

Reform of the "University Computer Foundation" course with blended teaching mode of online and offline

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ABSTRACT

In view of the teaching situation of "University Computer Foundation" course with blended teaching mode of online and offline, this paper analyzes the characteristics of teaching, formulates the principles for course reform, and then the reform scheme is put forward in five aspects of teaching concept, teaching links, offline classroom teaching, teaching resources, and assessment methods.

Keywords: Blended teaching mode, University Computer Foundation, Course reform, Teaching concept

1. INTRODUCTION

On November 24, 2018, Wu Yan, director general of the Higher Education Department of the Ministry of Education, delivered a report entitled "Building Gold Courses in China" [1] at the 11th "Chinese University Teaching Forum". As a result, various colleges and universities responded one after another. First-class universities took it as their duty to build online "golden course", while other ordinary colleges and universities actively explored how to make good use of online "golden course" resources to carry out online and offline blended teaching. These measures will fundamentally improve the quality of undergraduate teaching, improve the ability of talent cultivation.

"University Computer Foundation" is a public basic course for non-computer majors in colleges and

universities. Its goal is to cultivate students' information technology knowledge, ability and computer thinking quality, and improve students' comprehensive ability to solve complex problems. The educational concept and mode of the new era represented by "golden course" leads a new wave of teaching reform, and the teaching of this course is bound to conform to this wave, implementing the spirit of "comprehensively revitalizing undergraduate education" [2] proposed by the National Conference on Undergraduate Education in the new era. This paper intends to discuss the course reform of "University Computer Foundation" under the mode of online and offline blended teaching. Through the course reform, the core elements of education, such as students, teachers, teaching and curriculum, are endowed with new connotations.

2. NECESSITY OF "UNIVERSITY COMPUTER FOUNDATION" COURSE REFORM UNDER THE BLENDED TEACHING MODE

2.1 Characteristics of "University Computer Foundation" Teaching under the Blended Teaching Mode

"University Computer Foundation" teaching has changed from pure face-to-face teaching in class to a combination of online and offline teaching activities, which has revolutionized the way students acquire knowledge, the way teachers impart knowledge, and the relationship between teaching and learning. It is necessary to face up to

the new changes and new features of "University Computer Foundation" teaching in the blended teaching mode, so as to solve the difficulties and pain points in the teaching implementation process, and better meet the actual needs of teaching and learning.

In the face of online teaching resources, students and teachers have synchronous information sources and equal access to information opportunities. In terms of resources, first-class universities have made great efforts to create many online "golden courses", bringing together excellent subject teachers and excellent courses in the field of "University Computer Foundation". From the perspective of knowledge acquisition, the information sources of students and teachers are almost synchronous, and the information advantage of teachers has been disintegrated from the basis. In the mode of online and offline blended teaching, teachers not only preach and teach, but also solve doubts together in the interaction between teachers and students, and reform the teaching elements of "University Computer Foundation".

While breaking through the constraints of time and space, teachers and students are separated in time and space, and teaching is asynchronous. Relying on the teaching resources of "University Computer Foundation" and "Golden Course" of first-class online universities, students can make a reasonable learning plan according to their own specific conditions and conduct online learning at different times and places. With online tools, teachers can more easily see what's going on in their students' learning and gain access to data that can be intelligently analyzed. Under the blended teaching mode, learning and teaching have realized the expansion of classroom time and space. However, with the expansion of classroom boundaries and space and time, the separation of teachers and students, the lack of students' adaptive ability, self-learning ability and self-discipline, greatly affect the teaching effect.

Online teaching resources are conducive to fragmented learning, and it is difficult to form a systematic knowledge structure. Online "University Computer Foundation" teaching resources can be around the selected knowledge points, recording about 10 minutes of short video, create interactive online learning mode, so that learners can use the

fragments of time to learn anytime and anywhere. However, fragmented knowledge points are difficult for learners to form systematic knowledge, let alone comprehensive application of knowledge. The combination of online and offline teaching is easier to fit and meet students' individual cognition, personality characteristics and emotions. All-round development of course resources, expand the teaching vision, different levels of integration and integration, so as to form optional, diversified course content, so that students can easily obtain the curriculum knowledge to meet the personalized needs.

