

## Research on teaching innovation of computer basic course in higher vocational colleges

Bi Xiaoming<sup>a</sup>, Xiao Ruohui<sup>b</sup>

Institute of Information Technology, Wenzhou Vocational College of Science and Technology, Wenzhou 325000, China

<sup>a</sup>wzkzybxm@126.com, <sup>b</sup>xiaorh@126.com

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**Abstract:** This paper analyzes the characteristics of the current popular teaching mode. Combined with the advantages of SPOC and flipped classroom and according to the characteristics of students in higher vocational colleges, the course teaching mode combining sch-spoc and flipped classroom is proposed, and the teaching innovation is carried out by taking computer basic courses in higher vocational colleges as an example.

### 1. Introduction

With the popularization of information technology, the Internet, and the mobile Internet, people's learning methods and learning patterns have undergone great changes, and various new teaching models have emerged. In recent years, online teaching platforms such as micro-courses, fast courses, MOOCs, and SPOCs have emerged, providing more and more learning resources for learners to choose.

The micro-class was officially proposed by American scholar David PenRose in 1998. In 2010, Chinese scholar Hu Tiesheng introduced the teaching method. The main feature of the micro-course is to present the teaching content in a short, small, precise and flawless video. For the learner, the micro-course is conducive to the learning of the fragmented time, which is conducive to the learner to accurately select the learning content. Because the knowledge explained in the micro-course is not systematic enough, it is impossible to realize the interaction between teachers and students. For practical and operative courses or complicated courses, there is often no way to do it. Therefore, in actual teaching, micro-classes are generally used in conjunction with other modes.

The first time the fast-track technology appeared in the e-learning report released by Bersin in the United States in 2004, using the fast-track technology, the subject matter expert (SEM) can create and develop projects for training in a short time. Quick lessons are characterized by short development cycles, low professional requirements, learner-centric and diverse learning styles. The shortcoming is that the fast class is simple to make but not in accordance with the law of learning, so that the learner's learning efficiency is low. In addition, the quality of the fast class is closely related to the degree of computer operation of the content expert and the familiarity of the software.

MOOC (Massive Open On-line Course) is a large-scale open online course that usually publishes online courses to the Internet in the form of video and uses the network to share with the world for free to help people learn. The video provided by MOOC is a complete set of videos, not a single video clip. Some MOOCs contain short micro-videos or micro-courses, but these micro-videos or micro-courses must have a mainline link. In addition, the MOOC must also provide a forum for supporting interactions for teachers and students to interact and learn from each other. MOOC has the characteristics of large, open and resource sharing, which brings convenience to learners. The disadvantage of MOOC is that there are too many learning resources and it is difficult for learners to choose. In addition, due to its large-scale openness, it has many learners and difficult interaction between teachers and students. Therefore, MOOC is not suitable for subjects with complex or operability, and is more suitable for humanities.

The typical representative of the post-MOOC era, SPOC (Small Private Online Course), was born as a new style of online learning. Compared to its predecessor, MOOC (Massive Open Online Course), SPOC has an advantage in campus courses. It combines a mixed teaching model of classroom teaching and online learning to improve teacher utilization and increase. Students' output, improving students' learning ability and learning participation, and meeting the individualized learning of students can avoid many problems such as high cost and low pass rate of MOOC. The hybrid learning method under the SPOC mode has been applied in some colleges and universities, and has achieved some remarkable results, which is the core trend to promote the development of higher education informatization.

## **2. Sch-spoc mixed teaching mode combined with flipped classroom**

SCH - SPOC is developed on the basis of SPOC, including S on behalf of the autonomous Learning (Self - directed Learning), C, Collaborative Learning, Collaborative Learning) and H represents the blended Learning (Hybrid Learning), thus refers to the teaching model based on autonomous collaboration - Hybrid concept, the pattern is not only to constructivism, cognitive theory, China unicom and other different mix, but also contains a Hybrid Learning form, combination of online and offline Learning, It extends students' learning depth and promotes personalized learning

Flip class (FCM) is the “Flipped Classroom Model”, is the product of information age thinking innovation teaching, it will be the Internet open, sharing, such as freedom of organic combination of the characteristics and the essence of the education teaching to redefine the concept of the Classroom and learning, to reshape the education teaching form, the traditional “first teach me” changed to “learning before teaching”. It is class teaching system in the transformation and upgrading of the information age, with the help of information technology extends the classroom space and time, focus on “digital native” 21st century students' cognition and behavior, to subvert the traditional classroom teaching the basic structure, upside down the teaching process, reset the class time, change the study way, change the role of teachers and students. A lot of practice has proved that flipped classroom makes use of abundant information resources to make students gradually become the leading role in learning, which is conducive to fully mobilize students' learning enthusiasm and initiative, and to cultivate students' innovation ability and teamwork ability.

Sch-spoc and flipped classroom (FCM) are combined to form a new flipped classroom teaching model based on sch-spoc.

