Exploration and Practice of Diversified Teaching Mode under the Background of "Internet plus" and "Teacher Training Professional Certification in Colleges and Universities"

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Abstract

In the era of "Internet plus", the use of network resources for diversified teaching has become a hot spot in educational reform in recent years. In October 2017, the Ministry of Education issued the "Implementation Measures for the Certification of Teacher Education Majors in Ordinary Higher Education Institutions (Provisional)", which clearly required that teacher education majors should adhere to the basic concept of "student-centered, output oriented, and continuous improvement" to continuously improve the quality of teacher training. The author takes the computer teacher training specialty of our school as the implementation object, uses the "Internet plus" resources, and carries out teaching reform according to the requirements of "teacher training specialty certification", to explore a diversified teaching model suitable for our students.

Keywords

Internet plus; Professional certification; Diversified teaching mode.

1. Introduction

With the continuous development of internet technology, the internet is widely used in various industries. In July 2015, the State Council issued the Guiding Opinions of the State Council on Actively Promoting the Action of "Internet plus", put forward the new concept of "Internet plus", and mentioned in the "Key Actions" that "encourage schools to use digital education resources and education service platforms, gradually explore new models of networked education, expand the coverage of high-quality education resources, and promote education equity". Using Internet plus to carry out teaching reform has become an important way of the new education model. Since then, new teaching forms such as MOOC, flipped classroom and micro class based on Internet plus resources have developed rapidly.

In October 2017, the Ministry of Education issued the "Implementation Measures for the Certification of Teacher Education Majors in Ordinary Higher Education Institutions (Provisional)", proposing the certification concept of "student-centered, output oriented, and continuous quality improvement" in order to "promote the construction of a teacher education quality assurance system and improve the quality of teacher education professional talent cultivation". The certification of teacher training majors requires that the focus of teaching must shift from "teachers" to "students". The extensive use of Internet plus in teaching is an important guarantee for the realization of the certification concept of teachers' majors.

2. Theoretical Research on Diversified Teaching Models

2.1. Research on Traditional Teaching Models

Since ancient times, the traditional teaching model of "emphasizing subject based knowledge systems and the dominant position of teachers" has been widely adopted in domestic school education and teaching work. This teaching model was proposed by the 19th century German

philosopher and psychologist Herbert (full name John Friedrich Herbert). His educational ideas had a huge, extensive, and profound impact on the development of school education practice and educational theory at that time and even over the past century. In the history of Western education, he is known as the "founder of scientific education" and the "father of educational science" and "father of modern education" in the history of world education.

Herbert proposed the "three center" theory of "teacher centered, textbook centered, and classroom centered", emphasizing the position of teachers in teaching and proposing that knowledge is actively constructed based on students' existing experiences. He summarized the teaching process as the "four stage theory" of "clarity association system method", proposing that the teaching process is the process of explaining new knowledge, absorbing new knowledge, summarizing and applying it. The "four stage teaching method" clearly divides the four stages of teaching, not only taking into account the psychological state of students during learning, paying attention to the different interests of students at different teaching stages, but also considering the different teaching methods that should be adopted at different teaching stages. This is of great significance for the systematic transmission of knowledge and the standardization of the teaching process.

Herbart's educational theory is systematic, scientific, and operable, deeply influencing the theory and practice of Chinese education, from the research theme, basic concepts, textbook writing framework, to the form of educational practice [1].

The traditional teaching mode has played an important role in the development of education in China, cultivating a large number of talents. However, with the progress of society and the development of internet technology, the traditional "cramming" teaching mode cannot cultivate the high-quality and innovative talents required by modern society, and teaching mode reform is imperative.

2.2.   Research on Modern Teaching Models

With the increasingly prominent drawbacks of traditional teaching models, modern teaching models represented by American pragmatist educator Dewey have reformed traditional teaching models and proposed a "new three center theory", which includes "child center (student center)", "activity center", and "experience center".

The modern teaching model proposes many viewpoints that contradict traditional teaching models. For example, "to express and cultivate individuality, opposing indoctrination from above", "to engage in free activities, opposing external discipline", "to learn from experience, opposing learning from textbooks and teachers", "to acquire various skills and techniques for achieving direct needs and goals, opposing the acquisition of isolated skills and techniques through training methods" [2].

The modern teaching model emphasizes student-centered development, personalized development, and creativity cultivation. This educational model holds an important position in the history of American education and provides a favorable tool for global education reform research. With the development of modern educational technology, especially the maturity of internet technology, it provides a strong guarantee for the implementation of modern teaching models. Flipped classrooms, MOOCs, and other new teaching forms have emerged under the modern teaching mode ideology.

2.2.1. Flipped Classroom and Micro Class

Flipped classroom, also known as inverted classroom, refers to adjusting the time inside and outside the classroom, transferring the decision-making power of learning from teachers to students. The flipped classroom has restructured the learning process: learning new knowledge before class, consolidating knowledge through homework and collaborative activities in the

classroom, and cultivating students' autonomous learning ability from passivity, truly practicing the "student centered" and "activity centered" in modern education models.

Pre-class learning resources include text, images, animations, etc., but the most commonly used ones are videos - also known as "micro classes". Micro lesson is a new type of teaching resource, which is a short video recorded on a certain teaching knowledge point and is the main component of flipped classroom.

