

The use of artificial intelligence technologies in the data management platform for students of higher professional educational institutions

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Annotation

This article examines the application of artificial intelligence (AI) technology in data management platforms for students of higher professional educational institutions and its far-reaching consequences. With the rapid development of information technology, especially with the increasing level of development of artificial intelligence technologies, the field of education is undergoing profound changes. The intellectual modernization of the information platform for managing students of higher professional educational institutions, which is an integral part of the education system, is especially important. This article analyzes the problems faced by the current data management platform for higher professional learners, introduces the application of artificial intelligence technology in the process of data analysis, machine learning, natural language processing and other aspects, and discusses the special role of these technologies in optimizing student information management, improving decision support abilities and understanding individual maintenance. In addition, this document examines future trends in the development of artificial intelligence technologies in the data management platform of students of higher professional educational institutions, emphasizes the importance of continuous innovation and iteration of technologies, and aims to provide useful background information and education to teachers and researchers in related fields.

Keywords

artificial intelligence technology, management of students of higher professional education, data platform, informatization of education.

Introduction

With the rapid development of science and technology, artificial intelligence technology (AI), as one of the hot technologies in the current era, is setting off a technological revolution on a global scale. From deep learning, natural language processing to machine vision, the continuous breakthrough of artificial intelligence technology is profoundly changing the way we live, work and learn. In the field of education, artificial intelligence technology is gradually penetrating into all aspects such as teaching, management and evaluation, bringing unprecedented changes to the traditional education model (Chen, 2019).

In the field of student management in higher vocational colleges, data platform, as a bridge connecting schools, teachers and students, carries a large amount of student information, teaching resources and management data. However, the traditional data platform often has problems such as low efficiency, information island and insufficient personalized service when processing these data, which is difficult to meet the needs of current education management. Therefore, applying artificial intelligence technology to the management data platform of higher vocational students has become an important way to improve the efficiency of education management, optimize the allocation of resources and realize personalized services (Li, 2022).

This paper aims to deeply discuss the application of artificial intelligence technology in the management data platform of higher vocational students, analyze the positive impact and potential challenges brought by it, and put forward corresponding solutions. Through this research, this paper hopes to provide useful reference and inspiration for educators and researchers in related fields, and promote the intelligent transformation and high-quality development of higher vocational education.

Materials and methods of research

With the continuous progress of information technology, higher vocational student management data platform has become an indispensable part of modern higher vocational education. These platforms are usually built based on advanced technologies such as cloud computing and Big Data, aiming to achieve comprehensive management of student information, effective integration of teaching resources and scientific support for educational decision-making (Li, 2022; Chen, 2019).

At present, the student management data platform of higher vocational colleges mostly adopts modular design, including multiple subsystems such as student information management, course management, grade management, attendance management and dormitory management. These subsystems realize the interconnection of information through the unified data interface, forming a complete student management ecosystem. The basic functions of the platform include student information entry, inquiry, modification and deletion, course arrangement and adjustment, grade entry, inquiry and analysis, attendance data collection and processing, as well as dormitory allocation and management. In addition, some platforms also provide extended functions such as online learning, interactive communication and career planning to meet the diversified learning needs of students.

Results and discussion

Although the higher vocational student management data platform has played an important role in improving the efficiency of education management, there are still some problems in data processing, information sharing and personalized service:

1. Low efficiency of data processing: Due to the huge amount of data and diverse formats, the platform often faces the problem of low efficiency when processing data. As a result, the data is not updated in time, which affects the accuracy of educational decision-making.
2. Poor information sharing: The lack of unified data standards and interfaces among subsystems of the platform leads to poor information sharing. This results in the phenomenon of information silos, making it difficult for educators to obtain comprehensive student information.
3. Insufficient personalized service: There are obvious deficiencies in providing personalized service on the platform. For example, it lacks the recommendation of learning resources and career planning guidance based on students' interests, abilities and other characteristics, which is difficult to meet the diversified learning needs of students.

To solve the above problems, most of the existing solutions focus on technical optimization, such as introducing more advanced database technology and developing unified data interface. However, these solutions often ignore the actual needs of the platform in education management and the user's experience. Therefore, when improving the platform, we need to pay more attention to the following points:

1. Improve data processing capabilities: Introduce more powerful data processing technologies, such as distributed computing, machine learning, etc., to improve the efficiency and accuracy of data processing.
2. Strengthen information sharing and integration: establish a unified data standard and interface, realize the information sharing and integration between the subsystems of the platform, and eliminate the phenomenon of information islands.
3. To provide personalized services: the use of artificial intelligence technology to in-depth mining and analysis of students' interests, abilities and other characteristics, to provide personalized learning resources recommendation and career planning guidance for students.
4. Focus on user experience: In the process of platform design and function development, fully consider the needs and experience of users, and create a more friendly and convenient user interface and operation process.

