Research on Teaching Innovation by AI Empowerment for IT Majors

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Abstract: There are lots of disadvantages in traditional teaching for IT professional cultivation in higher vocational institute, such as utilitarian teaching purpose, unitary teaching method, stylized teaching content and partial evaluation method. With the development of artificial intelligence technology, great structural changes will take place in higher vocational education in the future. As frontiers majors, IT educator in higher vocational institute should actively update their own teaching ideas, learn new teaching methods, make rational use of information technology methods, get rid of the difficulties of traditional classroom, and constantly improve the teaching efficiency.

1. Introduction

In 2017, the notice of the the development plan of the new generation of artificial intelligence (AI) by State Council of China proposed developing intelligent education and accelerating the innovation of talent cultivation mode and teaching method by intelligent technology [1]. In April 2018, Ministry of Education of China issued the AI innovation action plan. This plan further point out the objectives and tasks of institutes and universities in training innovative talents, scientific and technological innovation and other aspects in the face of the opportunities for the development of a new generation of AI [2]. At the 2018 national education conference, General Secretary Xi Jinping pointed out that adhering to deepening education innovation is not only an important experience summary in the practice of education reform and development in China, but also the fundamental motive force for the development of education in the party and the state. In January 2019, Ministry of Education of China issued the guiding opinions on strengthening the construction and application of network learning space. Institutes and university should taek the deep integration of information technology and educational teaching as the core, application driven and mechanism innovation as the driving force [3]. The construction and application of online space should be strengthen, and a new ecology of artificial intelligence should be constructed and enabled.

AI in education is an enhanced digital education which integrates Internet of things, artificial intelligence, big data, cloud computing, virtual reality and augumnet reality and other advanced digital information technology. The development of artificial intelligence provides a new direction and platform for the traditional teaching mode. In the environment of AI in education, IT educators should get rid of the difficulties of traditional classroom, use the information technology method to improve the teaching, and improve the teaching efficiency.

2. The significance of AI in education

Artificial intelligence changes learning and helps to cultivate individuation. Artificial intelligence can effectively support autonomous, inquiry and collaborative learning, so that the learning mode can be changed from "collective learning" of the class with unified pace, unified mode and unified evaluation to personalized learning, and the teaching with artificial intelligence can reduce the burden of teachers. Artificial intelligence can create a better professional environment for teachers and enable them to invest more support for students with difficulties. Artificial intelligence optimizes

management and improves school governance. AI can optimize the governance of all levels of education departments and school management [4].

2.1 Beneficial to improve on student-centered teaching

The essence of education lies in awakening, inspiring and inspiring. Artificial intelligence gradually integrates into the all fields of education. Advocating the sharing of educational resources and providing students with individualized and ordered education mode, students can break through the limitation of time and region. By AI technology, we can accurately judge cognitive habits and characteristics of each student, and provide the most acceptable and effective learning path. By monitoring learning rhythm and progress of each student, accurate course recommendation can be realized. IT educator should change their thinking mode, actively support and promote the teaching reform supported by artificial intelligence.

2.2 Beneficial to inspire the teaching innovation

In the era of artificial intelligence, the transformation process of organizational structure and operation mode of vocational institutes has been accelerated. In the era of artificial intelligence, intelligent teachers, intelligent teaching materials and intelligent teaching methods will be on the stage of talent training in vocational institutes, and the role of teachers, teaching content, learning methods, and evaluation models will also change profoundly. The application of AI technology can promote the reconstruction of teaching organization, the reconstruction of teaching methods and processes, the reorientation of teachers' roles, and the reform of teaching behaviors.

2.3 Beneficial to promote personalized learning

With the popularization and development of Internet technology, more and more students begin to obtain learning resources through the network. At the same time, diversified and personalized knowledge customization service has also become a new hot spot of audience demand. Nowadays, the traditional education informationization has stepped into the 2.0 era, and the role of artificial intelligence, big data and other technologies in the field of precise teaching and personalized learning is further highlighted. Through the deep integration of information technology and subject teaching, it has become the consensus of the industry to boost the quality of education. Through the induction and integration of massive educational knowledge points, the educational knowledge map is formed, and through intention recognition and powerful educational user portrait, accurate personalized recommendation and intelligent interactive experience are provided for the audience.

