Research on teaching innovation of higher vocational education in the era of artificial intelligence

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Abstract: With the advent of the era of artificial intelligence, artificial intelligence technologies such as big data, cloud computing, blockchain, VR technology and virtual simulation technology have injected new vitality into the teaching reform of higher vocational education. Vocational schools should integrate artificial intelligence technology into the teaching of professional courses, actively carry out online and offline mixed teaching, and build a smart classroom; Organize information training, so that teachers can proficiently use artificial intelligence technology to carry out education, teaching and management, and improve their information literacy; Create high-quality online courses and build a high-level digital teaching resource library to meet students' personalized learning needs; VR equipment and virtual reality technology have been introduced to establish high-level training bases, improve students' vocational skills, and comprehensively improve the teaching quality of higher vocational education.

Key words: artificial intelligence; Higher vocational education; Importance; Reform path

Cloud computing, big data and AI technologies have provided massive quality education resources for vocational colleges, expanded the teaching content of professional courses, enriched students' knowledge reserves, changed the teaching methods of teachers, carried out live teaching with online teaching software, broke the limitation of time and space, made it easy for students to learn on mobile terminal devices, and improved their independent learning ability. Promote the high-quality development of higher vocational education. Vocational colleges should seize the opportunity of the era of artificial intelligence, use AI technology to build human-computer interactive teaching space, create a new online intelligent learning space, stimulate students' learning interest, use artificial intelligence technology to build intelligent training bases, introduce advanced 3D printing, VR equipment and virtual simulation training equipment, etc., to meet the practical teaching needs of different majors. Further improve students' practical ability on the job and improve the quality of professional talent training.

1. The importance of artificial intelligence to higher vocational education and teaching

1. It is conducive to alleviating the problem of teacher shortage

In recent years, with the further expansion of college enrollment and the rapid growth of the number of students, the gap in higher vocational education between developed areas and less developed areas has virtually increased, and many outstanding talents are reluctant to teach in higher vocational colleges, which affects the development of higher vocational college teachers. Artificial intelligence technology provides a new channel for narrowing the regional education gap, promoting the sharing of high-quality education resources through cyberspace, promoting the cooperation and communication between higher vocational colleges in developed areas and those in less developed areas, carrying out online distance education, alleviating the shortage of "double-qualified" teachers, allowing students to learn from famous teachers in famous universities, and building a new learning platform for teachers. Further promote the development of professional competence of teachers in higher vocational colleges.

2. It is conducive to creating personalized curriculum

First of all, artificial intelligence technology can help higher vocational colleges to understand students' learning interests, their satisfaction with professional course materials and teachers' teaching evaluation. For example, questionnaire survey is carried out by using Juanxing software to understand students' opinions on education and teaching, personalized courses are customized through big data to meet students' personalized learning needs, and education and teaching resources are shared on the big data platform. To build "artificial intelligence +" education and further improve the quality of curriculum construction. Secondly, artificial intelligence can create different application scenarios to meet the teaching needs of different professional theoretical courses and practical training courses, so that students can learn professional knowledge in the scene, stimulate their innovative thinking, and further improve their learning ability.

3. It is conducive to building school-student interaction channels

In the era of artificial intelligence, students can communicate with teachers of major courses, counselors and other departments of the university through the university's official website, online teaching platform, wechat public account and Weibo, and give timely feedback on the problems they encounter in study and life, broaden the channels of communication with the university, and enhance their sense of belonging on campus. At the same time, artificial intelligence is conducive to building a more harmonious school-student interaction platform. For example, big data is used to summarize campus network data, build campus network security, avoid the leakage of students' personal information, and filter bad network information. It can also implement the sharing of teaching, community activities, innovation and entrepreneurship and other information to promote information sharing, which is conducive to building a harmonious campus.

2. The demand characteristics of vocational skills talents in the era of artificial intelligence

1. Good man-machine coordination ability

With the era of artificial intelligence, industrial institutions have been adjusted, and the demand structure of vocational skills talents is also quietly changing. As the cradle of training technical skills talents, vocational colleges should not only pay attention to advanced vocational skills education, but also carry out artificial intelligence education, so that students can grasp solid modern scientific and technological knowledge, and improve their innovation ability and digital literacy. At the same time, with the gradual maturity of AI technology, human-machine collaboration has become a hot spot in intelligent manufacturing, marketing and tourism services and other industries. Vocational college students should actively learn machine intelligence, master the methods of human-machine interaction, and master new technologies such as big data, cloud computing and blockchain to further improve their personal vocational skills.

2. Good creative ability

In the era of artificial intelligence, intelligent robots are widely used in all walks of life, replacing part of the labor force, the only thing that will not be replaced by robots is human creativity and imagination. In the new era, professional talents should have good creative ability, practice professional skills, promote technological innovation, accelerate the transformation of scientific research results, further improve personal creative ability, and stand out in the fierce employment competition. In order to further enhance the creativity of vocational college students, vocational colleges should actively introduce artificial intelligence technology, train students' computational thinking and human-computer collaborative thinking, and set up courses related to artificial intelligence to enable them to be competent for creative work in a certain field, so as to improve the quality of vocational college talent training.

3. Super learning ability

Artificial intelligence has accelerated the speed of technological innovation, and a variety of new materials, new technologies, new processes and new equipment will emerge one after another, which is a new challenge to the learning ability of vocational talents. The integration of artificial intelligence and industry has created more new jobs, such as big data registrars, intelligent robot research and development and unmanned driving, which put higher requirements on practitioners' vocational skills and learning ability. In order to improve the employment quality of students, vocational colleges should use artificial intelligence to promote vocational education reform and lead students to learn new technologies such as blockchain, big data and virtual simulation to further enhance their learning ability.