Artificial intelligence technology refers to the intelligent behavior displayed by computer systems, which simulates, extends and expands human intelligence. Through learning and adaptation, AI technology is able to complete complex tasks, such as understanding language, recognizing images, and making decisions.

There are various classifications of AI technologies, which can be roughly divided into weak AI and strong AI, depending on the field of application. Weak AI focuses on specific tasks, such as speech recognition, image recognition, etc., while strong AI pursues intelligence that fully simulates humans. In addition, AI can be divided into multiple branches, such as machine learning, deep learning, natural language processing and computer vision, depending on how the technology is implemented (Wang, 2017).

In terms of key technologies, machine learning is the core of AI, which enables computer systems to learn from data and improve their performance. Deep learning is a subset of machine learning that simulates the learning process of the human brain through multiple layers of neural networks. Natural language processing focuses on how computers interact with human language, including speech recognition and text generation. Computer vision focuses on enabling computer systems to understand and interpret visual information.

In the field of education, artificial intelligence technology has achieved remarkable results. For example, intelligent teaching systems can improve learning results by providing personalized learning resources and suggestions based on students' learning progress and abilities. And the intelligent assessment system can automatically mark homework and test papers, reducing teachers' workload while providing more accurate and timely assessment results.

In addition, AI technology is playing an important role in education management. For example, through deep mining and analysis of student data, students' academic performance and potential problems can be predicted, providing decision support for educators. The smart campus system is able to integrate school resources and provide convenient campus services, such as course scheduling and book borrowing.

The application of artificial intelligence technology has great potential in the management data platform of higher vocational college students. First of all, AI technology can significantly improve the data processing ability, through automated and intelligent means, quickly and accurately process and analyze a large number of student data. Secondly, AI technology can enhance information sharing and integration, break information silos, and realize comprehensive and real-time data sharing. More importantly, AI technology can provide students with personalized learning resources and career planning guidance. By deeply mining and analyzing students' learning behaviors, interests and abilities, AI can accurately recommend suitable learning resources and career development paths for students, so as to meet their diversified learning needs. In addition, AI technology can also improve the user experience of the platform. Through functions such as intelligent recommendation and voice interaction, AI can make the platform more friendly and convenient, and improve user satisfaction and loyalty.

Therefore, artificial intelligence technology has great potential and value in optimizing the management data platform of higher vocational students. Through the introduction of AI technology, the intelligent level of the

platform can be further improved and more efficient and convenient services can be provided for educators and students.

In the management data platform of higher vocational college students, the primary application of artificial intelligence technology lies in data mining and integration. The traditional way of student data management often has problems such as data dispersion and non-uniform format, which makes it difficult for the data to be used effectively. However, artificial intelligence technology, especially machine learning and deep learning technology, can efficiently process and analyze such data.

By building an intelligent data mining model, the platform can automatically extract valuable information from the massive student data, such as students' learning habits, interests, and performance trends. At the same time, artificial intelligence technology can also realize the rapid integration of data, and unify the data scattered in different subsystems to form a complete and accurate portrait of student data. This will not only help educators get a comprehensive picture of students, but also provide a solid foundation for subsequent decision support and personalized services.

After mastering comprehensive student data, AI technology can further provide educators with accurate decision-making basis. Through intelligent analysis, the platform can predict students' academic performance, development potential and possible difficulties, thus providing strong support for educators to formulate targeted teaching strategies and interventions. In addition, AI technology can help educators optimize the allocation of resources. For example, by analyzing students' course choices and grades, the platform can predict which courses are likely to face the problem of too many or too few students, thus adjusting the course schedule in advance and ensuring a reasonable allocation of teaching resources (Niu, 2024; Smith, 2021).

Providing personalized learning resource recommendation and career planning guidance based on students' characteristics is another important application of artificial intelligence technology in the management data platform of higher vocational students. By digging deeply into students' learning behaviors, interests and abilities, the platform can accurately recommend suitable learning resources and career development paths for students. For example, for students with slow learning progress, the platform can recommend some auxiliary learning materials and online courses to help them improve their learning efficiency; For those who are confused about their future career plans, the platform can provide services such as career assessment and industry analysis to help them clarify their career direction. Such personalized services can not only meet the diverse needs of students, but also stimulate their learning motivation and career development potential (Niu, 2024; Wang, 2017).