2.2 Principles of "University Computer Foundation" Course Reform under the Blended Teaching Mode

Under the mode of online and offline blended teaching, the reform of "University Computer Foundation" course should be transformed from "knowledge classroom" to "life classroom", and the teaching value of course is no longer "the single transfer of ready-made knowledge presented in textbooks", but to cultivate modern talents with computer thinking.

2.2.1 The Opening Principle of Course Reform

When students can obtain first-class universities and teachers equally online "University Computer Foundation" resources, teachers can regularly update knowledge and application case in course reform, make the course content of "University Computer Foundation" has frontier and time to adapt to the social demands for talents of computer skills as well as the students of computer education of different, and ensure that students acquire the necessary computer literacy.

2.2.2 The Multi-Dimensional Principle of Course Reform

Under the blended teaching mode, the teaching ecology of "University Computer Foundation" includes teachers and students and their relationship, teaching objectives, online resources, classroom teaching methods, teaching content, teaching evaluation and many other factors, which determine the multi-dimension of "University Computer Foundation" teaching reform. Based on the characteristics of online teaching such as separation of time and space, asynchronous

teaching and fragmented learning, the strategies suitable for online and offline blended teaching are selected and designed from multiple perspectives to promote students' knowledge learning and knowledge cultivation. At the same time, pay attention to students' character development. The reform of curriculum points to every dimension of curriculum, including the reform of teaching ideas, teaching links, classroom teaching methods and curriculum evaluation system.

2.2.3 Adhere to the Principle of Educating People

In the national conference of China on undergraduate education, Chen Baosheng, minister of Education, clearly required to consolidate and strengthen the fundamental position of undergraduate education [2]. Course is to provide learning opportunities for students' development and learning materials, "University Computer Foundation" course reform must establish clear students "position", must consider how to better use of online teaching advantages, fit and meet the students' awareness of individual, personality traits and emotions, to promote students' development as the fundamental course reform follow and ultimate meaning. In order to cultivate students' self-study ability, comprehensive application ability and creative ability as the center, promote students to systematically master the software of various operational skills and practical contact, improve the ability to use the computer to solve real problems, the formation of computer thinking.

3. THE SCHEME DESIGN OF "UNIVERSITY COMPUTER FOUNDATION" COURSE REFORM

3.1 Reform of Teaching Concept

In her book Culture and Commitment, American sociologist Margaret Mead divides human society into three eras: pre-figurative culture, parallel figurative culture and post-figurative culture [3]. The online and offline blended teaching mode is becoming more and more popular in higher education, which has the characteristics of post-figurative culture. The way of knowledge impartation and the relationship between the subject and object of education have undergone significant changes. To be a good teacher, we must build a new teacher-student relationship and renew

our ideas. From "teaching" as the center to "learning" as the center, teachers are transformed from the implementers and consumers of courses to the producers and leaders of courses. In the face of online teaching has no boundary, Internet sharing and personalized, as "University Computer Foundation classroom teachers", follow the principle of the reform of the above to reform teaching concept, focus on cultivating students' advanced cognitive abilities, focusing on training students' ability of analysis, evaluation ability and creation ability, rather than traditional courses focus on memory, understanding and application of low ability.

3.2 Reform of Teaching Link

Compared with traditional offline teaching, online and offline blended teaching is bound to be reformed. In practice one, teachers transfer the classroom to the Internet and let students study independently online. Practice two, "online" and "offline" simple mechanical addition, first students online learning again, after the teacher offline again. Both of these methods failed to achieve the most effective reform of online and offline teaching.