3. The way of AI in education

3.1 AI in hybrid teaching

IT majors in higher vocational institutes urgently need to innovate the traditional classroom. In the era of artificial intelligence, teaching resources and teaching environment are constantly innovating and developing. Among them, the change of teaching tools, the optimization of teaching resources and the intelligent teaching environment lead to the change of teaching methods of it majors. Hybrid teaching mode has become an innovative way for ITmajors teaching higher vocational institutes. In the hybrid teaching, the task list helps students to define the content, goal and method of self-study before class. Under the guidance of task list, students use mobile terminal and online learning platform to carry out autonomous learning mode. It can cultivate autonomous learning ability of students. Outside the classroom, students use online learning resources and intelligent teaching assistants for autonomous learning. In the classroom, students become the main body of classroom teaching. The teacher designs the topic of classroom discussion under the premise of careful preparation and observation, and carries out enlightening and conversational teaching. By active classroom discussion, using the resources and advantages of AI in education, he teaching dilemma of teacher monologue in the traditional classroom is changed, and a relaxed, happy and efficient classroom is constructed.

3.2 AI in autonomous learning

Under the environment of AI in education, autonomous learning of students in higher vocational institute can improve their learning efficiency, improve their learning effect, and truly realize individualized teaching. Take the IT majors of Jiangsu Maritime Institute as an example, the students enrolling methods include college entrance examination, advanced single enrollment, secondary vocational single enrollment, and secondary vocational students. Because of the different students, there are great differences in learning basis and habits among students. In view of this situation, by AI technology, the self-adaptive mode is adopted to track the learning process of students, and according to the analysis results, the recommendation of content and the guidance of learning strategies are given to students, so that students can get more suitable learning methods through artificial intelligence.

Under the environment of AI in education, autonomous learning of students in higher vocational institute can dredge their weariness of learning and improve their initiative and enthusiasm in learning. In the traditional teaching process, it is found that vocational students are prone to depression, laziness, weariness and other emotions when they come into contact with some content that they are not interested in or do not understand. By AI technology, to customize personalized learning content and program for students can improve interest and self-confidence in learning of students, so it can guide weariness of students and improve initiative and enthusiasm of students in learning.

Under the environment of AI in education, autonomous learning of students in higher vocational institute provides a new mode and challenge for the development of teaching activities in higher vocational institutes. The traditional teaching process of unified teaching standardization and unified teaching mode is broken. In order to adapt to the personalized learning of students, the traditional unified mode in the preparation of teaching materials is should be broken, different levels and types of diversified teaching materials preparation should be adopted. It is a new challenge for the teaching activities and teachers of higher vocational institutes.

3.3 AI in teacher training

Professional knowledge, professional skills and professional opinion values belongs to the individual characteristics of teachers. They ar the basic elements of successful teaching. The AI in education is the general trend of education development. The future education mode must be the in-depth combination of artificial intelligence and traditional education. The excellent teachers in the future will be those who are good at using AI and can coexist and play their respective advantages. AI can develop rapidly and iteratively, but the transformation of education system, the knowledge structure, teaching habits and ideas of teachers is a long and painful process. Teachers in the construction of new educational concepts and teaching skills should be go through this difficult process. Teachers in the flood of change should follow the trend and consciously stick to their responsibilities and roles. In the new era context represented by artificial intelligence, teachers are endowed with new connotation demands, value expectations and methodology enlightenment in terms of competence.

4. Conclusion

Artificial intelligence not only has a great influence on life and work of people, but also accelerates the integration into education. A new era of subversive intelligent technology reform education is coming. A new round of technology reform education will take intelligent education as the command, inject new ideas into education and teaching, provide new methods and tools, drive the fundamental transformation of education and teaching mode, and promote the quality of teaching effect.

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