

# ***College Computer Foundation Course Based on "SPOC+Micro Course" Teaching Mode Research on Teaching Reform: A Case Study of Tarim University***

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**Keywords:** College Computer Foundation, SPOC, Micro Course, Teaching Mode

**Abstract:** The course College Computer Foundation is a general education course required as a prerequisite for freshmen, which plays a fundamental and leading role in cultivating college students' information technology knowledge, ability and accomplishment. Tarim University has also begun to advocate new technologies, new concepts and new classrooms, and has introduced a pan elegant online teaching platform to push the traditional classroom into a smart classroom so that students can learn efficiently, so as to adapt to the development of the new era. Micro courses are characterized by fragmentation, prominent focus, short teaching time, and strong interest. SPOC pays more attention to online and offline interaction, and has strong interactivity. At the same time, students' learning track can be monitored in real time. The introduction of "SPOC+Micro class" teaching mode in the course of College Computer Foundation can maximize the advantages of micro class. By making students play a leading role in classroom teaching, students' subjective initiative to acquire knowledge can be enhanced; In addition, in the process of classroom teaching, some problems closely related to students are added, problem oriented, theoretical knowledge learning is carried out, students' ability to analyze and solve problems independently is enhanced, and the deficiency of existing teaching is made up, which is of great significance to mixed teaching research.

## **1. Introduction**

The course College Computer Foundation is a course to cultivate students' operating ability. In the information age, no post can do without the use of computers. It is more important to master the application ability of information technology and office software. Micro class is a new teaching mode. Using the existing video production software, about 20 key points and 10 difficult points in the course teaching are made into short video materials in advance, without considering the complex course system. Therefore, micro class has the characteristics of fragmentation, prominent key points, short teaching time, and strong interest. Therefore, this teaching method has been widely used in the innovative teaching mode; at the same time, with the rapid development of information technology and Internet technology, its advantages in distance learning are more obvious. SPOC (Small Private Online Course) is the abbreviation of "small-scale restricted online courses", which is mainly aimed

at some students who meet the requirements of course selection, with targeted characteristics. Therefore, SPOC has strong interactivity, pays more attention to online and offline interaction, and can also track students' learning tracks in real time. In addition, contemporary students like to use mobile phones, laptops and other electronic products to obtain information. Classroom learning through APP can enhance students' participation. The means of teacher-student interaction are more flexible, which can improve students' interest in learning [1].

## **2. Problems in course teaching**

### **2.1. Course cognition is not clear enough**

In the information age, primary and secondary school education has paid more and more attention to information technology, and has generally started to offer relevant courses. The content of this course is not new to most college students today, because these operations have been widely used in middle schools, even primary schools and kindergartens, and some students have become very skilled, so students think it is not necessary to learn, and students who can feel it is not necessary to listen. There are mixed classes. Sleeping, Tiktok, and doing things unrelated to the class happen from time to time, which affects teachers' control of classroom discipline, and also causes interference to students who love learning. As a result, some colleges or universities think that they do not offer this course, or extremely reduce the class hours of this course. Some colleges and universities change the basic course of college computer from a compulsory course to an optional course, and some even stop opening this course. However, the purpose of training students' thinking ability to solve various problems in this course has been ignored. Because of the unclear understanding of the course, the course is not taken seriously.

### **2.2. Extensive teaching content**

The class hours of the course College Computer Fundamentals in our university have been reduced repeatedly, from 64 class hours at the beginning to 48 class hours, and now they are reduced to 32 class hours, even 16 class hours for some majors. With the introduction of computing thinking, the content of the computer fundamentals course has been greatly increased, including UNIX like operating system, mobile terminal operating system, computer network architecture, home wireless LAN building, Python language foundation, etc. Due to the scarcity of class hours, many contents cannot be explained in detail. If it is done in one stroke, it is difficult for students to master relevant knowledge points through self-study, which makes it difficult for them to complete the knowledge system by themselves, resulting in students' unwillingness to learn and lack of enthusiasm for learning [2].