There are three goals in the teaching of "University Computer Foundation": knowledge goal, ability goal and quality goal. In accordance with the multi-dimension principle of course reform [4], teachers adhere to the principle of educating people, and optimize the online and offline teaching links by making full use of their strengths and avoiding their weaknesses. Closely adhering to the teaching objectives, teachers can achieve the goal of cultivating students' knowledge, ability and quality through providing online resources, assigning independent learning tasks, offline teaching, after-class consolidation and other links. It should be student-centered, professional-demands-oriented, and ability cultivation as the core. It should implement "teaching revolution" and carry out teaching objectives throughout the whole teaching process. Pre-class online instruction focuses on memory and understanding goals; Offline classroom teaching is closely related to practice, focusing on application, analysis and evaluation of various teaching activities; The consolidation stage after class is the process of upgrading and solidifying the teaching content. Based on the

creation goal, challenging expansion tasks are arranged from both online and offline perspectives.

3.3 Reform of Classroom Teaching

Under the online and offline blended teaching mode, we should try our best to use online to provide basic knowledge and expanded knowledge to students for self-study. Only in offline classroom teaching can students come prepared and teachers have more time to guide students to expand and explore in breadth and depth. Essence, offline classroom teaching is based on "online learning" feedback and conduct more in-depth teaching activities, teachers can according to the feedback situation to take, flip the classroom teaching, teaching in style of classroom teaching, as well as project driven teaching, namely to promote the internalization of knowledge, students have launched research and the discussion around the problem by students form their own cognitive system, So as to complete the training of higher order ability.

In view of the fragmentation of students' online learning, teachers also need to summarize, reflect and improve the entire teaching content in online classroom, guide students to focus on the most important and deep structural features, and help students form a global knowledge system.

In offline classroom teaching, "University Computer Foundation" teachers should also adhere to the principle of educating students first, and take measures according to local conditions according to students' different professional goals, student groups and other factors. Let the individual in the continuous interaction with the situation, constantly solve problems, create meaning, so as to better form the core literacy.

3.4 Reform of Course Resources

Course resource reform means that the organization of learning content should expand the teaching horizon, pay attention to the latest technology and development in the field of computer and information, and focus on integration and interdisciplinary learning, promote the association of knowledge with students' professional disciplines, and carry out meaningful deep learning.

The course of "University Computer Foundation" is open and scientific, so teachers should form curriculum consciousness in the process of online and offline teaching. The establishment of course consciousness and the development of course resources make great changes in teaching from connotation to extension. Based on the teaching materials, we fully explore, open and utilize various online course resources, supplement, extend, broaden and reorganize the teaching materials, and pay attention to the connection and integration of teaching materials, social life and students' majors, among which the training of computational thinking is the core. Online resources are mainly for general education, providing students with pre-class autonomous learning, and setting up extension content for autonomous learning (such as cloud computing, big data, mobile Internet, Internet of Things, artificial intelligent, blockchain, etc.). Teaching requirements are mainly reflected in the level of understanding and understanding.

3.5 Reform of Assessment Method

In traditional teaching, the assessment method of "University Computer Foundation" is generally composed of the usual grades and the final examination grades in proportion, which mainly reflects the final examination. This assessment method lacks timely feedback and ignores the evaluation of students' innovation ability. In the online and offline blended teaching mode, in order to "adhere to the principle of educating people", it is necessary to pay attention to the fairness and science of the assessment method, use online teaching tools to conduct process assessment of students, and feedback the assessment results to the subsequent teaching process in real time, so as to support the continuous improvement of teaching activities. The way of assessment should accord with the change from theoretical knowledge standard to application ability standard.

4. THE EFFECT OF "UNIVERSITY COMPUTER FOUNDATION" TEACHING REFORM

The teaching team of the "University Computer Foundation" public course of Anhui University of Finance and Economics has carried out a comprehensive reform of the course. After years of online and offline teaching practice, the teaching

effect of the course has been significantly improved. The "MOOC platform of Chinese Universities" is the national high-quality open online course (online "golden course") as the online resources. On the basis of forcing teachers to use flipped classroom at least 4 times, innovative classroom teaching methods are encouraged to carry out classroom teaching reform. Actively promote the use of information teaching tools and software, as well as the worldwide examination platform. In terms of assessment method, the final grades are calculated by combining online learning records, and the process learning situation of students is fully considered. In order to implement quality education and cultivate students' awareness and ability of practice and innovation, students choose to participate in the Office module subject of National Computer Rank Examination Level 2 after the completion of the course of "University Computer Foundation". This will not only promote the curriculum reform of "University Computer Foundation", but also improve the computer level of all the students and enhance their competitiveness in employment.