This study chooses the student management data platform of Suzhou Vocational and Technical University as a specific case. In recent years, the platform has actively introduced artificial intelligence technology to improve data processing capabilities, optimize information sharing, realize personalized services, and strengthen security and privacy protection (Xiang, 2024).

Before the application of artificial intelligence technology, the student management data platform of Suzhou Vocational and Technical University had the following problems:

1. Low data processing efficiency: there is a huge amount of student data, but the platform's data processing ability is limited, resulting in the data update is not timely, affecting the accuracy of educational decision-making.
2. Poor information sharing: The lack of unified data standards and interfaces among various departments leads to difficulties in information sharing and the formation of information islands.
3. Insufficient personalized service: the platform fails to provide personalized learning resource recommendation and career planning guidance according to students' characteristics and needs.

After the application of artificial intelligence technology, the platform has achieved significant changes and results:

1. Significant improvement in data processing capacity: Through the introduction of machine learning and other technologies, the platform can automatically extract valuable information from massive student data and realize rapid data integration. This greatly improves the efficiency of data processing, making the data update more timely and accurate.

2. Information sharing to achieve comprehensive optimization: the platform has established a unified data standard and interface, broken the information barriers between various departments, and realized the comprehensive and real-time sharing of data. This helps educators to fully understand the situation of students and formulate more scientific and reasonable teaching strategies.

3. Personalized service to achieve accurate push: By digging deeply into students' learning behaviors, interests and abilities, the platform can accurately recommend suitable learning resources and career development paths for students. This not only meets the diverse needs of students, but also stimulates their learning motivation and career development potential.

After the introduction and application of artificial intelligence technology, the platform has achieved the following results:

1. More accurate educational decision-making: the data support provided by the platform enables educators to more accurately understand the situation of students and formulate more scientific and reasonable teaching strategies. At the same time, the intelligent analysis function can also predict students' academic performance and potential problems, and provide timely decision support for educators.

2. Student satisfaction is significantly improved: The realization of personalized service function enables students to obtain suitable learning resources and career planning guidance according to their own characteristics and needs. This not only improves students' learning efficiency, but also enhances their learning experience and satisfaction.

3. Work efficiency greatly improved: through the application of automation and intelligent means, the work efficiency of the platform has been significantly improved. This reduces the work burden of educators and enables them to focus more on teaching and student management.

4. Technology introduction and integration: the platform has successfully introduced artificial intelligence technology and deeply integrated it with the existing student management data platform. This provides a strong guarantee for the rapid mining and integration of data, precise decision support and personalized service.

5. Data security and privacy protection: while introducing artificial intelligence technology, the platform has also strengthened data security and privacy protection. The security and privacy of student data are ensured through encryption technology, access control mechanism and regular security audit and vulnerability scanning.

6. Continuous optimization and upgrading: after the application of artificial intelligence technology, the platform is continuously optimized and upgraded. This includes improving functions, improving performance and enhancing user experience. This allows the platform to continuously meet the needs of educators and students, and to continuously improve the quality and level of service.

Although the platform has achieved remarkable results after the application of AI technology, there are still some potential problems:

1. Technology update and iteration: With the continuous development of artificial intelligence technology, the platform needs to constantly update and iterate related technologies to maintain competitiveness. This requires the platform to have continuous technology research and development and innovation capabilities, and be able to respond to the challenges brought by technological change in a timely manner.

2. Data quality and accuracy: The accuracy and quality of data are crucial to the application of artificial intelligence technology. If there are problems such as errors or omissions in the data, it may lead to inaccuracy or bias in the analysis results. Therefore, the platform needs to strengthen the monitoring and management of data quality to ensure the accuracy and reliability of the data.

3. User acceptance and training: Although artificial intelligence technology has brought many advantages to students' data management platform, some educators and students may have resistance to the application of new technology or lack the necessary operational skills. Therefore, the platform needs to strengthen user training and publicity work to improve user acceptance and operational skills.

Discuss the challenges faced by artificial intelligence technology in the application of management data platform for higher vocational students

Although the application of artificial intelligence technology in the management data platform of higher vocational students has brought many advantages and results, it also faces some challenges. These challenges mainly include the following aspects:

1. Technology maturity and stability: The rapid development of artificial intelligence technology has brought about the acceleration of technology update iteration, but at the same time, it may also be accompanied by the problem of technical instability and insufficient maturity. In the practical application of data platform, if the technology is not mature and stable, it may lead to risks such as inaccurate data processing and decision support errors.

2. Data security and privacy protection: Student data involves personal privacy and sensitive information, and how to ensure data security and protect students' privacy has become an important challenge. In the application process of artificial intelligence technology, effective data encryption, access control and other measures need to be taken to prevent data leakage and abuse.

