

Research on Optimization Strategies for Teaching and Educational Management in Higher Vocational Colleges from the Perspective of Artificial Intelligence

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Abstract: At present, with the rapid development of artificial intelligence technology, the field of education has ushered in new development opportunities and challenges. Higher vocational colleges are in an important position for cultivating high-quality compound technical and skilled talents. Schools promote the realization of educational objectives and improve the quality and efficiency of vocational education through education and teaching management. The development of artificial intelligence promotes the reform of education and teaching management in higher vocational colleges. While education and teaching management have obtained development opportunities, many problems have emerged. From the perspective of artificial intelligence, education and teaching management need to flexibly apply artificial intelligence technology to realize the innovation of teaching methods, the optimization of teaching resources, and so on, and continuously improve the level of education and teaching management. In this regard, from the perspective of artificial intelligence, this paper deeply studies education and teaching management in higher vocational colleges and explores strategies and methods to optimize education and teaching management, in order to provide a useful reference for actual management work.

Keywords: Artificial intelligence; Higher vocational colleges; Education and teaching management; Optimization

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1. Introduction

Under the background of the new era, artificial intelligence is gradually popularized, which not only changes people's lifestyle but also has a profound impact on the development of education and teaching. Education and teaching management is an important work in the development of higher vocational colleges. With the support of artificial intelligence technology, management is transformed in an intelligent direction, improving the efficiency of education and teaching management, and providing support for personalized teaching and learning. In this regard, the education management workers in higher vocational colleges are required to face

up to the impact of artificial intelligence technology, actively respond to and explore effective management strategies, promote the innovative development of teaching management, improve the quality of education and teaching, so as to cultivate more high-quality technical talents and promote the high-quality development of vocational education.

2. The influence of artificial intelligence on education and teaching management in higher vocational colleges

2.1. The value of artificial intelligence in the management of education and teaching in higher vocational colleges

With the support of artificial intelligence technology, education and teaching in higher vocational colleges can realize personalized teaching and meet the learning needs of different students. In the past, in the teaching process, teachers adopted a unified teaching method and content, applied a one-size-fits-all teaching mode, and ignored the differences among students in learning ability, basic knowledge, and other aspects, which led to the difficulty of teaching to meet the needs of each student. From the perspective of artificial intelligence, teachers use artificial intelligence technology to collect and analyze students' learning data, which helps to accurately understand students' learning progress, learning behavior, knowledge mastery, etc., to analyze students' learning needs, and then develop personalized teaching and learning programs. For example, with the help of big data technology, we can analyze students' knowledge mastery, recommend exercises that meet the learning progress, stimulate students' interest in learning, improve learning effectiveness, and further give play to the advantages of education and teaching management.

The application of artificial intelligence in the education and teaching management of higher vocational colleges can improve management efficiency. In higher vocational colleges, education and teaching management includes student attendance, course arrangement, teaching evaluation, performance analysis and management, etc., which is complicated and repetitive. With the help of artificial intelligence technology, the automation and intelligence of teaching management can be realized. For example, artificial intelligence technology can comprehensively analyze teachers' teaching time and students' course selection. With the help of an intelligent system, efficient course arrangement can be realized to reduce conflicts between courses and teachers' teaching. Artificial intelligence technology is introduced into student attendance, which can be used for automatic attendance and recording with the help of face recognition, so as to avoid errors caused by manual attendance and reduce the workload of managers. In teaching, artificial intelligence technology can also assist in homework correction and enable automatic correction of objective questions such as multiple-choice questions and fill-in-the-blank questions, so as to reduce the burden of teachers' teaching and make them devote more energy to the optimization of teaching design. Therefore, the quality of education and teaching management can be improved with artificial intelligence.

In addition, AI helps to realize the sharing of educational resources, provide students with rich learning resources, and expand their learning space. With the development and popularization of artificial intelligence technology, educational resources are gradually showing a digital trend, which is conducive to the realization of resource sharing. The application of artificial intelligence technology in higher vocational colleges can integrate curriculum resources to promote the construction of an online curriculum platform, provide students with online learning, homework submission, and an interactive platform, break through time and space constraints in teaching, and meet the needs of students' learning anytime and anywhere ^[1]. In addition,

with the support of AI technology, schools can also obtain more abundant educational resources from other colleges and enterprises to carry out education and teaching for students, so as to broaden students' learning space.

2.2. Challenges faced by education and teaching management in higher vocational colleges under artificial intelligence

Artificial intelligence puts forward higher requirements for teachers' professional quality in higher vocational colleges. As the implementers of education and teaching management, teachers' ability to apply artificial intelligence directly affects the effectiveness of education and teaching management. At present, the AI literacy of teachers in most vocational colleges still needs to be improved. They lack understanding and attention to AI and fail to apply it effectively to teaching management. Some teachers are aware of the application value of artificial intelligence. However, due to the lack of relevant training in schools and teachers' lack of application experience, the integration effect of artificial intelligence in daily education and teaching management is relatively poor. It is difficult for teachers to effectively use artificial intelligence technology to carry out teaching management, which limits the role of artificial intelligence in education and teaching management to a certain extent.

At present, artificial intelligence is gradually going deeper into the field of education and teaching, and higher vocational colleges also continue to try to apply artificial intelligence technology in education and teaching management. However, in the actual application process, the depth of integration between the two is insufficient. Some colleges and universities are aware of the advantages and functions of artificial intelligence, but in the process of application, they simply regard it as an auxiliary tool and apply it to work such as attendance and score management, but fail to innovate the traditional education concept and mode based on the application of artificial intelligence technology, and fail to fully apply artificial intelligence technology to personalized teaching, teaching methods and decision support. In addition, the application of AI technology in education and teaching management still lacks systematic planning, and the sharing and collaboration of data related to education and teaching management are insufficient, which reduces the application effect of AI.

