Research on Computer Professional Process and Individualized Teaching Reform Based on Big Data Thinking

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Abstract: The teaching goal of computer specialty is to train applied talents. The introduction of big data thinking into teaching reform can effectively promote the transformation of teaching activities and actively respond to the talent requirements at this stage. Furthermore, it will improve the process and personalized teaching reform of computer specialty, promote the improvement of comprehensive quality of talents, and train applied computer talents. Starting from the overview of big data, this paper briefly expounds the necessity of applying big data thinking in the reform of computer specialty, and analyzes the process and personalized teaching reform. According to the goal of process-oriented and personalized teaching reform of computer specialty, some superficial opinions are put forward on the teaching reform.

1. Introduction

The development of modern information technology and computer network technology has had a great impact on social production and life. The great changes in production and life style have put forward higher requirements for talents. The professional knowledge talents trained by traditional teaching mode are no longer suiTable for the requirements of modern development, and the training of applied talents is imminent. The introduction of big data thinking into teaching activities can provide more reliable data analysis for teaching design, which is conducive to discovering students' individualized problems and promoting students' differentiated development. Therefore, making full use of big data collection ability, teaching resource supply ability, enriching teaching methods, and changing teaching reform are of great significance for cultivating high-quality comprehensive talents [1].

2. Overview of Big Data

Big data is based on the rapid development of modern information technology and computer network technology. It has the characteristics of large data scale, many kinds of data, low value density and fast data change. Big data realizes efficient collection, high-speed transmission, accurate analysis and real-time sharing of information, greatly improves the efficiency of social production and life, and brings many conveniences for the development of modern society. The main significance of big data utilization lies not in massive information collection, but in the processing capability of massive information. Through the processing of professional technology, the advantages of big data network technology can be brought into play to provide convenience for social production and life. The application of big data in teaching activities can effectively collect students' learning information and discover students' learning rules through data analysis, thus providing more targeted teaching resources and improving the effectiveness of teaching activities [2].

3. The Necessity of Teaching Reform for Computer Major in Big Data Era

Traditional teaching mode mostly focuses on teacher's lecture. Students act as listeners and receivers. It is difficult for teachers to get effective feedback on teaching activities. Teachers have difficulty in differentiating students, neglecting students'participation and autonomous learning in

the teaching process, and it is difficult to carry out personalized teaching. Big data provides corresponding references for teaching activities. According to students' psychological characteristics and learning rules, teaching activities are divided into processes with specific teaching objectives, teaching tasks, teaching methods, teaching resources, teaching discussions and summary and reflection. Through the information collection of the whole process and all angles of the teaching process, the deficiencies in teaching and learning can be found, thus purposefully carrying out teaching activities, correcting learning directions and promoting the effective development of teaching activities [3].

Teaching activities under the background of big data pay more attention to process and personalized teaching, change the traditional teaching process of a paper to evaluate the teaching effect and students' learning situation, and emphasize the learning results brought by the learning process and the improvement of students' skills. In the era of big data based on computer network information system, Internet of Things, cloud computing and other technologies, more attention is paid to the all-round development of students. On the one hand, big data provides a reference for the necessary teaching data for teaching activities, collecting student information more quickly, analyzing student situations, and providing more reliable reference data for the development of teaching activities. On the other hand, the era of big data also puts higher demands on the training objectives of students, especially the computer major. As the most direct contact and feel the technical convenience of the era of big data, we must pay more attention to the cultivation of talents, keep improving the teaching level and talent quality of the counting machine through process and specialized teaching [4].

4. Overview of Process and Personalized Teaching Reform in Computer Major

Procedural teaching is a teaching idea based on big data thinking. It mainly realizes data collection and data analysis in the whole process of teaching activities by means of modern information technology. It subverts the traditional teaching mode of taking a single teaching method step by step in class. Procedural teaching pays more attention to the teaching process and collects data according to students'performance in the learning process. According to students' learning rules, students are divided into different types, targeted teaching methods are adopted, and targeted teaching contents are provided for students in the form of flip class and micro class. Students arrange learning time and learning contents according to their own conditions. In the process of learning, big data technology will also make statistics and analysis on students' learning situation, find the weak links in the learning process, guide students to carry out targeted correction and intensive exercises, and improve students' learning efficiency [5].

Personalization is also based on big data analysis. Through data combination, students'participation in learning, classroom performance, learning preferences and knowledge points are analyzed. According to the data model, this paper explores students'learning rules and provides individualized and differentiated assessment of learning development. By predicting students'learning performance, the corresponding adjustment plan is put forward for students' learning content and direction.Personalization is mainly reflected in the differentiated teaching of students. It can find the advantages of students' learning and motivation to the greatest extent, as well as the short board in learning. To stimulate the advantages and make up for the deficiencies, to provide targeted learning programs and learning content, to stimulate the potential of students. And make up for the shortage of students, promote the improvement of students' comprehensive quality, is of great significance to the all-round development of personnel training [6].