By comparing the "University Computer Foundation" scores of the two school years of freshmen, under the premise of the same question bank, the scores of the students on the whole showed an upward trend (see Fig. 1), which indicates that the reform of the "University Computer Foundation" course has been successful.

5. CONCLUSION

In the era of "Internet +", "University Computer Foundation", as the basis of all disciplines, is an indispensable part of cultivating the comprehensive quality and innovation ability of college students. In view of the changes of teaching subjects, teaching resources and teaching media in the online and offline blended teaching mode, the reform of "University Computer Foundation" course is carried out. According to years of teaching practice and the improvement of students' course scores, the course reform has constructed a new innovative talent training mode, and improved the computer thinking ability of college students. The next step is to study how to integrate the latest intelligent education technology [5] into the reform of "University Computer Foundation" course under the online and offline blended teaching mode, in order to achieve greater results in enhancing students' autonomous learning awareness, cultivating innovative spirit and improving computer thinking literacy.

ACKNOWLEDGMENT

We thank the anonymous reviewers and editors for their very constructive comments. This work was supported by the computer basic education teaching research project of Association of Fundamental Computing Education in Chinese Universities under Grant 2020-AFCEC-001, the teaching research project of Anhui University of Finance & Economics of China under Grant

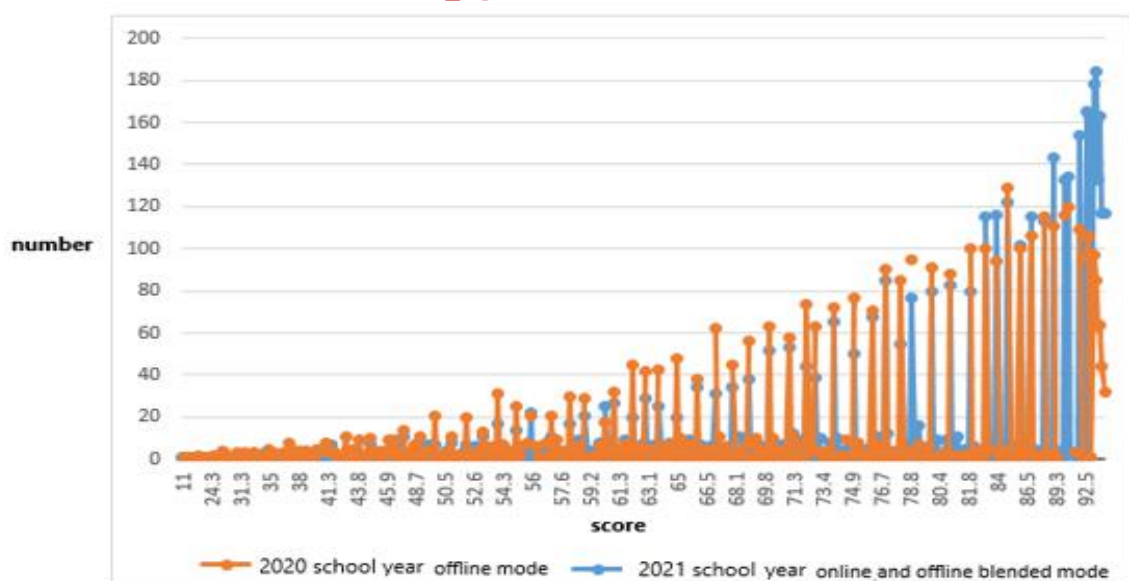


Fig. 1 Comparison of teaching effects of the course reform of online and offline blended teaching mode

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