## **3. Teaching Innovation Practice of Computer Basics Course in Higher Vocational Education**

### **3.1 Current situation of computer foundation course teaching in higher vocational colleges**

The course of “computer foundation” is a public compulsory course for all majors in higher vocational colleges. The teaching content of “computer basics” includes basic knowledge of computer, basic knowledge of operating system, the use of Word Word processing software, the use of excel spreadsheet software, the use of PowerPoint presentation software, the basic application of computer network and so on.

At present, the teaching of “computer basics” is mainly faced with the following problems :(1) the source of students is complex, and students' computer skills are uneven. The students of higher vocational colleges come from a variety of sources, including those from ordinary high schools and secondary vocational schools. Both through the ordinary college entrance examination into the school students, but also through the single enrollment single examination or early enrollment into the school students. The diversity of student sources makes students' computer skills uneven. (2) students generally have a wrong understanding of “computer basics”. Now a lot of students from primary school began to accept computer education, the content of what they have learned is “computer basis” the content of the lessons learned, in middle school, high school, accepted by the computer education is still the basic computer course's teaching content is given priority to, so, in the

university, many students will think will learn the knowledge is still the original old. Also have a lot of classmates to think higher vocational college, study course is with obtain employment as guidance, the post core course that has direct use to obtain employment, must learn seriously, and resemble “computer foundation” the public compulsory course such as course, deal with casually can. (3) too much teaching content and insufficient class hours. In recent years, higher vocational colleges generally attach importance to the teaching of specialized courses, and reduce the number of class hours for public courses as much as possible. However, with the development of computer technology, the course of “computer basics” needs to teach more and more contents. In addition to the mandatory content mentioned above, students must follow the development of information technology and introduce cutting-edge computer knowledge and popular software to students. (4) the number of students is large. Due to the expansion of enrollment in higher vocational colleges, more and more students are enrolled on campus, and many classes of “computer basics” have to be taught in a combined class. This causes the teacher to teach the workload to be big, the student guides the difficulty and so on.

### **3.2 Teaching innovation of basic computer courses in higher vocational colleges based on the mixed mode of sch-spoc +FCM**

Sch-spoc +FCM mixed teaching mode is adopted for the teaching of computer foundation, which can effectively solve the problems faced by the teaching of computer foundation.

#### **(1) Construction of SPOC teaching resource database**

Using the online open course sharing platform of colleges and universities of zhejiang province as SPOC teaching resource library, a three-dimensional teaching resource package is constructed. Teachers will explain the content, according to the knowledge point recorded into a small video, for students to broadcast on demand; Electronic lecture notes, study guides, pre-class tasks and after-class tasks will be uploaded to the teaching resource database. Students can browse the content they need from their computers or mobile phones at any time and anywhere.

#### **(2) Independent study and group collaboration**

Students use three-dimensional teaching resource package to develop independent learning and master new knowledge. Due to the uneven computer skills of students, group collaboration can be adopted to carry out learning, which can help students with poor foundation to improve faster, while students with good foundation can learn more new knowledge. Under the mixed teaching mode of sch-spoc +FCM, the members of the study group help each other and discuss with each other, so that the knowledge distance between the students with poor foundation and the students with good foundation can be narrowed, while the students with good foundation can consolidate and improve the knowledge they have mastered. When appropriate, cross collaboration can also be carried out among groups. The team learning mode allows the team to finish basic learning and work together through discussion. At the same time, team crossing can help students reach the goal of mutual assistance. Make the difference better and the good better.

#### **(3) Classroom flip**

In sch-spoc +FCM teaching mode, students' learning is divided into three stages: “acquiring knowledge”, “applying knowledge” and “enhancing knowledge”. Students can learn new knowledge and complete pre-class tasks independently through SPOC teaching resource library of zhejiang open online course sharing platform of colleges and universities. In the process of learning before class, if there is any problem that cannot be understood, the teacher can cooperate with the group, or communicate with the teacher, ask the teacher for remote tutoring, etc., so as to achieve the purpose of learning new knowledge. In the early stage of learning, students have basically mastered the main content. In the classroom, it is no longer the traditional teacher's teaching, and let students become the leading role in the classroom. The teacher's more responsibility is to guide students how to use the knowledge to solve problems, but students no longer passively accept the knowledge. Students concentrate on the classroom, through discussion and interaction with teachers and classmates, to solve the problems that have not been solved in the early stage, to achieve full absorption and internalization in classroom teaching. After class, students finish the production of works according

to the knowledge they have learned and the tasks assigned by teachers, and display the results of the works. Students can comment on the works displayed by other students. Meanwhile, start the next lesson.

#### **4. Conclusion**

Turn by drawing from SCH - SPOC blended learning and classroom (FCM) research results and experience of the enlightenment, and the combination, applied to the basic computer courses teaching, build SCH - SPOC based FCM teaching pattern of “computer application foundation”, can effectively resolve the problems existing in the basic computer course teaching, improve students' computer application ability, to promote “Internet + teaching” has important practical significance

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