

Study on Mathematical Validity Learning Strategy of SPOC Platform

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Abstract—"Internet + Education" has a good development prospect. The SPOC platform can make offline classrooms more dynamic, but SPOC is currently used less in basic education. The article firstly divides the learning factors that affect mathematics effectiveness into curriculum design and implementation, individual learner characteristics, teaching resources and environment, and then points out the current learning status and problems of SPOC platform. Based on this, the effectiveness learning strategy of SPOC is carried out. The research shows that the SPOC platform teaching should pay attention to the interactive experience, strengthen the motivation drive and improve the fit with the basic education.

Keywords—SPOC; basic education; mathematics; effectiveness learning

I. INTRODUCTION

According to the Ministry of Education's December Education Information and Cyber Security Work Monthly Report, as of December 2018, 96.7% of the schools in the country (excluding the teaching points) achieved network access, and 92.3% of the schools already had multimedia classrooms. 71.2% of the schools have achieved full coverage of multimedia teaching equipment^[1], which provides a good opportunity for the development of the "Internet + Education" platform. SPOC (Small Private online Course) is the first online learning platform advocated and used by Professor Fox of the University of California, which combines MOOC thought and is the inheritance and development of MOOC, but so far SPOC platform is mainly used in the teaching of Nanjing University, Chongqing University and other colleges and universities, the application universality in basic education needs to be improved.

This article lists the current teaching status of SPOC. One is the lack of online teacher-student interaction, and the forum management needs to be improved. Second, the source of micro-video is mixed. The quality of micro-video is subject to curriculum design, curriculum implementation, and recording. Factors such as technology and teaching media production. The psychology and cognition of the students in the basic education are not yet mature, and the students' autonomy and self-control are poor. For the current situation of online learning, how to improve the effectiveness of mathematics teaching on SPOC platform is the top priority of this paper.

II. RESEARCH ON EFFECTIVENESS LEARNING STRATEGY OF SPOC PLATFORM

A. Enhance the Interactive Experience

Due to the lack of face-to-face communication, SPOC platform online learning must strengthen the interactive experience of the platform. Some studies show that the higher the online interaction of students, the better the learner's performance and academic performance, and it has a positive correlation effect^[2]. The SPOC platform limits the number of learners, and the learners are in a small virtual learning community, which provides opportunities for students to interact online and solve problems online.

1) Teacher-student, Student Interaction

How to realize online learning, the key point is Learning the construction of the forum and Big data analyzes the learner's learning behavior, which is convenient for teachers to better grasp the situation of students. First, we must ensure the timeliness of teacher responses in the forum. The continuity of mathematics learning is strong. Cultivating the online teacher assistant is to ensure the teacher's immediacy. The conditions for answering questions are also the guarantee for enhancing the interactive experience between teachers and students. Second, we must strive to increase the richness of communication methods in the learning forum. Text dialogue is the most primitive and common way. With the development of information technology, voice and video have become popular on social platforms such as QQ and WeChat. This gives the SPOC Learning Forum a certain inspiration. Third, we must maintain a harmonious and harmonious communication atmosphere in the learning forum. Students enjoy the same rights and status in this forum. Teachers should have a positive attitude towards the students' ideas, so that students are willing to communicate with teachers and share their opinions with classmates.

2) Students Interact with Learning Resources

Mathematics is an extremely abstract subject. In a traditional classroom, a good teacher can raise students' interest in mathematics. In the SPOC platform, learning video and text materials is the most direct resource for students. So whether the teacher in the video puts himself in the role of a teacher in a real classroom, sets up a question that is thought-provoking, or simply reads the PPT according to the textbook, can determine the quality of the learning resources, and the success of the interactive experience given to the

students.

At present, all major video software has a barrage option in the video playback interface. The author believes that this function can effectively reflect students' opinions on learning resources and promote the improvement of learning resources.

B. Enhanced Motivation Drive

The motivation of mathematics learning includes internal motivation and external motivation. The internal motivation mainly includes the students' interest in mathematics knowledge itself, the motivational factors formed by the magical beauty and rational beauty of mathematics in the process of learning, while the external learning motivation is mainly. It is a dynamic factor formed by rewards, rankings, and pride. SPOC online learning should pay attention to both internal motivation and external motivation.

