a comprehensive implementation strategy for teachers' professional development and improvement of teaching quality. In terms of environmental equipment, intelligent and intelligent technology can provide an intelligent platform for teachers' professional development, such as creating a whole-hearted professional training environment, an intelligent and interconnected educational practice platform, a professional practice platform, and a cross-regional training cloud platform, which will gradually realize the seamless connection between virtual space and physical space in the learning space of teachers' professional development. From the perspective of rules, AI has massive data, deep learning and powerful computing ability. It can explore the relationship and potential between data from the collection, cognition, optimization and other aspects, and deeply explore the basic rules and internal mechanism

of career development. In terms of innovative application, AI can provide new ideas for teachers' professional development, reconstruct teachers' professional development model, reconstruct teachers' professional development model, and promote teachers' professional development. The role of AI in teachers' professional development and the improvement of teaching quality are two important areas. First, platform monitoring based on intelligence. Human intelligence can provide support for online teaching, especially on the platform that can assist teachers and tutors in monitoring non-synchronization. It can classify students' statements, classify simple statements, summarize repeated statements of questions, and identify statements of negative emotions. In the "double teacher classroom", robots can undertake complex teaching tasks such as homework correction, knowledge base update, score statistics and analysis, thus realizing innovative teaching with ability improvement, emotional interaction and teaching design as the core.

3.4 Research and practice of AI empowerment for lifelong education

In the construction of the new lifelong education system and lifelong learning system, the application of AI will have a profound impact. In terms of individual flexible learning methods, human intelligence can connect and connect various learning environments, so that everyone can learn anywhere and with various devices. At the same time, it can also promote cooperative social learning based on personal interests and purposes, thus building a learning community for lifelong learners. In the field of knowledge network, intelligent technology represented by artificial intelligence can build an intelligent platform for lifelong learning, build a seamless and integrated learning space that is ubiquitous and interconnected. Learning data, learning objectives, learning content, learning activities and learning scenarios will continue to flow and share, thus forming a seamless learning chain, so that learners can easily and effectively participate in and carry out formal and informal learning. In the aspect of intelligent matching of learning resources, it collects and intelligently analyzes the learning track in the learning process and the whole learning process, so as to draw a learning portrait for learners, and then combines adaptive, machine learning and other technologies to intelligently allocate the learning content, so as to achieve intelligent matching and generalization of learning.

In the future, intelligence will give life-long education two major application fields. First, lifelong learning partners based on intelligence will provide continuous support for learners' learning goals and objectives, guide them to achieve personalized learning, set new goals for them, improve their learning enthusiasm and achieve their academic achievements. Second, life-long academic records based on AI can imitate the organizational structure, operating principles and functional characteristics of banks, design and develop "credit banks" for students' life-long education, use intelligent technology to analyze students' data, and use "digital badges" instead of transcripts to realize digital verification of students' life-long education.

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4. Problems encountered by AI in promoting sustainable development 4

In 2015, UNESCO released the Education 2030 Action Framework, which regards "ensuring the provision of high-quality teaching in a comprehensive and equal manner, so that all people can enjoy lifelong learning opportunities" as "the fourth sustainable development". Although AI technology has a great revolutionary role in reshaping teaching, it still has many problems in four aspects of endowing teaching ability, such as data ethics and algorithm bias, gender discrimination, lack of evidence of application effectiveness, crisis of teacher role reshaping, weakening of learner's subjective consciousness, etc. This requires educators to adhere to the purpose and value orientation of the "fourth sustainable development goal", and reflect on its possible risks.

4.1 The problem of data morality and the danger of algorithm deviation in AI teaching

In the era of intelligence, AI provides new ideas for teaching

reform with its huge data processing technology, but it also brings many moral problems. There are serious security risks in the production, collection, storage, opening, use and management of information. However, in addition to Europe, no more than 30% of countries around the world have formulated comprehensive legal provisions on the protection of information. Therefore, there is an urgent need to clarify the real performance, analyze the current dilemma, and establish a framework of moral norms to provide an effective way to solve the moral problems of teaching materials.

