

# Research on Application Efficiency and Practical Path of Artificial Intelligence in Higher Education Administration

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**Abstract:** With the rapid development of artificial intelligence technology, the expansion of higher education scale and the increase in management complexity, the traditional administrative management model of higher education is facing many challenges such as low efficiency and data silos. Artificial intelligence technology has brought new reform opportunities to higher education administration. This paper aims to explore the application efficiency of artificial intelligence in higher education administration, analyze its specific practical paths combined with actual cases, and facilitate the intelligent transformation of higher education administration.

**Keywords:** Artificial Intelligence; Higher Education; Administration

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Currently, higher education has entered a stage of high-quality development. The scale of running colleges and universities is constantly expanding, and the number of teachers and students is growing continuously, which makes the higher education administration work face unprecedented challenges. At the same time, artificial intelligence is an important driving force leading a new round of scientific and technological revolution and industrial transformation.<sup>[1]</sup> It is profoundly changing the development pattern of various industries. It has strong data processing ability, learning ability and decision-making support ability, providing technical support for the innovative development of higher education administration. At present, all countries are accelerating educational reform in the information age, using modern information technology to promote the modernization of educational governance system and governance capacity. Exploring the application efficiency and practical path of artificial intelligence in higher education administration is of great practical significance.

## Analysis of Application Efficiency of Artificial Intelligence in Higher Education Administration

The introduction of artificial intelligence provides technical basis and system power for the optimization and upgrading of education management. Education management services are developing towards flattening, precision, scientization and transparency, promoting the fundamental transformation of management paradigm from experience-driven to data-driven, and from human-dominated to intelligent collaboration.<sup>[2]</sup>

### 1.Improve the efficiency of administrative affairs management

**Automate repetitive work:** In higher education administration, there are a lot of repetitive and standardized work, such as document management, data statistics, information entry, etc. Artificial intelligence technology can realize the automatic processing of these work through technologies such as Robotic Process Automation (RPA) and Natural Language Processing (NLP).

**Continuously optimize administrative processes:** The application of artificial intelligence technology in the field of higher education management can promote the transformation of management methods from empirical and extensive to data-based and precise. Traditional university management often relies on the experience and subjective judgment of managers, with problems such as insufficient decision-making basis and low management efficiency. Artificial intelligence technology can collect, integrate and analyze various campus data to provide precise data support for management decisions. At the same time, artificial intelligence technology can also be applied to campus safety management, logistics services and other aspects, realizing the optimization of management processes and the improvement of management efficiency through intelligent monitoring and intelligent scheduling.<sup>[3]</sup>

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## **2.Strengthen decision support ability**

Data-driven precise decision-making: University administration involves a large amount of data, such as student achievement data, teacher teaching data, scientific research project data, financial data, etc. Artificial intelligence technology can conduct in-depth analysis and mining of these data, extract valuable information, and provide data-driven decision support for managers.

Intelligent prediction and early warning: Artificial intelligence can also use machine learning and deep learning algorithms to predict and early warn potential problems in university administration.

## **3.Realize personalized services**

Personalized services for students: The deep integration of intelligent technology and education and teaching is promoting the transformation of the traditional "teacher-centered" teaching mode to a "student-centered" personalized and intelligent learning mode [4].

Personalized services for teachers: For teachers, artificial intelligence can provide personalized teaching support and scientific research services.

### Practical Paths of Artificial Intelligence in Higher Education Administration

#### (1)Intelligent administration of administrative affairs

Construction of intelligent office system: Solid new educational infrastructure is the premise and guarantee of artificial intelligence modern university governance. [5] Colleges and universities can introduce intelligent office systems, systematically promote the construction of computing power, network, data and platform elements, and vigorously strengthen the construction of new educational infrastructure to realize the digital and intelligent management of administrative affairs. For example, the introduction of intelligent office systems can realize the automatic processing of administrative affairs such as document processing, meeting management and schedule arrangement, improving the efficiency of administrative work.

Intelligent customer service and consulting services: Use artificial intelligence technology to develop intelligent customer service systems to provide 24-hour online consulting services for teachers and students. The intelligent customer service system can understand the questions of teachers and students through natural language processing technology and give accurate answers quickly. For example, the enrollment consulting department of colleges and universities can use the intelligent customer service system to answer the questions of candidates and parents in time, improving the service quality of enrollment work.

#### (2)Intelligent teaching management

Intelligent teaching quality evaluation: Artificial intelligence can be applied to teaching quality evaluation to realize the objectification and precision of teaching evaluation. For example, University X uses artificial intelligence technology to monitor and analyze classroom teaching in real time. By analyzing data such as students' classroom performance and teachers' teaching behaviors, it generates teaching quality diagnosis reports, providing reference basis for teachers' teaching improvement.

