Flip Classroom Education Research Based on MOOC—Taking C Language as an Example

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Abstract:

Through the combination of "MOOC" and "flip classroom" and computer curriculum reform as the breakthrough point, a set of teaching methods suitable for the actual situation of computer courses in schools is innovated to improve the quality of teaching, to promote curriculum construction, to improve the contemporary college students' Ability and quality.

Introduction

At present, the majority of colleges and universities in the computer course use traditional teaching methods: teachers impart theoretical knowledge in class + a small amount of experiment - after-school assignment exercise - closed-book examination at the end. This way is not applicable for the courses which take improve the ability and quality of students as purpose.

1. MOOC

With the rapid development of information technology, especially from the Internet to the mobile Internet, to create a cross-temporal life, work and learning methods, knowledge acquisition has undergone fundamental changes. From the late 90's campus network to open classes, to the now well-known MOOC. Online education has been slowly accepted by people, as people learn a common way of knowledge. MOOC's original intention is to enable learners to get a better learning effect. Of course, for some offline cannot get help related to the learners, MOOC is undoubtedly a very good way.

(1) The advantages of MOOC

Large-scale, online, open is the MOOC's distinctive features. As a new type of learning and teaching methods, MOOC is easy to use; low cost; the vast majority of MOOC is free; cover a wide range of people; self-learning; learning resources. The traditional teaching requires teachers and students to get together

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on time and space, which requires time cost and cost of money, and MOOC as a form of online education, teachers and students is a feature of space-time separation, low cost and conducive to individual learning, Coupled with its rich and open learning resources, as learners will no doubt willing to embrace, and join them.

(2) The disadvantages of MOOC

A. Waste of resources. Colleges and universities are trying to occupy a place in the field of online education. Therefore, the current most popular MOOC, has become a "battleground." Many schools must spend a high cost to produce MOOC courses, the same course also has a different school-made version of the C language, for example, in the Chinese University MOOC website, from Zhejiang University, Harbin University, Beijing Institute of Technology University, China Agricultural University, 4 national well-known university version. For learners, only one of the versions can be learned.

B. Target is not strong. MOOC students a large number of courses to participate in learning there are hundreds of thousands of students, so a comprehensive analysis of the characteristics of learners is not possible. Students and teachers cannot face to face communication, the lack of face-to-face interaction, teachers cannot fully understand the student's learning situation, and individualized, targeted to guide students.

C. High dropout rate. High drop-out rate is also exists in MOOC. Imperfect mid-course mechanism is the root cause of illness. Incomplete drop-back mechanism to the course of trouble, especially in terms of the number of courses registered number, pass rate, excellent rate and the evaluation of the level of popularity when the course does not rule out the popularity of the course for a moment to promote the use of water. The military blind registration, won the favor of students, earn real student popularity after the water army to exit the situation.

3. FLIP THE CLASSROOM

Flip the classroom, is to re-adjust the time inside and outside the classroom, the decision to learn from the teachers transferred to students. In this mode of teaching, valuable time in the classroom, students can focus more on active project-based learning, joint research to address the challenges of localization or globalization and other real-world problems, in order to gain a deeper understanding. Teachers no longer take up classroom time to teach information, which requires students to complete self-study after school, they can watch video lectures, listening to podcasts, reading enhanced e-books, but also in the network with other students to discuss, at any time to access the necessary materials. Teachers can have more time to communicate with everyone. After the lesson, the students plan their own learning content, learning the rhythm, style and presentation of knowledge. Teachers use the teaching method and collaboration method to meet the needs of students and promote their
personalized learning. The goal is to enable students to obtain through practice more real learning. The flip-flop model is part of a larger educational campaign. It overlaps with blended learning, exploratory learning, and other teaching methods and tools in an attempt to make learning more flexible and proactive, and to engage students more strongly.

The biggest advantage of flip the classroom is to enhance the classroom between teachers and students, between life and life exchange interaction. Students take the initiative to participate in learning group cooperative learning, active internalization of knowledge, teachers also walked down the podium to guide the group to learn, and even individual counseling. However, most of the classroom resources to flip the main micro-class, learning is not enough system, and MOOC and can just make up for this deficiency.