In the development of AI, algorithm is the cornerstone of its development. Although AI itself does not have any rule preference, if there are deviations in the data generation process or improper algorithms are used to process data, its inherent and undetected deviations will become more significant. The calculation bias has negative consequences (gender, age, race, etc.). With the development of AI teaching, there is bias in the calculation results, which increases the risk. Therefore, there is an urgent need to establish an ethical code system for human intelligence, highlight the computing subject of AI, ensure the correctness of data sources, enhance the transparency and interpretability of computing, and make the development of AI more in line with ethical norms.

4.2 Gender differences in AI teaching

As a new social force, in the process of empowering women, it also produced ethical and moral anomies such as "statistical injustice", "digital gender gap" and so on. When making automatic choices, the original gender discrimination will be further amplified, and the "materialization" and "digitization" of women will be further intensified. It has been confirmed that many uses of AI have certain gender discrimination. Amazon abandoned machine teaching in its recruitment in 2018, because the original data based on the company's past employment records led to unfair treatment of women. This shows that gender and internal discrimination in society are recoded with machine algorithms, which expands social prejudice and injects new social prejudice into it. In the field of artificial intelligence, gender equality is a major task in the field of artificial intelligence. If women can fully participate in this work, then gender equality will become a reality. Therefore, improving the representation of women's AI is the key to protecting women's basic human rights and eliminating gender discrimination driven by AI. If we can prevent bias against machines, AI can also greatly promote gender equity. Therefore, there is an urgent need to strengthen constraints at the ethical, legal and technical levels, and promote gender equity through legal justice.

4.3 Lack of empirical proof in the application of AI teaching

In the teaching of AI, although it has been more than 50 years, its application is still rare in many countries. Most of the existing "evidence-based AI teaching" focus on the application of AI in teaching, and do not specify whether it should be used in education. Compared with conventional classroom teaching methods, some intelligent guidance systems have broad prospects for promotion in education. However, in the application of AI, there are few relevant empirical data and a large number of empirical data. In fact, the effect of many intelligent products is not so much because of its novelty as because of its essence. Although AI will greatly change the supply and governance of educational opportunities, educational content and educational achievements, it is still uncertain how it will improve educational effectiveness. AI may have a good effect, but the help of AI in management, learning and teaching is not enough. Therefore, it is urgent to study and establish a monitoring and evaluation mechanism that can measure the relevant effects of AI, so as to lay a reliable basis for policy formulation. In addition, we should correctly evaluate its role in teaching, clarify the difference between its ideal and actual situation, as well as the possibility and limitation in the future, as well as the possibility and possibility of human-machine cooperation in the future.

4.4 The application of AI in teaching and the crisis of teachers in shaping roles

With the rise and application of artificial intelligence, "human-computer co-teaching" has entered a new stage. Teachers play a major role in teaching. The title of "teacher" is generalized, knowledge is authoritative, teaching experience is weakened, and moral education is meaningless. To get out of the crisis and turn it into an opportunity, we must actively adapt to the changes of the times and adjust our position. At present, many AI programmers hope to reduce the work pressure of teachers and let them focus on the humanistic care of education. The improvement of AI will undoubtedly bring greater pressure to teachers. However, if the transfer is completed by AI tools, the role of teachers will be weakened. Under the dual impact of social transformation and educational transformation, the role contradiction of "agitated" AI teachers is becoming increasingly fierce. In the new era of knowledge economy, how should teachers enhance their sense of crisis and explore their own way of development. Therefore, decision makers should look at the impact of AI on teachers from a strategic perspective, so that they can better adapt to the impact of AI under the new situation; Ensuring the communication and cooperation between teachers and students is the center of teaching; Under the education strategy of artificial intelligence, the role of teachers should be evaluated dynamically to determine their required skills, strengthen teacher training, formulate skill training plans, and help teachers prepare for work in intelligent teaching.

