Research on Collaborative Learning Environment based on "Moodle+SPOC"

Ma Yongqiang

School of Computer Science, Jining Normal University, Wulanchabu, 012000, China

email: nsd-myq@126.com

Keywords: Moodle; SPOC; Collaborative Learning Environment

Abstract: After analyzing many problems in the traditional learning environment, this study introduces the SPOC teaching model and the Moodle platform. Through the construction and application of the "Moodle+SPOC" collaborative learning environment, it attempts to provide students with an online-and-offline hybrid learning method, increase students' proficiency and solve some problems in traditional teaching.

Applied undergraduate education is an important part of China's higher education system. In 2017, Jining Normal University was officially listed as the pilot school for the overall transformation and development by the Inner Mongolia Autonomous Region People's Government. In recent years, the university has actively explored the transformation path of local application-oriented universities, established the orientation and the mission of cultivating applied-type technical and skilled talents. By the integration of production and education and school-enterprise cooperation,it identifies the point of breakthrough, innovations and growth, and draws up schedule and road maps for reforms according to the development needs of different service areas and trades.

In accordance with relevant documents of the university, the School of Computer Science has carried out in-depth personnel training program revision and education and teaching reform. Since 2013, some computer-based courses used the Moodle as a teaching aid platform in the teaching process. Results of comparative experiment researches in classes showed good effect.

How to improve students' motivation for learning is one of the most important subjects in the process of education. However, the traditional teaching model exposes many deficiencies. For example, students can not actively participate in the teaching activities. They lack timely and effective communication with teachers especially after class.

In order to solve these prominent problems, this study creates a hybrid learning environment for students by constructing the collaborative learning environment based on "Moodle+SPOC", which can not only greatly improve students' learning interest, but also effectively solve the data store in the process of learning.

1. Introduction

The full name of SPOC is Small Private Online Course,a small-scale restrictive online course, in which Small is corresponding to Massive in MOOC. The SPOC is primarily for on-campus learners, while the MOOC is for learners around the world. SPOC teaching mode emphasizes the combination of online learning and classroom teaching. We can regard SPOC as a reform and innovation of MOOC teaching mode, and it is a hybrid teaching mode that integrates online with offline teaching.

Moodle's full name is Modular Object-oriented Dynamic Learning Environment[1], which is a modular object-oriented dynamic learning environment. It is an open source learning management platform.

The collaborative learning environment based on "Moodle+SPOC" is a combination of online and offline factors to support the SPOC hybrid teaching model. The Moodle is used as the network teaching platform.The whole collaborative learning environment includes the online learning environment. (online) and classroom learning environment (offline).

2. The Main Problems in the Teaching of Computer Courses

2.1. Students'lack of motivation

This study takes the students of the School of Computer Science of Jining Normal University as an example. During the research, it is found that students' learning habits in high school are not particularly good, and this old learning habit is brought to the university. It is a common phenomenon to be late, to play truant and to delay their homework [2].

The emergence of these problems may be influenced by many factors, but the lack of motivation for students to learn is one of the most important factors.

Students are not interested in learning, probably because they have wrong learning attitudes and bad learning habits, but many problems in our traditional teaching model are also the reasons for this situation [3]. Through the development of this research, we hope to be able to change the existing teaching mode and improve students' motivation for learning.

2.2. Students'primary role is not fully reflected

In the traditional classroom teaching mode, students are always in a passive "listening" state. They must listen to the teacher to get the knowledge [4]. That leads to many drawbacks in computer courses. Because computer courses are more practical, students must internalize book knowledge through repeated practice and deep thinking, so that they can truly integrate external knowledge into their own knowledge systems [5]. In that way students can gradually improve their abilities. The self-improvement of students can further stimulate students to step into the next stage of serious study and knowledge internalization, which is a virtuous cycle [6].

Therefore, the current teacher-centered teaching model must be effectively reformed to fully enhance the student's primary role. Teachers can't simply speak in the process of teaching. Class should be given in a computer room [7]. Students can verify immediately after listening to a knowledge point.

Of course, if permitted, we should try to flip the classroom teaching mode, in which students learn related knowledge after class and communicate or discuss with the teacher during the class. Students focus on "learning", and the teacher focus on making video material [8]. The discussion between students and teachers will help students to internalize knowledge.

2.3 One-sided evaluation of course performance

Computer grades are given generally based on the exam syllabus. However, there are many shortcomings in this assessment method, and it can not objectively and effectively reflect the true "achievement" of a student.