5. Process-oriented and Individualized Teaching Reform Goals for Computer Major

The goal of training talents for computer major is to make talents become comprehensive application-oriented talents with knowledge, ability and quality. It is not only to improve students' professional quality, but also to promote students' practical ability and application ability in an all-round way. The process-oriented and personalized teaching reform respects the learning rules

and psychological characteristics of students' learning activities, which can improve students' participation in learning activities to the greatest extent and improve students' comprehensive quality. The goal of the teaching reform is to change the teacher-centered teaching idea and to build a student-centered teaching idea that promotes the development of students and the improvement of their innovative ability. Change the teacher-led classroom status, the whole process of teaching is student-led, and complete the student-led teaching process through pre-class design problems, classroom problem discussions and after-school Q&A. Abandon the evaluation criteria of traditional achievement theory, the assessment focuses on the evaluation of students' learning behaviors and learning performance in the learning process, and comprehensively judge students' learning situation [6].

6. Content of Process and Personalized Teaching Reform for Computer Major

6.1 Teaching Resources

In order to carry out the process and individualized teaching reform of computer specialty, the first step is to change the teaching resources. Teachers should firmly establish student-centered teaching awareness, adhere to the setting of student-centered classroom content, and formulate scientific, efficient and targeted teaching programs based on the development of students'big data analysis. On the one hand, we should attach importance to students'existing learning advantages, strengthen students' existing advantages through teaching activities, and tap students'potential. On the other hand, according to the difference of students'knowledge mastery and ability improvement, we should formulate differentiated teaching programs to make up for students' shortcomings and improve students'accomplishment in an all-round way. We should change the single teaching resources dominated by traditional textbooks, make full use of modern multimedia equipment and network information technology, and provide more abundant teaching resources for students. For example, on the basis of providing classroom teaching resources, network teaching and micro-class methods are used to break the limitation of traditional teaching physics time and space, extend teaching time and extend teaching activities. Let's provide students with teaching resources that can learn according to their own learning rhythm, learning steps and learning speed. Through pauses, repetitions and other means, we can meet different demands for teaching resources and promote the absorption of students' knowledge and the improvement of their abilities [7].

6.2 Teaching Method

The process-oriented and personalized teaching reform should also change the traditional teaching methods, pay attention to students' interest in learning, carry out interest-oriented teaching, and attract students' exploration desire and interest in learning. The traditional teaching method mainly adopts the way of teachers' classroom teaching, and the role of students as recipients is to impart knowledge. The traditional teaching method mainly adopts the way of explanation, recitation and contact. Students seldom get the chance to think, ask questions and learn independently, which greatly limits the development of students' ability [8]. Therefore, the teaching reform should adhere to the teaching aim of improving students' ability on the basis of imparting knowledge, change teaching methods and promote the improvement of students' comprehensive ability. The reform of teaching methods should follow the principles of task-driven and problem-oriented, set up targeted teaching tasks and teaching objectives according to the differences of students, and take students' interest in learning as the starting point. The pre-class setting problem combines the instructive teacher resources provided by the teacher to encourage students to carry out self-preparation and improve students' ability of independent learning and independent thinking. In the class, feedback on the student's preview situation, focus on knowledge, and improve the efficiency of classroom teaching. Teaching methods can be explored in a variety of ways. For example, classroom teaching can conduct group discussions and mutual answers, and teachers can guide and correct and deepen. After class, pay attention to the feedback results of students, strengthen the weak parts, and promote the internalization and improvement of students' knowledge [9].

6.3 Assessment Standard

The assessment criteria of teaching reform should be combined with the practical teaching characteristics of computer specialty, change the single examination paper, and carry out the applied assessment according to the teaching objectives and vocational requirements at the present stage. Assessment can be divided into learning process assessment, learning ability assessment, learning attitude assessment and knowledge point assessment according to the teaching situation, such as classroom participation, pre-class preparation results, design assessment of works, etc., to promote students' all-round development through various assessment contents. Inspire students' participation in the learning process, and also discover the individualized characteristics of students through diversified assessment methods, and develop predictive teaching programs [10].

7. Conclusions

All in all, the arrival of the era of big data has led to many changes in life and production. The computer major is mainly to cultivate application-oriented talents for social production. Therefore, in the face of the era of big data, we must adapt to the needs of the development of the times, change the goal of talent training, carry out teaching reform, and export comprehensive talents that are more suiTable for social development. At the same time, we should make full use of the convenience brought by the big data era, apply modern technology to teaching activities, provide students with higher quality teaching activities and teaching resources, and promote the all-round development of students. Process and personalized teaching reform is conducive to the cultivation of comprehensive and applied talents, which is very consistent with the teaching objectives of the new curriculum reform. Therefore, continuous research and exploration should be carried out in teaching practice to find a teaching mode more suiTable for students' needs and promote the long-term development of computer specialty.

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