Academic-Oriented Classroom Teaching of Learning Tutor System

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Abstract—**Due to the impact of the epidemic, online teaching has been implemented for all courses in this semester. In the online teaching mode of "SPOC + flipped classroom", special attention has been paid to the learning status of students who are lagging behind in learning. The tutor system has been adopted, and a series of measures have been taken to help students with learning difficulties. Some attempts have been made in students' self-learning and flipped classroom control, and some achievements have been made. Meanwhile, it is further clarified that the direction of online teaching efforts is still the design of courses and the control of classroom, so as to realize students' real online learning.**

Keywords—tutor system; online teaching; flipped classroom; SPOC

I. BACKGROUND

Due to the impact of the epidemic and the requirement of suspending classes but not stop teaching, online teaching has been implemented in all courses of this semester, which has suddenly transferred teachers and students from the traditional face-to-face classroom in the past to the remote controlled online classroom. Inadaption and lack of experience are the common difficulties faced by all teachers and students, which is also an important opportunity to change teaching ideas and promote teaching reform.

For many students who are exposed to online teaching for the first time, after experiencing the freshness at the beginning, various situations gradually appear. Some students think that "online learning is not conducive to solving problems, and it is not as easy to understand the questions as teachers usually solved". They are not used to this teaching method, so they do not like to attend classes; Some students feel that the interaction between classmates is not convenient, and they cannot carry out face-to-face discussion, which lacks of sense of reality; For students who can only listen to lectures online with their mobile phones, their eyes are tired due to more classes every day, which affects their enthusiasm for learning; The effects of listening to lectures for students who live in rural areas or mountainous areas are affected by poor network.

Theses series of problems has brought unprecedented challenges to online teaching. However, this semester is also a crucial one for some students who fail to pass the exam and are faced with degradation. These students themselves have the characteristics of poor self-discipline, poor foundation and difficulty in study. Under the epidemic situation, these students may face greater pressure and challenges, and they will promote if they make progress and they will be demoted if they retrogress.

The tutor system is a kind of teaching system in which the tutor gives individual guidance to students' study, morality and life. The learning tutor system is a form of tutor system, which is mainly set up to answer questions and provide guidance for undergraduates in the process of learning professional courses. Learning tutors pay more attention to the specific guidance of students' academic and professional knowledge, mainly to guide, help and encourage students to learn [1].

In the current critical period, it is imperative to vigorously promote the new teaching mode of learning tutor system, which focuses on classroom teaching and takes the guarantee of students' successful completion of academic-oriented classroom teaching of learning tutor system into the classroom and is assisted by the learning tutor system. It is also one of the powerful measures to ensure that some students who lag behind in study can continue to keep up with the team and not be eliminated.

II. IMPLEMENTATION PROCESS

A. Build a Team

Select the tutors and the courses undertaken by the tutors, adopt a combination of voluntary and designated methods, and set up student learning groups for the courses undertaken by each tutor. One course of a tutor is a students group, and each group has 5-8 students. The students of the group mainly cooperate with the tutor to do a good job in classroom teaching and play a leading role.

In this semester, 3 tutors were selected from the teachers who undertook the courses in class 1741, class 1742, class 1841 and class 1842 of Road and Engineering. A tutoring group is set up in the course undertaken by several tutors. On the one hand, the group includes students with excellent results, and on the other hand, it includes students who fail to get more than 10 credits and have no confidence in their own learning.

B. Teaching Methods: Blending Teaching Mode of SOPC+ Flipped Classroom

Small private online course (SPOC) is also called "private broadcast course". SPOC can also be understood as a comprehensive teaching mode in which teachers conduct live and recorded courses through various platforms, such as learning link, Tencent classroom, Ding Talk class and QQ group classroom, and apply self-built micro class, course PPT, training and testing, classroom activities, forums and other teaching resources into the classroom [2-4].

Flipped classroom means that teachers reconstruct the learning process and transfer the decision-making power of learning from teachers to students. Adjust the time in and out of class to guide students to conduct extracurricular online independent learning, while teachers in class mainly focus on guiding students to analyze and discuss problems, so as to obtain a deeper understanding. The main course process can be understood as students self-study the online teaching resources provided by teachers before class; In class, students participate in the teaching interaction with teachers as the main body. As the organizer of the classroom, teachers guide students to complete the learning of classroom teaching content. The adopted methods are as follows: students teaching and evaluating, practice instead of speaking, case review, discussion and debate, project exploration, practice while teaching, teachers directing students to perform, parallel interaction, comment while doing and students asking and answering [2-4].