### **2.3. The level of students varies**

The content of this course is not new to most college students today, because these operations are popular in middle schools, even in primary schools and kindergartens. However, at present, the assessment of computer operation skills has not been listed as a national college entrance examination subject, and many students do not pay enough attention to it. The courses learned in different learning environments are also different. Most colleges and universities recruit students nationwide, and our Tarim University is no exception, everyone comes from different places. Because of various factors such as local region, educational environment and family economic conditions, some students have never contacted computers before entering school, and some students are very proficient in computer operation. Therefore, everyone has certain differences in computer application ability.

### **3. Related concepts**

#### **3.1. Definition of SPOC**

Small Private Online Course is abbreviated as SPOC, which means "small-scale restricted online courses", also known as "private courses". SPOC refers to the application of MOOC's teaching resources to a small-scale and restrictive classroom teaching. In essence, it uses MOOC's high-quality resources or courses designed according to students' own characteristics, school teaching objectives, curriculum characteristics, etc. as online teaching materials. The use of SPOC is mostly combined with flipped classroom, and the SPOC platform is integrated into the entire teaching process through flipped classroom teaching, so as to effectively achieve the teaching objectives and improve the teaching quality.

#### **3.2. Definition of micro courses**

Micro class, namely micro teaching video class, is a micro video class with a total duration of several minutes to more than ten minutes. Micro class is a new online video course designed for the key and difficult points, easy to make mistakes, examination points or class activities, thematic discussions, practical tasks and other contents of a certain discipline. It can be learned in a variety of ways. Micro class has the characteristics of short teaching time, refined content, interesting creation, and diversified dissemination. The type of micro class is mainly presented in the form of video and web page solutions, suitable for smart phones independent inquiry learning of mobile terminal devices such as tablet computers.

### **4. Implementation of "SPOC+Micro class" teaching mode**

#### **4.1. Establishment and investigation of experimental objects**

Combined with the research background and research status at home and abroad, we can determine the production form and scope of application of micro courses. One teaching class (2-3 classes) will be taken as the teaching practice object of the "SPOC+Micro class" teaching mode. Through the investigation and research method, we will understand the part of the established experimental object that is difficult to master the course content, and make statistical analysis. Based on the analysis results, we will propose corresponding countermeasures, which will provide a reference for the establishment of the "SPOC+Micro class" teaching mode.

#### **4.2. Selection and application of network multimedia platform and functions**

Fanya network teaching platform is an intelligent teaching platform that integrates teaching and learning for smart phone and computer. The auxiliary function of teaching is positioned to assist traditional classroom teaching. On the basis of rich curriculum resource library, combined with notification, homework, discussion and other functions, it can improve teaching efficiency and teaching quality.

Learners can use the mobile version of learning connect APP, which is supported by Fanya online teaching platform, to learn online courses, and consult various subject resources such as thematic content, book browsing, and journal reading. Teachers can use this platform to open professional learning courses, and complete the preliminary teaching preparation through the computer terminal, such as the setting of course content, the upload of text and video resources, the insertion of discussion and testing in the content setting, and the insertion of questions in the video to test students' learning.

We can establish SPOC courses based on the Fanya online teaching platform, associate the shared courses of College Computer Foundation on the platform consistent with the current teaching materials, as a reference, design online preview content, guide students to conduct online learning, and adjust the contents of SPOC online courses and offline courses personalized according to the learning data collected in the background and the completion of students' exercises after class to select the practice objects. We can carry out practical research and propose a mixed teaching method in the course teaching, guide students to learn to think in terms of others, analyze and solve problems from the perspective of teachers, so as to initially build the "SPOC+micro class" teaching model.

### **4.3. Design of teaching process**

We can set up SPOC course in the Fanya network teaching platform - College Computer Foundation course, divide the content into key and difficult points and other teaching activities. It is mainly divided into three stages: pre class guidance, classroom teaching and post class examination. During pre-class guidance, students can watch the teaching videos, courseware and relevant learning materials shared by teachers through mobile version of Learning Link or computer version of Fanya online teaching platform for preview, and teachers can learn about students' learning through students' online learning progress; In the classroom teaching, the teacher explains the important and difficult points and easy to make mistakes in detail, guides students to internalize their knowledge, and improves their enthusiasm for learning. For students who have the ability, they can be set as teaching assistants to help teachers solve other students' learning problems; In the after-school examination, students submit their homework to the platform with quality and quantity guaranteed as required, and teachers can review and assign scores, or check through the examination module and in class test module, so as to understand the students' mastery, and take this as the basis for the design and development of micro courses.