Intelligent course scheduling and course selection system: The intelligent course scheduling and course selection system can use artificial intelligence algorithms to optimize course scheduling and course selection according to factors such as teachers' teaching tasks, students' course selection needs, and classroom resources, avoiding course conflicts, improving the utilization rate of classroom resources, and meeting students' personalized course selection needs at the same time.

#### (3)Intelligent student management

Student behavior analysis and early warning: By analyzing students' campus card consumption data, library borrowing data, Internet access data, etc., artificial intelligence can understand students' behavior habits and living conditions, and timely detect possible abnormal situations of students.

Intelligent mental health services: Use artificial intelligence technology to develop intelligent mental health service systems to provide students with mental health assessment, consulting and intervention services. The intelligent mental health service system can evaluate students' mental health status by analyzing data such as students' language, expressions and behaviors, and provide personalized psychological counseling suggestions.

#### Challenges Faced by the Application of Artificial Intelligence in Higher Education Administration

##### (1) Data security and privacy protection issues

The application of artificial intelligence in higher education administration requires a lot of data support, which includes sensitive information such as teachers' and students' personal information, academic achievements, and scientific research results. If data management is poor, it may lead to data leakage, abuse and other problems, seriously threatening the privacy security of teachers and students. In addition, the interpretability of artificial intelligence algorithms is poor, and once data security problems occur, it is difficult to trace the responsibility.

##### (2) Ethical and fairness issues

Artificial intelligence algorithms may be biased, leading to unfair situations in administrative decision-making. For example, in the work of student scholarship evaluation and teacher professional title evaluation, if the training data of artificial intelligence algorithms is biased, it may lead to unfair treatment of certain groups.

##### (3) Technology adaptation and talent shortage issues

At present, the application of artificial intelligence technology in higher education administration is still in its infancy, and the technology adaptability is not perfect. The existing information systems in colleges and universities may be incompatible with artificial intelligence systems, requiring a lot of system transformation and integration work. At the same time, colleges and universities lack compound talents who understand both artificial intelligence technology and higher education administration, which to a certain extent restricts the application and development of artificial intelligence in higher education administration.

#### Coping Strategies and Suggestions

##### (1) Strengthen data security and privacy protection

Colleges and universities must introduce policies for the effective integration of GenAI and higher education (Jin, Yan, Echeverria, Gašević, & Martinez-Maldonado, 2025; Moorhouse et al., 2023). The lack of clear guiding principles and policies makes it more difficult for colleges and universities to effectively cope with the challenges brought by GenAI (Luo, 2024). In addition, if the guiding principles are not clear enough, it may be difficult for teachers and students to obtain suggestions to guide their teaching and learning practices (Kohnke et al., 2023; Moorhouse et al., 2023) [6]. Establish and improve data security management systems and policies, strengthen the management of data collection, storage, use and sharing, and adopt technical means such as data encryption, access control, and backup and recovery to ensure data security. At the same time, education on data security awareness for teachers and students should be strengthened to improve their data protection capabilities. In addition, research on the interpretability of artificial intelligence algorithms should be promoted to ensure the transparency and fairness of algorithm decisions.

##### (2) Establish ethical and fairness guarantee mechanisms

Formulate ethical guidelines for the application of artificial intelligence, clarify the application boundaries and responsibilities of artificial intelligence in higher education administration. Strengthen the audit and supervision of artificial intelligence algorithms, and timely detect and correct biases and discrimination in algorithms. At the same time, a diversified decision-making mechanism should be established to fully listen to the opinions and suggestions of teachers and students, avoiding the singleness and one-sidedness of artificial intelligence decision-making.

##### (3) Promote technology adaptation and talent training

Increase investment in information technology, strengthen the upgrading and transformation of information systems, and improve the compatibility and scalability of the systems. Actively cooperate with artificial intelligence

enterprises and scientific research institutions to jointly carry out application research and technology development of artificial intelligence in higher education administration. At the same time, strengthen the training of compound talents, offer courses and training programs related to artificial intelligence and higher education administration, and improve the information technology literacy and management ability of administrative personnel.

The application of artificial intelligence in higher education administration has great potential and value, which can effectively improve administrative efficiency, optimize decision support, and realize personalized services. School managers should improve their digital leadership and control ability, and promote the development of higher education administration towards intelligent, refined and scientific directions through practical paths such as the construction of intelligent office systems, intelligent teaching management, and intelligent student management. With the continuous development and improvement of artificial intelligence technology, its application prospects in higher education administration will be broader, and it is expected to bring new breakthroughs to the modernization of higher education governance system and governance capacity.

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