3. Vocational education teaching reform path in the era of artificial intelligence

1. Build a blended teaching platform and build a smart classroom

Artificial intelligence has laid the foundation for online and offline mixed teaching, supporting remote online live teaching, online testing and virtual simulation experiments, among which intelligent teaching APP is favored by teachers and students, injecting new vitality into the teaching reform of higher vocational education. First of all, higher vocational colleges should increase investment in artificial intelligence education, build an online teaching platform and build a new model of "artificial intelligence + education" based on their school-running characteristics and educational goals to further improve teaching quality. For example, schools can introduce the latest version of the Super Star Learning APP, and link this online teaching APP with the school's official website. Teachers upload teaching resources and issue two-dimensional code, which is convenient for students to scan the code to enter the class curriculum, so that they can enjoy the guidance of professional teachers anytime and anywhere, inspire their enthusiasm for independent learning, and lay a good foundation for the construction of smart classroom. Secondly, teachers can use the Super Star Learning APP to carry out online tests, import questions and answers in advance, set the answer time, use big data and cloud computing technology to analyze online test data, statistical questions with high error rate, student grades and class average grades, and carry out offline precision teaching according to the automatically generated data report, and answer questions for students in time. Students can independently review the teaching video, review the test questions, and review their weaknesses to improve their personal learning ability. Artificial intelligence is conducive to promoting the link between online and offline teaching, transforming the way teachers teach and students learn, and improving the teaching quality of higher vocational education.

2. Organize artificial intelligence training to improve teachers' information literacy

First, higher vocational colleges should attach importance to teachers' information training, actively carry out "artificial intelligence + education" training, invite experts in the field of artificial intelligence to comprehensively explain the application of artificial intelligence technology in education and teaching, further stimulate teachers' enthusiasm to learn artificial intelligence and encourage them to apply artificial intelligence in their own education and teaching work. For example, artificial intelligence experts can explain the application of big data, cloud computing technology in online teaching, online testing and school wechat public account management, demonstrate the application process of artificial intelligence technology for teachers, and demonstrate the application of speech recognition technology in the human-machine dialogue teaching of language courses, so as to further deepen teachers' understanding of artificial intelligence technology. Urge them to use artificial intelligence technology to carry out teaching. Second, schools can organize online training for professional teachers to systematically explain online teaching software, 3D printing equipment, multimedia courseware making and other operational skills, and explain the application of artificial intelligence in classroom teaching, so as to further improve teachers' information literacy and speed up the popularization of artificial intelligence technology. For example, teachers of computer majors in higher vocational colleges can

learn professional knowledge such as Superstar learning software, JAVA, artificial intelligence and cloud computing online, so as to integrate artificial intelligence technology into the teaching of core courses of computer majors, further improve their professional abilities, and lay a good foundation for promoting the teaching reform of higher vocational education.

3. Establish digital teaching resource library and expand teaching content

In the era of artificial intelligence, college students have more diversified channels to obtain information. They are not satisfied with only learning professional textbooks, but are more eager to learn new technologies and new ideas. Vocational colleges should actively build digital teaching resource libraries, collect high-quality Internet education resources, enterprise post operation videos and industry scientific research results and other materials, expand the teaching content of various majors, and meet the personalized learning needs of students. For example, the school organizes the key teachers of computer majors to watch the teaching videos of famous universities such as Tsinghua University and Peking University on the MOOC open online teaching platform, learn from their excellent teaching experience and collect their high-quality teaching cases, and then combine the learning situation of the school to develop digital loose-leaf textbooks and compile digital loose-leaf textbooks around the core courses of the major. And upload the textbooks to the online teaching platform to create new format textbooks, which are convenient for students to watch and download the loose-leaf textbooks online. Teachers can add or subtract the content of loose-leaf textbooks according to students' knowledge, and record related supporting videos, so as to further improve the development quality of digital textbooks.

4. Build intelligent training bases to improve the level of vocational education

First of all, higher vocational colleges should actively increase investment in the construction of training bases, introduce advanced VR equipment, 3D printing equipment, virtual simulation training software and intelligent robots, etc., to meet the needs of different professional training and teaching, improve the construction level of training bases, and lay a good foundation for improving the level of education and teaching. For example, the school can build a virtual simulation experiment system to meet the experimental needs of computer majors such as computer programming, web page production and virtual simulation system, so as to facilitate students to conduct online simulation operations and further improve students' operational ability. Teachers can create different experiment situations on the virtual simulation experiment system, set relevant experiment requirements, and let students conduct independent online practice. The system will monitor the entire operation process of students and facilitate comments on students' operation. At the same time, students can also log in the virtual simulation experiment system for practice after class to further improve their practical operation ability and lay a good foundation for future employment. Secondly, schools can also establish smart teaching classrooms equipped with computers, interactive electronic whiteboards and online teaching systems, which are convenient for teachers to carry out simulated teaching and practical training, and convenient for students to operate online teaching systems and interactive electronic whiteboards and make various multimedia courseware, such as editing micro-lessons, recording online teaching videos and experiment videos, to further improve the quality of practical teaching.

4. Conclusion

Vocational colleges should actively respond to the challenges of the era of artificial intelligence, integrate artificial intelligence technology into curriculum teaching, textbook development, practical teaching and teacher training, build an "artificial intelligence + education" model, promote the high-quality development of vocational education, and further improve the quality of professional talent training. At the same time, schools should actively introduce advanced equipment such as virtual simulation system and VR equipment, build smart teaching space and intelligent training base, provide students with high-quality digital learning resources, further enrich their knowledge reserve, innovate experimental and practical training teaching methods, build human-computer interactive learning mode, further improve students' practical ability, and help vocational education teaching reform.

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