4.5 The application of weakening students' autonomous consciousness in AI teaching

Even if the "Utopia" model is not used to replace teachers, students' subjectivity will still be affected due to the excessive application of adaptive AI in teaching. This means that there is less interaction between students and more decisions are made through AI. Doing so will make students lose self-efficacy, self-regulation, metacognition, critical thinking and independent thinking ability, which is an important condition for cultivating students' all-round development. The teaching of AI should be strengthened rather than weakened. Relying too much on AI while neglecting students' creativity and learning will make students lose their self-thinking and perfect pursuit of instruments, thus making them unable to form a good personality and character, thus making them become the slave and assistant of AI. Therefore, we should actively respond to the changes of the times, constantly update the purpose and content of teaching to adapt to the development of AI technology, cultivate more backbone, inject new vitality into the future AI technology,

and achieve the ultimate goal of "adult".

5. International policy types, characteristics and foreign policies of AI

5.1 The form and characteristics of AI's international and international policies

5.1.1 National and international educational policy projects and programmes on AI

At present, there are a large number of AI education policies and plans around the world, including various intelligent teaching platforms and teaching methods, to support students to develop their intelligence capabilities (Table 1)

Table 1 AI education policy projects and plans at home and abroad.

国家或组织	项目和计划名称	概述
中国	《新一代人工智能发展规划》	开发智能在线学习平台、人工智能助手和新的教育系统，开展智能校园建设，营造以学习者为中心的教育环境
	《高等学校人工智能创新行动计划》	优化高校人工智能领域的创新体系，完善人工智能人才培养 体系，加强高校科技成果在人工智能领域的应用
	《关于开展人工智能助推教师队伍建设行动试点工作的通知》	促进教师教育创新
美国	《国家人工智能研发战略规划》	人工智能教育要增加教育机会和改善生活质量
	《AI4K12 计划》	帮助教师向学习者介绍人工智能的资源
新加坡	类人机器人项目	新加坡的类人机器人正用于幼儿园课堂，向幼儿介绍编程和 其他 STEM 课程
	《未来技能计划》	侧重数字化技能提升和再培训

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	《The Code@SG 运动：将计算思维发展为国家能力》	强调从小培养学习者编程和计算思维的重要性
英国、肯尼 亚	《人工智能青少年计划》	激励下一代人工智能研究人员、企业家和领导者， 让年轻人 接触具有社会意识的人工智能计划
爱沙尼亚	Proge Tiger 项目	将编程和机器人技术引入学前、小学和职业教育国家课程
马来西亚	My digital maker 运动	将计算思维融入教育计划
UNESCO	“面向 K12 的人工智能教学”门户网站	网站汇集了来自世界各地的人工智能教学资源， 旨在帮助学 习者了解人工智能
	《人工智能与教育：政策制定者指南》	探讨教育公平性、 全纳性、 性别平权和隐私保护等前沿话题， 从人机智能的角度辩证分析人工智能的潜能和缺陷， 评估目 前全球主要人工智能教育政策， 提出了综合务实的政策制定 建议
欧盟	《人工智能对学习、教学和教育的影响》	阐述人工智能对学习的影响
	《通用数据保护条例》	协调全欧洲的数据隐私法，保护所有欧盟公民的数据隐私， 重塑全欧洲组织处理数据隐私的方式
	《欧洲数字能力框架》	提高欧洲公民的信息和数据素养， 提升沟通与协作、数字内 容创作、安全、问题解决能力

5.1.2 The commonness of international and domestic policies and programs of AI education

In order to make people work and work better under the influence of AI, many countries have formulated relevant policies

on AI. Its common characteristics are as follows: in four aspects: technological openness, technological openness, curriculum innovation, and financial support; Focus on human capabilities (such as critical thinking, communication, collaboration and creativity), as well as cooperation with AI in life, learning and work; Improve people's knowledge of AI, understand what AI is, the working mechanism of AI, the role of AI, and so on.

Integrating human basic abilities into AI teaching requires the establishment of an AI teaching framework in the whole system and even the whole community. Among them, promote lifelong learning to make everyone fully aware of AI and its influence; Introduce basic intelligent technology into K-12 teaching plan; Train AI experts to solve the growing technology gap and create employment opportunities for AI; Promote the research and development of breakthrough and impartial AI technology by universities and research institutes; Ensure an increasingly diverse and inclusive AI workforce; Conduct vocational skills training for employees and bosses' new needs.