4. FLIP CLASSROOM BASED ON MOOC

After comparing and analyzing, this thesis holds that the C language programming course produced by Zhejiang University is the experimental course of MOOC.

MOOC-based teaching model of the core idea of flip: students at their own pace, the rhythm of the MOOC teaching resources to learn through online and peer and teachers to communicate, and then with the problem in the classroom to participate in discussions, teachers in the classroom On the guide, assisted learning.

In the process of teaching, the teaching of knowledge is completed before class. Students can learn by video, lesson plans and courseware, discuss through online communication, and improve their ability to solve problems by themselves. Teachers need to analyze the problem according to the learning situation of students and design classroom activities, rather than stereotyped application of the original activities.

The whole teaching process consists of three parts: pre-class, in class and after-class. Each process requires adequate communication between the student and the teacher.

(1) Pre-class part

A. Learning of teaching resource

In the process of teaching in the flip-flop classroom, the teaching of knowledge is usually accomplished by video, lesson plans and courseware. This is done by the course instructor and the course team. The purpose is to enable students to actively and actively learning resources for teaching.

B. Targeted training in pre-class

In order to urge the students to study the resources before the class, teachers should be arranged with learning content-related exercises, the content should be based on pre-class resources, and appropriate to expand, students can use the network resources to find the answer, And teachers and students online
exchange, and timely feedback to the teacher. The purpose is to exercise the ability of students to learn independently, supplemented by teamwork.

(2) In class part

A. The design of the problem
Teachers need to be based on the content of the curriculum and student feedback from the situation before the class, summed up some real life-related issues, or students raised meaningful questions for students to discuss in the classroom. In this process, the teacher can be targeted according to the actual situation to guide the topic, and select the same problem students can be divided according to the number of groups, each group of 4-6 people is appropriate. Then, within the group of their own division of labor. The teacher instructs the study group to divide the question, the group member may carry on the study discussion according to the division of labor, finally gathers together to carry on the cooperative whole inquiry.

B. Exercise teamwork
Teamwork is a way of demonstrating the research questions by means of dialogue, discussion and debate in order to achieve the goal of learning. Teamwork is conducive to the development of individual thinking ability of students, and enhance the ability to communicate between students and individual students between the tolerance. In addition, the team cooperation on the formation of students 'critical thinking and innovative thinking, improve students' communication skills have a positive effect. In the flip-flop classroom activities, teachers need to capture the dynamics of students at any time and timely guidance.

C. Experience exchange
After the students learn and cooperate with each other, they will share their learning achievements in the classroom, and can exchange their experiences and experiences in the learning process. This form of sharing and exchange can be varied, such as: exhibitions, reports, debates, small games. In the sharing of communication, you can invite students and students of other classes or students to participate in the work unit. In addition to this line, face to face sharing, you can also organize students to share online exchange. Students will be their own learning outcomes, upload to the network platform, teachers and students after watching, you can comment.

(3) After-class part

The after-class part of the flip-flop classroom is completely different from the after-class part of the traditional classroom. In the traditional classroom, homework and examination are the main subjects. This form tends to make the students to finish the homework and examinations, so as to neglect the learning process. The flip-flop part of the classroom can be experts, scholars, teachers, peers and learners to complete their own. It is mainly based on self-evaluation and evaluation of others mainly in the evaluation process, taking into account
the students in the learning process of the comprehensive performance, such as: notes, speech, learning experience, and evaluation of its members, this Way, so that students attach importance to the learning process, and in the learning process of continuous progress.

4. SUMMARY

Allow students to learn the content autonomously through MOOC before the class. Through interaction in the classroom so that students learn the knowledge to "absorb digest." In this way, students can improve the initiative of learning, teachers can also understand the difficulties of students in advance, in the classroom to give effective counseling, classmates before MOOC to enable students to learn the content of self-learning. Through interaction in the classroom so that students learn the knowledge to "absorb digest." In this way, students can improve the initiative of learning, teachers can understand students’ learning difficulties in advance, so that can give effective counseling in the classroom. Mutual communication between students and teachers is contributing to promote "digest" knowledge process of students.

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