

# *Research on the Application of Artificial Intelligence Empowered Education Management*

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**Abstract:** The technological revolution and industrial transformation have driven artificial intelligence to become the core driving force for a new round. This article explores the application scenarios of artificial intelligence in empowering education management and supply, student learning and evaluation, and teacher teaching and development in the field of educational management. This study proposes to promote the construction of new infrastructure for education management, dual empowerment of education and technology, support the reshaping of future education forms through artificial intelligence, strengthen the cultivation of professional talents in artificial intelligence, attach importance to ethical issues in the application of artificial intelligence in education management, stimulate teachers' high-level thinking and initiative, and lead the next generation of educational artificial intelligence innovation, in order to construct the transformation and innovation of artificial intelligence, improve the quality and efficiency of school education management work, and promote high-quality development of education.

In the current century, technologies such as big data, cloud computing, and algorithms have entered a new stage. In order to build China's first mover advantage in artificial intelligence and accelerate the construction of an innovative country, the development of artificial intelligence has become an inevitable trend of changing times. Artificial intelligence has become the core driving force of the new round of industrial revolution, releasing enormous energy, creating powerful new engines, forming new demands for intelligence in various fields, bringing new opportunities for social construction, triggering new changes in economic structure, and leading China into a new normal<sup>[1]</sup>.

## **1. The Realistic Source of Artificial Intelligence Empowering Education Management**

The various technological applications carried out by artificial intelligence have broken through the technical barriers of traditional education informatization, endowing artificial intelligence with contemporary significance and enhancing the application of new awareness in the reform of education management informatization, which is of great significance for educational reform.

### **1.1 Utilize the potential of artificial intelligence to support education supply and management**

The combination of artificial intelligence and educational management aims to change the talent cultivation mode, with a focus on improving the quality and efficiency of education. Changing the current situation of emphasizing skills over abilities in education in the past, artificial intelligence is used to strengthen data collection and processing, upgrade and upgrade education management information systems, create a more inclusive, fair, and open education environment, cultivate personalized learning<sup>[2]</sup>, autonomous learning, enhance critical thinking, collaborate with peers to explore problems, cultivate innovative thinking methods, and improve students' practical abilities and levels. At the same time, teachers use artificial intelligence and big data as powerful assistants to understand students' situations and solve their difficulties, reducing their workload, allowing artificial intelligence to replace their heavy mechanical labor, and having more time to communicate with students.

### **1.2 Artificial intelligence empowers teaching and teachers to ensure the core value of interpersonal interaction in teaching**

The "Opinions on Deepening Education and Teaching Reform" issued by the State Council proposes to attach importance to situational teaching, fully utilize modern technological means to optimize teaching methods, explore collaborative and comprehensive learning, and combine artificial intelligence big data with traditional teaching methods to inspire students' thinking. At the same time, teachers are always the leaders of students' growth and learning. Students' ideological beliefs, emotions, values, moral sentiments, benevolence, and higher-order thinking all require the participation of teachers. Teachers should actively learn the basic knowledge of artificial intelligence, and should carry out education and teaching with artificial intelligence to enhance practical skills, transfer experience to other teachers, and form a systematic and comprehensive learning system for artificial intelligence teachers<sup>[3]</sup>.

### **1.3 Artificial intelligence supports learning and evaluation**

The learning method not only supports autonomous and cooperative learning, but also emphasizes the transformation of personalized learning<sup>[4]</sup>. It also supports autonomous learning, exploratory learning, and collaborative learning while tracking, evaluating, and self-evaluating. For example, the Intelligent Learning Guidance System (DBTS) simulates teacher-student dialogue, providing prompts and timely feedback on students' learning situation; Intelligent Teaching System (ITS) provides personalized guidance to students based on their learning situation and needs, provides customized learning suggestions and resources, and efficiently and targeted identifies the optimal learning path.

## **2. The Core Essentials of Artificial Intelligence Empowering Education Management**

The concept of artificial intelligence was first proposed at the Dartmouth Conference in 1956, which went through the stages of logical reasoning, expert system, and deep learning<sup>[5]</sup>. Starting from the disciplinary definition, artificial intelligence is a science that utilizes machine imitation and extension of human intelligence and related supporting theoretical technologies, including computational, perceptual and cognitive intelligence, conversational ability, and a certain understanding of machine design<sup>[6]</sup>. From a technical perspective, artificial intelligence is a computer system that utilizes human intelligence to solve problems and communicates and interacts with the world.

In the field of education, artificial intelligence serves as an auxiliary tool for educational management. It mainly includes three aspects: first, intelligent teaching system. Including classroom management, that is, based on students' understanding and mastery of knowledge, calculating and simulating teachers to provide students with learning scaffolds, intelligent prompts, artificial intelligence can provide personalized learning content and teaching methods according to students' learning situations and characteristics, meet the learning needs of different students, improve learning effectiveness and student satisfaction, provide teaching feedback, and provide personalized guidance based on students' situation<sup>[7]</sup>. The second is personalized education assisted by educational robots, which belongs to the artificial intelligence discipline system, including programming education, robot education, etc.<sup>[8]</sup>. This is a robot specifically designed to cultivate the abilities of special groups of students in the field of education, such as problem-solving, language learning, comprehensive ability, student evaluation, innovative thinking, and practical exploration<sup>[9]</sup>. The third is intelligent decision-making assistance. Artificial intelligence can provide intelligent decision support for educational managers, such as predicting students' learning progress, recommending teacher training, etc., helping managers make more accurate and scientific decisions. Implement automated management.