3. Optimization strategies of education and teaching management in higher vocational colleges from the perspective of artificial intelligence

3.1. Carrying out online and offline mixed teaching

From the perspective of artificial intelligence, the management mode of education and teaching has been innovated, and the hybrid teaching mode has been applied to combine traditional offline teaching with online teaching to make up for the defects of traditional teaching and broaden students' learning space. In traditional teaching, teachers use the classroom to impart knowledge to students, and the teaching time is limited. With the support of artificial intelligence technology and information technology, teachers can provide students with richer learning resources, and the teaching and learning time is no longer limited by time and space. On the basis of retaining the advantages of traditional teaching, teachers can combine online teaching to realize the organic integration of teaching modes. The flexible application of artificial intelligence technology can enhance the communication and interaction between teachers and students, stimulate students' interest in learning, and promote students' in-depth understanding of knowledge. In the specific application process,

teachers use the online teaching platform to arrange preview tasks before class, and students upload them after completing the tasks. Teachers understand students' mastery of knowledge according to students' preview results, and then adjust the classroom teaching design. In the process of classroom teaching, teachers focus on analyzing students' problems and difficulties, enhance the pertinence of teaching, and improve the teaching effect. After class, the online platform releases homework tasks to consolidate teachers' understanding of knowledge ^[2]. Teachers can interact with students through online platforms, encourage students to ask their own questions, and give students guidance and answers. Artificial intelligence technology can analyze students' learning situation, provide targeted exercise training based on students' basic learning ability and knowledge mastery, and improve students' knowledge mastery. In offline course teaching, teachers can use the network platform to share rich educational resources and information with the help of artificial intelligence technology to broaden students' knowledge. Higher vocational colleges apply the online and offline mixed teaching mode in teaching, fully leverage the advantages of artificial intelligence technology, innovate teaching methods and means, and improve teaching quality and effectiveness.

3.2. Improving teachers' AI literacy

Higher vocational colleges pay attention to improving the artificial intelligence literacy of teaching managers, and enhance the ability of teachers to use artificial intelligence to carry out teaching management, so as to give full play to the advantages of artificial intelligence and provide strong support for education and teaching management. Higher vocational colleges should actively organize and carry out teacher training, formulate systematic training plans and set up training courses according to the different majors and ages of teachers and teaching managers, focus on training and popularizing the basic knowledge of AI, technology application and teaching case analysis, and focus on improving the literacy and ability of teachers in applying AI technology to design teaching activities and carry out teaching evaluation ^[3]. Invite experts from the artificial intelligence industry to enter the school to give lectures or provide targeted teaching guidance to improve teachers' professional quality and teaching ability. Teachers are encouraged to participate in AI technology teaching practice or education management research projects, carry out practical training, improve teaching management practice skills, enhance AI application ability and literacy, and promote the innovative application of AI technology in education and teaching. In teaching management, higher vocational colleges can introduce professional AI technicians, equip professionals to provide guidance for the development of teaching management, and enhance the professional and technical ability of teaching managers to carry out efficient teaching management.

3.3. Strengthening the management of teaching-related data

The application of artificial intelligence technology in the education and teaching management of higher vocational colleges often involves a large amount of data related to students' learning, teachers' teaching, and school management, especially some private information related to teachers and students. Once leaked, it can cause damage to the rights and interests of teachers and students. Therefore, to carry out education and teaching management from the perspective of artificial intelligence, we should pay attention to data security and privacy management. Carry out security protection management for data transmission and storage, and apply advanced encryption technology to realize data encryption processing, so as to improve data security. Set strict data access authority, implement the principle of minimum authority, set data access levels

according to the work needs and responsibilities of different teaching managers, and strengthen authority management to prevent illegal data access ^[4]. Improve the data backup and recovery mechanism, back up important data, modify the data storage location, ensure storage security, and prevent data loss. Carry out data security training for management personnel, enhance data security awareness, use data correctly and reasonably, protect personal data information, and improve data security.

3.4. Actively building intelligent platforms

Higher vocational colleges should make full use of artificial intelligence technology to build an intelligent teaching management platform and promote the modernization of teaching management. To establish an intelligent teaching management platform, we first need to build a data center, which contains all kinds of data involved in the teaching and management process, such as students' classroom participation, online learning, homework completion, test scores, as well as teachers' teaching plans and teaching quality evaluation ^[5]. Collecting these data to provide data and information support for teaching management is also the basis for system analysis and decision-making. Apply advanced algorithm technology to analyze the data and mine the teaching problems and teaching rules behind the data. For example, it can mine and analyze the learning difficulties and learning preferences of students, and can recommend personalized learning resources for students on this basis, and provide a basis for teaching design. The intelligent teaching management platform regularly collects data on students' learning and teaching, analyzes and mines the data, and can provide support for the development of teaching management, which is convenient for optimizing the teaching management scheme and improving the management level and efficiency.

4. Conclusion

From the perspective of artificial intelligence, the education and teaching management in higher vocational colleges has obtained new development opportunities, but there are also some challenges. Therefore, higher vocational colleges should actively explore the reform of education and teaching management, give full play to the advantages of artificial intelligence technology, and promote the intelligent development of education and teaching management. In practice, we can promote the optimization of education and teaching management and comprehensively improve the management level by carrying out online and offline mixed teaching, improving teachers' quality, building an intelligent platform, and other strategies.

Disclosure statement

The author declares no conflict of interest.

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