6.2 International and domestic classification of AI education strategies

According to the relevant policies of countries and regions, they can be divided into three categories: independent, comprehensive and thematic. Autonomous classification is a kind of policy and strategy with autonomous AI, such as the National Strategic Plan for AI Research and Development in the United States, the Medium and Long-term Plan for Preparing for the Intelligent Information Society in South Korea, the Development Plan for the New Generation of AI in China, the UAE AI Strategy in the United Arab Emirates, the European Union's Impact of AI on Learning, Teaching and Education, and Malta's Towards AI Strategy, These are all strategies in the field of independent artificial intelligence. Comprehensive refers to the integration of AI elements in current teaching or information technology strategies, such as Malaysia's "My Millennium Plan", Argentina's "Learning Link Plan", etc. The thematic classification focused on the issues such as the General Data Protection Regulation, the European Digital Capability Framework, the Action Plan for AI Innovation in Colleges and Universities in China, and The Code@SG Sports: Developing Computational Thinking into National Capabilities and other specific issues related to AI and education.

6. Thoughts on formulating AI enabling strategies in the transformation of digital education in China

In order to solve the problem of sharing benefits in education and build inclusive and sustainable education, we must carry out the localization strategy and plan of AI education from the perspective of China's education informatization construction from the aspects of AI education collaborative governance, AI monitoring and evaluation, classroom teaching mode, and teacher team construction.

6.1 Strengthen multidisciplinary planning and joint management of multiple departments, and promote the transformation of intelligent teaching management to digitalization

At present, there are many problems in the teaching of AI, such as fairness and prejudice, transparency and privacy. The root cause is that there are strategic protection barriers, lack of social and cultural guarantee, and lack of cooperation between behavior training systems in China's educational institution system. In order to further integrate AI with teaching, it is necessary to establish the guarantee of culture, strategy and cooperation.

First of all, adhering to the values of people-oriented and promoting the common welfare of teachers and students provides a cultural guarantee for the digital transformation of AI education management. In order to realize human-machine cooperation and conjugate symbiosis, the educational application of AI needs to correctly solve the tension between technology and human value. Scientific researchers and practitioners should make efforts to guide the development of AI education towards humanization, accelerate the management system and application of AI, establish and embed ethical norms, and create a more powerful, safe and trustworthy human-based AI system. Secondly, we should strengthen the overall planning and management of cross-disciplines, formulate cross-industry AI education policies and regulations, and provide strategic assurance and cooperation for the development of AI education. In terms of strategic support, the government should establish an open circular system consisting of "planning, implementation, supervision and upgrading", gather educators, scientists, AI engineers and other professional groups from different fields such as neuroscience, cognitive science and social psychology, inject interdisciplinary expertise into the formulation of AI education policies and regulations, and unite multiple stakeholders. Use big data, learning and analysis and other intelligent technologies to diagnose existing problems and predict development trends, laying a solid foundation for future decision-making and decision-making. On the guarantee of the coordination mechanism, we should take institutional measures to build a system-wide policy management system, coordinate the institutional structure, and maximize the cooperation and resource sharing among various fields, so as to achieve the goal of "wisdom".

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6.2 Establish an intelligent teaching management system to help realize the digital conversion of intelligent monitoring and evaluation

The introduction of intelligent technology into education management, the systematic planning of various education management resources, and the establishment of a sound digital education resource sharing system have become an important part of the current education informatization work of various universities. However, in the field of education management, the application and research of intelligent technology and the

monitoring and evaluation of intelligent evaluation in the public management platform and education and teaching process are still at the primary level. Promoting the construction of information, transparency, rational management and intelligent teaching management system is an important part of promoting the digital transformation of AI monitoring and evaluation. First of all, we should formulate the norms and standards of teaching materials, and make reasonable disclosure of relevant materials, so as to lay a certain theoretical basis for the integration of AI and teaching. To build an intelligent campus management and monitoring system, the management personnel shall monitor it in real time and dynamically manage it according to their own authority, so as to realize the transparency and data of its management, as well as the monitoring and evaluation of its implementation. Through the reform of management platform services, we will build intelligent teaching support systems such as teacher service platform, learner management platform, intelligent online learning platform, and continue to pay attention to the intelligent technology-driven teaching service mining mode, improve the application of artificial intelligence education by using AI and education big data, and realize the automatic output of education services. At the same time, through the analysis and visual simulation of big data, an intelligent teaching management system is established to provide support for teaching decision-making at all levels, promote intelligent monitoring of data flow across departments, functions and systems, use big data to provide evidence support for school education innovation and scientific development, promote scientific and standardized dynamic monitoring process, and ensure that the monitoring results are fair, objective and accurate. The analysis of educational research resources, educational management system, learning service platform, curriculum management platform and other technologies can effectively monitor the generation and circulation of educational resources and make them play the greatest role.