3. User acceptance and adaptability: There are differences in the acceptance of new technologies between educators and students, and some of them may feel unfamiliar or resistant to the use of new technologies. In addition, the introduction of artificial intelligence technology may also change the original workflow and habits, requiring users to adapt and learn to a certain extent.

4. Technological update and continuous investment: With the continuous development of artificial intelligence technology, the platform needs to constantly update and upgrade relevant technologies to maintain competitiveness. This requires the platform to have continuous technology research and development and innovation capabilities, and needs to invest a lot of funds and resources.

In response to the above challenges, this paper puts forward the following coping strategies and suggestions:

1. Strengthen technology research and development and testing: Before introducing artificial intelligence technology, the maturity and stability of the technology should be fully investigated and evaluated. At the same time, in the application process of the platform, the testing and monitoring of the technology should be strengthened to find and repair potential technical problems in a timely manner.

2. Improve data security and privacy protection mechanism: Establish a strict data security and privacy protection mechanism, including data encryption, access control, regular audit and other measures. At the same time, strengthen the publicity and education of students' privacy protection, and improve users' awareness of privacy protection.

3. Improve user acceptance and adaptability: Through holding training, lectures and other activities, improve the understanding and acceptance of artificial intelligence technology for educators and students. At the same time, optimize the user interface and operation process of the platform, and reduce the learning cost and difficulty of users.

4. Establish a continuous investment and update mechanism: the platform shall establish a continuous technology research and development and update mechanism to ensure that it can keep up with the pace of development of artificial intelligence technology. At the same time, through reasonable capital and resource planning, to ensure that the platform can continue to invest in and upgrade relevant technologies.

In the process of upgrading educational technology, educators play a crucial role. They are not only the users of new technology, but also the promoters and guides of new technology. Therefore, educators need to take on the following responsibilities:

- actively learning and mastering new technologies: Educators should take the initiative to learn and master the relevant knowledge and skills of artificial intelligence technology in order to better apply new technologies to teaching and management;

- guide students to correctly use new technology: Educators should guide students to correctly use artificial intelligence technology, help them understand the advantages and limitations of new technology, and cultivate their scientific and technological literacy and innovation ability;

- participate in technology upgrading and improvement: Educators should actively participate in the technology upgrading and improvement of the platform, put forward their own opinions and suggestions, and contribute to the continuous optimization and development of the platform.

Conclusion

The application of artificial intelligence technology in the management data platform of higher vocational college students has important practical significance and broad development prospects. In the future, we should continue to strengthen research and practice, promote the deep integration and innovative development of artificial intelligence technology and higher vocational education, and make contributions to training more high-quality skilled talents.

The application of artificial intelligence technology in the management data platform of higher vocational college students is a process of continuous development and improvement. In order to maintain the leading position of technology and meet the changing needs of users, continuous innovation and technology iteration are particularly important. The platform should constantly pay attention to the latest progress of artificial intelligence technology, actively introduce new technologies and new methods, and carry out technology iteration and upgrade. At the same time, it should strengthen cooperation with scientific research institutions and enterprises to jointly promote the innovative application of AI technology in the field of higher vocational education.

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Применение технологии искусственного интеллекта в платформе управления данными студентов высших профессиональных учебных заведений

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Аннотация

В этой статье рассматривается применение технологии искусственного интеллекта (ИИ) в платформах управления данными для студентов высших профессиональных учебных заведений и ее далеко идущие последствия. С быстрым развитием информационных технологий, особенно с повышением уровня развития технологий искусственного интеллекта, сфера образования претерпевает глубокие изменения. Интеллектуальная модернизация информационной платформы для управления студентами высших профессиональных учебных заведений, являющейся неотъемлемой частью системы образования, особенно важна. В настоящей статье анализируются проблемы, с которыми сталкиваются нынешние управления данными платформа для высшего профессионального учащихся, знакомит с применением технологии искусственного интеллекта в процессе анализа данных, машинного обучения, обработки естественного языка и других аспектов, и обсуждается особая роль этих технологий в оптимизации студент информации управления, совершенствование поддержки принятия решений способности и понимая, индивидуальное обслуживание. Кроме того, в этом документе рассматриваются будущие тенденции развития технологий искусственного интеллекта в платформе управления данными студентов высших профессиональных учебных заведений, подчеркивается важность непрерывных инноваций и итераций технологий, а также ставится цель предоставить полезную справочную информацию и просвещение преподавателям и исследователям в смежных областях.

Ключевые слова

технология искусственного интеллекта, управление студентами высшего профессионального образования, платформа данных, информатизация образования.

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