2.2.2. MOOC

MOOC (Massive Open Online Courses), also known as MOOC, is a new form of online education. The well-known MOOC website in China describes this website as "a complete online teaching model that supports the construction of online open courses in higher education institutions, achieving personalized learning for students and social students".

In 2012, top universities in the United States successively established online learning platforms, providing free video learning courses. In 2013, renowned universities in Hong Kong and Beijing in China also began offering free courses on online platforms. Afterwards, more and more universities and companies participated in MOOC.

Numerous top universities both domestically and internationally have participated in MOOC, with roughly three purposes: the first is to "build brands, marketing, and global influence"; The second is "promoting lifelong learning"; The third is "credits, recognition, and continuous professional development" [3].

The popularization and expansion of MOOC cannot be separated from the development of Internet plus technology, which provides an important tool for the practice of modern teaching mode.

2.2.3. Modern Educational Technology

With the popularization and penetration of modern education models, various modern education mobile teaching software have emerged, and various modern communication tools can also be applied to teaching.

The use of smart teaching apps such as Rain Classroom, Micro Teaching Assistant, and Blue Ink Cloud Class has changed traditional lesson preparation and teaching methods, making teacher-student communication more direct. Teachers have enabled students to analyze and process information such as text, images, videos, and sounds through smartphones in teaching, forming micro lessons that enhance students' learning enthusiasm and interest[4]. Some teachers also used Tencent QQ, Questionnaire Star and WeChat official account to practice flipped classroom.

3. Practice of Diversified Teaching Models

Fundamentals of Programming "is a highly practical course that requires extensive computer experiments to train students' computational thinking and improve programming skills. Starting from 2017, flipped classroom practice has been conducted on the course "Fundamentals of Programming" for computer majors.

3.1. Adhere to the "student centered" approach and use MOOC.com and Blue Ink Cloud classes to change the teaching mode

Adhering to the "student centered" approach means changing the traditional teaching mode of "teacher centered" and "cramming" in the classroom. Before class, the teacher releases pre class learning tasks through the Blue Ink Cloud Class App and tracks and supervises them. Students learn new knowledge through MOOCO resources and complete a certain number of questions on the online evaluation platform. The teacher masters the learning effectiveness of students based on the completion of the questions. In class, break through key and difficult points and

master new knowledge through testing, explanation, and practice. After class, consolidate knowledge and expand thinking through experiments and course design tasks.

3.2. Update course content based on "output orientation" to serve local education and economy

In 2017, the "Notice of the State Council on Issuing the Development Plan for the New Generation of Artificial Intelligence" (Guo Fa [2017] No. 35) mentioned in point (6) "Widely carry out artificial intelligence science popularization activities" that "implement national intelligence education projects, set up artificial intelligence related courses in primary and secondary schools, and gradually promote programming education". The popularization of artificial intelligence will greatly improve the information technology teachers and artificial intelligence, big data The threshold for technologies such as the Internet of Things. In order to improve the employment competitiveness of computer related majors in our college, the core course for training programming skills - "Fundamentals of Programming" has added "NOI and ACM-ICPC Competition Common Algorithms" to the original basic content of C language. Allowing computer science majors in normal universities to learn this part of content is beneficial for them to directly become Olympic guidance coaches for information science in primary and secondary schools in Guizhou Province after graduation, which has greater advantages compared to other computer science majors in normal universities in Guizhou.If you follow the "checklist" your paper will conform to the requirements of the publisher and facilitate a problem-free publication process.

3.3. Continuous improvement ", with significant course effects

In addition to improving teaching content and methods, adjustments have also been made to the course schedule and class hours, increasing the number of experimental and course design hours, establishing a late self-study tutoring system, and regularly holding college level program design competitions.

Through continuous improvement in programming courses, students' self-learning and programming abilities have been improved, ensuring the quality of teaching. In recent years, our students have participated in provincial-level and national level programming competitions, robot competitions, modeling competitions, and electronic design competitions, and their scores have significantly improved.

4. Summary

With the changing demand for talent, the reform of higher education teaching models is urgent. But blindly abandoning traditional teaching models and choosing modern teaching models is not advisable. The traditional teaching model has been used for many years and has accumulated rich theories and resources for teaching. The modern teaching mode conforms to the times, but the teaching effect is limited by factors such as teaching conditions, students' self-learning ability, and teachers' ability. Under the background of "Internet plus", it is of great significance to make full use of a variety of information-based teaching resources, follow the educational laws and students' reality, and carry out the reform and practice of diversified teaching models for teachers' professional courses with the concept of "certification of teachers' majors in colleges and universities".

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"Research and Practice on the Hybrid Teaching Model of Big Data Program Design Course in the Context of New Engineering" (Issued by your teacher's college [2021] No. 148).

References

[1] Qi Shan, et al. Why did Herbart's education take root in China. Educational Theory and Practice, Vol. (2018) No.07, p.3-7

[2] Xianbin Zhang, Mengyuan Zhou. The Rise of Child-centered Schools and Educational Reform in the United States. Global Education Outlook, Vol.47(2018) No.10, p.102-115

[3] Merred Nick Jula Messier, Mark BROWN, Junhong Xiao. Muke's Concentric Circle Development: Transformation from Disruptive Innovation in Higher Education to Sustainable Innovation Model. Distance Education in China, Vol. (2019) No.03, p.58-68+93.

[4] Sun Xin. The Practical Research of Smart Phone in Informatization Curriculum Construction under the Background of "Internet plus". Modernization of Education, Vol. (2019) No.07, p.131-133.