1) Cultivating Internal Motivation--Optimizing Teaching Resources

For micro-video resources, teachers should consider online teaching features. The teaching content is carefully designed. In the multimedia display part, the dynamic mathematics software, including the geometric drawing board and the dynamic mathematics software, can be used to visualize the abstract mathematical phenomena or facts which are difficult to understand. The design of online practice questions should mobilize the enthusiasm of students, so that students have sufficient motivation to complete and ensure the quality. Peileisi^[3] takes an experience about the first-grade mathematics "understanding and addition of less than 20". The game's design, development and application research, designed a video game "Monsters Elimination" that can be run in the terminal. It shows a good result. The educational and gameplay of the game has been recognized by the students. Therefore, using the students' natural curiosity and freshness, they continue to challenge the internalization and absorption of knowledge and make the learning process more interesting.

2) External Motivation - Paying Attention to Process Evaluation

The SPOC flip classroom mode should adopt a reasonable evaluation method in practice. Emphasizing students' process-based online learning, Bojun Chen^[4] automatically records homework assignments and homework assignments as online results in the exploration of flipping classrooms. The results show that students' video browsing rate and job submission rate are as high as 98% or more. The learning outcomes are an incentive for students to increase their emphasis on online learning. In addition, the student's activity on the forum and the number of correct answers should also be reference information for the process evaluation. Fashion elements such as emoticons that are popular on social networking sites can be applied to the SPOC platform.

C. Improve Fitness Between Spoc and Basic Education

1) Reasonable Construction of SPOC Flip Classroom Mode

In basic education, if online learning wants to play a better teaching effect, it must be combined with the traditional classroom, which is what we call the flip classroom mode. The

object of this study is the flip classroom mode based on the SPOC platform. In view of the particularity of basic education students and the characteristics of SPOC flip classroom mode, the basic education spoc flip classroom mode is constructed as shown in Figure 1:

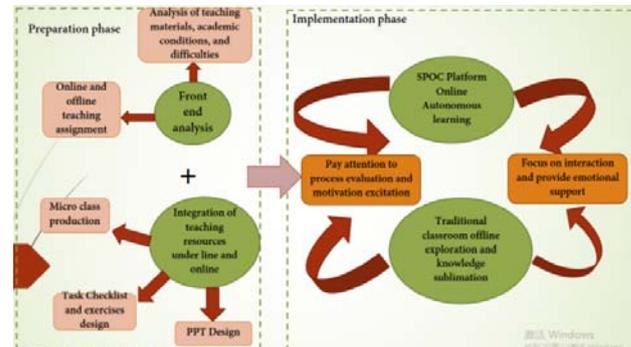


FIGURE 1. SPOC FLIP CLASSROOM MODE CONSTRUCTION

2) Maintaining Autonomy and Self-consciousness

In order to improve the fitness between the SPOC platform and the basic education, we must consider the cognitive and psychological characteristics of the children in the basic education section, especially the children's self-consciousness and self-awareness. How to keep the students in the virtual classroom efficiently, the author thinks it is necessary to strengthen the supervision and the cultivation of mathematics interests, both of which are both inclusive and internal and external. Online education has problems such as low self-awareness and low frequency of discussion. Teachers' online evaluation has certain management functions, but it is less restrictive than traditional classrooms. If SPOC+ traditional classroom mode is adopted, then online learning exists problems, teachers can emphasize, rectify, and see the effects in the classroom, and continue to form a positive feedback effect. At the same time, teachers and parents cooperate to properly supervise online mathematics learning.

III. SUMMARY

Based on the analysis of the influencing factors of mathematics effectiveness learning in basic education, this paper proposes a corresponding strategy research for the problem of low effective learning of SPOC platform, which has certain practical value for the promotion of SPOC flip classroom mode in basic education, but learning effectiveness is only one of the factors affecting the promotion of this model. Whether the family's economic level can support high computer allocation and parental support level, the extra-curricular supervision, the policy orientation of the government and the Ministry of Education, and whether the faculty members are up to standard are all factors influencing the promotion of the model. What this paper does is only a preliminary work. This research still needs more scholars to participate.

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