### **3. The Construction Path of Artificial Intelligence in the Field of Education Management**

#### **3.1 Promote the construction of new infrastructure for education management and optimize the application environment of artificial intelligence in education**

The construction of new infrastructure for education management can promote digital transformation, innovation and integration, and is a driving force in the era of artificial intelligence, helping to achieve the goal of sustainable development. Deeply applying the new generation of artificial intelligence technology, on the one hand, we need to establish a solid foundation to achieve equal education, build a lifelong education system, upgrade information and data networks, gather digital resources to bridge the data gap, and narrow the urban-rural gap and group education gap; On the other hand, we need to deepen the application of business systems and focus on the construction of campus information systems, with a focus on improving hardware facilities, integrating and analyzing massive amounts of information related to education, utilizing information networks and data resources to build smart campuses, innovating information management, scientific research, campus book resources and services, education and teaching management, student learning, and teacher education and training applications, Construct an evaluation system for educational organization services in both temporal and spatial dimensions to achieve communication and sharing.

#### **3.2 Promote the bidirectional empowerment of educational management, educational technology, and reshape the future form of artificial intelligence education**

In terms of empowering students' learning, artificial intelligence upgrades the educational environment, provides personalized support for students in various forms of learning, comprehensively organizes student data, and obtains a comprehensive evaluation of students' comprehensive quality; In terms of empowering teacher development, artificial intelligence helps teachers complete repetitive management work, supports teacher professional development, and helps update educational information technology, concepts, and models; In terms of empowering educational management, artificial intelligence provides the basis for educational decision-making, promotes humanized management, locates the needs of teachers and students, and finely manages schools, promoting the transformation of educational management models. It utilizes concepts and

strategies to extensively carry out intelligent management such as collection, management, and analysis, providing a platform for home school cooperation, while the talents cultivated by schools support the field of artificial intelligence.

### **3.3 Enhance artificial intelligence literacy, intelligent operation ability, and strengthen the cultivation of artificial intelligence professionals**

Improving artificial intelligence literacy and intelligent operation ability requires continuous learning and practice, and maintaining continuous attention and learning in this field. The details are as follows: Firstly, the school understands the essence of big data from a unit perspective, attaches importance to information reform, and reconstructs communication and sharing platforms to make data transparent, decision-making democratic, meet student needs, and enhance the school's reputation. Secondly, the school cultivates teachers to enhance their digital literacy and intelligence before and after employment, fully utilizing artificial intelligence technology, and cultivating a new generation of teachers with new concepts and technological models. We need to enhance the application ability of artificial intelligence technology among teachers, carry out pilot work on the construction of new teacher teams, cultivate teachers' ability to work in the artificial intelligence education environment, in order to ensure teachers' rights and protect their working conditions, develop and implement relevant training courses to help teachers effectively use artificial intelligence tools and platforms, systematically plan the values, knowledge, skills, and methods necessary for the application of artificial intelligence, and adjust teacher training plans accordingly, Improve teachers' information technology teaching ability and teaching level. Once again, in cultivating students' artificial intelligence literacy and skills, the school integrates new digital literacy skills into subject teaching, promotes high-quality information technology courses such as programming education, and cultivates students with digital literacy<sup>[10]</sup>.

### **3.4 Pay attention to ethical issues in the application of artificial intelligence, and build a fair, reasonable, and trustworthy artificial intelligence**

The Artificial Intelligence and Education: A Guide for Policy Makers' emphasizes the need to ensure fair, inclusive, and reasonable implementation of artificial intelligence, implementing a safety based, stable, and sustainable 'approach to artificial intelligence. Emphasizing the need for ethical issues in the application of artificial intelligence design a sound logical model, define rules and constraints clearly when developing artificial intelligence systems, consider diverse datasets, review algorithm transparency, and ensure that the system can perform accurate reasoning and decision-making. The school establishes sound supervision and monitoring of the entire value chain process, conducts ethical review and supervision, and ensures that the application of artificial intelligence systems does not have a negative impact on individual rights, privacy, or fairness. We need to strengthen the construction of school network security, timely and comprehensively optimize network security protection to avoid information leakage, inspect and scan network vulnerabilities, regularly update software to ensure data service security, and evaluate the impact of artificial intelligence in the field of education management and on the people and society.

### **3.5 Stimulating teachers' high-level thinking and initiative, leading the innovation of artificial intelligence in the next generation of education**

To stimulate teachers' high-level thinking and initiative, and lead the next generation of educational AI innovation, the following strategies can be adopted. Firstly, the school provides professional training and support for teachers: providing relevant training and learning opportunities

for teachers to understand the basic principles of artificial intelligence, application scenarios and development trends in the field of education, and continuously updating their knowledge and skills through continuous learning to improve their professional level. Secondly, schools create an innovative environment for teachers: creating an environment that encourages innovation and exploration, giving teachers freedom and space to practice and try new educational methods and tools. The school provides necessary resources and support to help teachers implement educational AI innovation. Once again, the school emphasizes teamwork and communication among teachers: encouraging communication and cooperation among teachers, sharing innovative experiences and best practices. We need to establish an interdisciplinary team, gather professional knowledge from different fields, and jointly participate in educational artificial intelligence innovation projects. Finally, the school provides reward and recognition mechanisms for teachers: establish reward and recognition mechanisms to encourage teachers to actively participate in educational AI innovation, and incorporate their achievements into the teacher evaluation system, providing more motivation and motivation for teachers. And we need to strengthen the professional development of teachers, provide continuous opportunities for professional development of teachers, including attending seminars, learning courses, visiting exchanges, etc., so that teachers can continuously update their knowledge and skills, adapt to and lead the innovative development of artificial intelligence in education.

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