In the course of this research, we built a collaborative learning environment through "Moodle+SPOC" to assure students' dominant role. At the same time, we can use the evaluation function in the Moodle to make more objective and scientific assessment of the activities and achievements of students.

3. Research on Collaborative Learning Environment based on "Moodle+SPOC"

This research takes collaborative learning environment based on "Moodle+SPOC" as the research subject, and "theoretical research-environmental construction-environmental application-environmental perfection" as the research idea, explores and constructs an effective collaborative learning environment for computer courses in universities [9].

3.1. Research objectives

1) To provide students with rich learning resources and organize diverse activities through a collaborative learning environment based on "Moodle+SPOC";

2) To effectively solve the space-time conflict between the teacher and students through the discussion area, chat room and other functional modules in the collaborative learning environment based on "Moodle+SPOC";

3) Taking the computer course of Jining Normal University as an example, to conduct an application research toward the collaborative learning environment based on "Moodle+SPOC" and provide a new way for collaborative learning in the network environment.

3.2. Research methods

The research methods include literature research, action research, investigation research and so on.

3.3. Technical route

Through the analysis of the existing problems in the computer course teaching process, the feasibility and needs analysis of collaborative learning environment based on the "Moodle+SPOC"are carried out in the research process. And then the platform is installed,configured and utilized in the Windows environment [10]. The QQ group file function is used to set the data storage module. Students can explain and discuss with teachers from the QQ group video when encountering problems. They can also use the discussion area module and chat room module provided by the Moodlet platform to discuss related topics and problems. At the end of a semester, according to the usage, the computer curriculum resources will be redesigned and perfected before the start of the next teaching activity. The feedback from the students will be continuously collected through semesters to improve the collaborative learning platform.
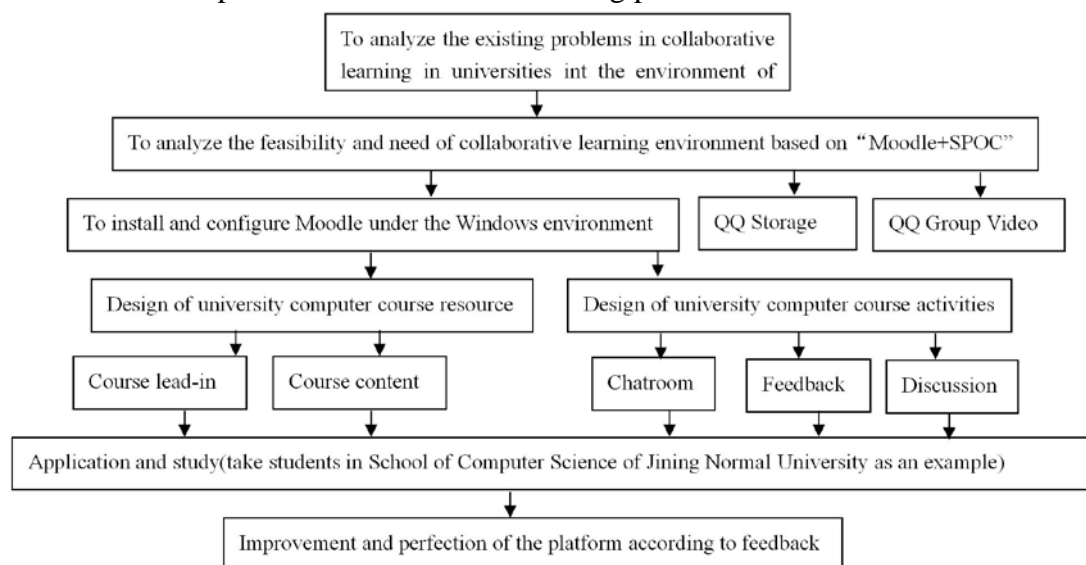

Fig.1. Technical route of collaborative learning environment based on "Moodle+SPOC"

4. Conclusion

The main purpose of the collaborative learning environment based on "Moodle+SPOC" is to improve students' learning effect, and their motivation to facilitate students to store and transmit data, and evaluate students' learning activities more objectively and scientifically. However, we should note that regardless of the teaching mode or learning mode, the continuous improvement of students' internal drive is at the core of the situation. Only if they improve internal driving ability, students can carry out sustainable learning, which is beneficial for their learning and future career. Therefore, the use of the "Moodle+SPOC" collaborative learning environment is also to improve students' learning drive and promote the formation of students' lifelong learning.

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