6.3 Deepen the intelligent transformation of classroom and promote the digital transformation of classroom teaching mode

With the transformation of knowledge economy, China's education pattern has experienced an exponential growth. Although AI can help students carry out large-scale personalized teaching, most intelligent education is still in its infancy in the current application. We should promote the transformation of digital teaching mode, promote intelligent education with students as the main body, and promote the teaching reform of teachers' informatization. To truly apply AI technology to the whole process of education, promote large-scale personalized learning, innovate knowledge production methods, and form a human-computer collaborative education mode is to promote the digital transformation of education mode. First of all, under the guidance of the idea of "empowerment", we have a new understanding of "educational design". When implementing the education strategy, we should make full use of the actual characteristics of education and knowledge, and combine the characteristics of intelligent materialized products to achieve data-oriented in-depth research; Teaching evaluation should shift from the focus on learning outcomes to the focus on the whole learning, and carry out dynamic and visual analysis to achieve all-round accompanying and diversified evaluation. Secondly, through the change of AI enabling classroom, intelligent technology should be combined with students' learning ability to improve students' learning effect and learning effect. Integrate intelligent technology and learning design organically, pay attention to the analysis of students' learning process, so that students can better integrate into the actual situation, so as to achieve the purpose of learning. Fourth, based on "artificial intelligence", construct "intelligent and efficient" classroom education reform. With the rapid development and application of intelligent technologies such as artificial intelligence, the teaching environment, teaching resources and teaching tools will be improved intelligently. With the help of intelligent education platform, the basic situation of students can be diagnosed and analyzed; Combine intelligence technology and educational process organically to create an educational scene conducive to intelligence generation, and make various teaching activities in the classroom interact with each other; The dynamic analysis of the learning results of intelligent collection is carried out to help students' knowledge structure.

6.4 Establish an ecosystem of "AI+teachers" to promote the digital transformation of teachers

A new round of technological changes, such as artificial intelligence, big data and cloud computing, is quietly having a profound impact on the education sector. Teachers are the direct users of new technologies and also the executive subjects of new technologies. Therefore, it is very necessary to improve teachers' intelligence quality as a whole, promote their professional development, and realize the transformation of educational informatization. First of all, we should establish an ecosystem of "AI+teachers" to make it deeply integrated with teachers. Use intelligent technology to strengthen teaching informatization and promote the openness and openness of teacher education information resources; Based on evaluation, establish a quality system of teacher training based on demonstration; Pay attention to the integration of digital intelligence and adjust teachers' educational policies and policy deviations; Pay attention to "smart learning" and establish a graded and standardized teacher training system. Secondly, teachers' knowledge quality should be improved to match the digital education ecological environment. In today's knowledge economy, teachers' teaching quality should establish a leapfrog teaching model, pay attention to students' needs, serve students' needs, serve students' individuation, and serve students' individuation; Adhere to the concept of "people-oriented", strengthen the moral standard of "wisdom", combine "wisdom" and "humanity" with "wisdom" as the core, and "people-oriented" and "three" as the basis. Fourth, promote the organic combination of AI technology and teacher education, and realize large-scale individualized education based on big data. The use of intelligent technology to collect students' learning materials will help teachers to accurately analyze the learning situation, guide learning methods and learning evaluation, and accelerate the transition from performance-centered evaluation to data-centered evaluation; Implement the training and practice of "AI+" course, and use artificial intelligence as the main auxiliary tool to promote educational reform; Through the case study of "AI+", it lays the foundation for teachers to make decisions and implement intelligent education.

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