### **4.4. Design and development of micro curriculum resources**

Based on the theoretical teaching materials of the College Computer Foundation Course and the University Computer Foundation Experiment Course published by the Beijing University of Posts and Telecommunications Press, which are the fourth edition currently used by our school, the important and difficult points in each chapter are divided, and the micro course design is carried out according to the important and difficult points in Chapter IV Office Software and Its Application that students find difficult to learn in the early teaching process. On this basis, the micro curriculum design and development of the course are carried out.

### **4.5. Practice and application analysis of teaching mode**

We can apply the constructed "SPOC+Micro class" teaching mode to teaching activities, collect effective data through questionnaires, and use statistical analysis tools to generate analysis reports on the questionnaires, in order to analyze the completion of students' task points, their enthusiasm to participate in interaction, the completion rate of homework, teaching effect feedback and other online learning data, and timely modify and improve the problems found to form a relatively complete curriculum teaching system. After the completion of the platform course construction, the teaching resources can be supplemented and the structure can be adjusted at any time, and students can also consult the materials and watch the video playback at any time.

## **5. Practical effect evaluation**

The effect of "SPOC+Micro class" teaching mode is verified by setting up questionnaires, listening

experience, after class evaluation and other perspectives. 217 students from Class 1, Class 2 and Class 3, Grade 2021, Animal Medicine, Tarim University were selected as the practice objects. This questionnaire was completed by students after class through the "SPOC+micro class" teaching mode, with a recovery rate of 100% and an effective rate of 100%. 91.71% of the students think it is necessary to combine traditional classroom with information classroom; 70% of the students prefer the online and offline hybrid teaching mode; 56.22% of the students think that the information shared by teachers on the course resource platform is very helpful for you to improve your computer application ability; In the process of online (online) learning, students believe that video self-study, pre class preview, discussion and communication, in class quiz, and after class self-test module activities are all desirable. 93.55% of students believe that after class learning needs to strengthen the content they did not understand in the classroom by watching videos. Through a semester of "SPOC+micro class" teaching mode, 97.7% of students think they have made progress. In this teaching mode, 80.65% of the students recognized the links that can be previewed in advance through sharing materials on the platform, 57.6% of the students thought that the link of selecting people to answer questions before class was better, 76.04% of the students thought that the teacher's explanation of the easy to make mistakes and the key and difficult points in the homework was very important, and 70.97% of the students thought that the teacher's question answering link in the process of practical operation was worthy of recognition. The questionnaire shows that compared with the traditional teaching mode, the students recognize that the advantages of the mixed teaching mode lie in that the teaching effect is better than the conventional mode, the learning initiative is exercised, the interaction in the classroom is strengthened, the students' abilities in various aspects are cultivated, and their learning enthusiasm and initiative are more stimulated.

## 6. Conclusion

To sum up, compared with traditional teaching methods, the "SPOC+Micro class" teaching mode is more popular with students, learning from each other's strengths, making the teaching of the course of College Computer Foundation more information-based and efficient. Students can use the network teaching platform to experience a more efficient learning process, learn more rich content in limited time, and experience new educational technologies through computers, tablets, mobile phones, in order to realize "learning is everywhere on the road, in the car and in the dormitory". The introduction of "SPOC+micro course" teaching mode in the course of College Computer Fundamentals can maximize the advantages of micro courses. By making students play a leading role in classroom teaching, students' subjective initiative to acquire knowledge can be enhanced; In addition, in the process of classroom teaching, some problems closely related to students are added, problem oriented, theoretical knowledge learning is carried out, students' ability to analyze and solve problems independently is enhanced, and the deficiency of existing teaching is made up, which is of great significance to mixed teaching research.

## Acknowledgement

Project Name: Research on the teaching reform of "University Computer Foundation" course based on the teaching mode of "SPOC + Micro course", Project Number: TDGJYB2214.

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