The main tasks of the tutoring group in the blending teaching classroom are as follows: first, be responsible for the communication between students and tutors; second, take the lead in learning the online learning tasks assigned by the tutor; third, assist the tutor to organize and coordinate various classroom activities in the flipped classroom.

C. Teaching Process

1) Online Live Teaching or Video Production

Fig. 1. Mind Map

The tutor should pay attention to the notes of several students in the tutoring group as a standard for testing the quality of the lectures. Some tutors provide students with a powerful note recording software, which supports the import of files in PDF and PPT format, and can directly record notes on teachers' PPT by typing, handwriting, recording and taking photos. It can also achieve seamless synchronization of tablet, notebook and mobile phone, and can easily review the notes at any time and place

3) Flipped classroom

At present, many MOOCS have the problem that the videos are too long. In some MOOCs, a video lasts for 40 minutes, and students may not be able to stick to it and fail to grasp the key points. In view of this situation, SPOC online teaching, whether it is live or recorded, will divide the video or content into several sections, and at each time point, the tutor sums up and asks one or two questions appropriately. The tutor of the live broadcast class carefully designed the thinking questions and discussion contents of each part, paid attention to the interaction with the students, understood the students' participation and learning state through the discussion, question and other links, timely adjusted the teaching methods, and guided the students to think and explore actively.

2) Mobilize students' concentration in online teaching and improve their learning status and learning effect

a) Using ZOOM platform to open the shared screen, students can write and delete information on the screen through this function, and the tutor can always keep track of the various questions that students have during the lecture.

b) Take notes. In class, some students are not accustomed to online teaching, and they are easy to be distracted and inattentive in learning. Taking notes by hand will help students deepen their impression. Some students not only took notes in detail in class, but also annotated them with red pen; some students took notes after class and sorted out ideas with mind maps after class, as shown in Fig. 1, it is the result of a student of a tutoring group. After the end of each class, all students will take photos of the study notes and send them to the students of the tutoring group on the same day. After being sorted out, they will be transferred to the tutor to check up. Check whether the notes taken by the students are the main points in class. If so, it shows that the students are working hard. If not, the tutor will repeat the key points in the next class.

Self-study relevant content before class in flipped classroom is a complex and onerous learning task, which is limited by time and space, and the learning situation of students is often in a vacuum. And the learning situation of students is often in a vacuum state. Due to the lack of self-study experience and the lack of self-discipline, students with learning difficulties often cannot complete the learning task timely and effectively. In flipped classroom, students' low participation often leads to the awkward silence. Even if the students of the tutoring group are constantly supervised by the tutor, sometimes they cannot drive the atmosphere of flipped

classroom very well. In view of this, the following measures have been taken:

a) *Assign learning tasks in different levels.* Assign learning tasks in different levels according to their difficulty. The hierarchical arrangement of learning tasks is also conducive to the discussion of problems among students, ensuring that all students have a certain degree of participation in class discussion [5] . In addition, a learning support group can also be set up to facilitate the arrangement of learning tasks.

b) *Construct a list of questions to monitor learning tasks.* Decompose the learning objectives and form a list of questions. Students can clearly understand which problems they have mastered and which have not through the list of questions. Discussion can be proposed in flipped classroom to improve participation [5] .

c) *Design some classroom "games".* For example, ask a student to ask a question about what he just learned, then he will ask another student to answer it, meanwhile he will give feedback to the students' answer, and then pass it down in turn, which is similar to beating drums and passing flowers, forming a discussion chain. On the one hand, it allows people to widely participate and brainstorm; on the other hand, it can solve problems, expand problems and discover problems through discussion, so as to have a deep understanding of theoretical knowledge.

Through the operation of online teaching in the past two months, the students managed by each tutor have improved their usual performance and learning enthusiasm. Two students with poor scores have reached the top 5 in their grades, which is also an inspiration and touch to other students. Although they are crossing the river by feeling the stones, the tutors who participated in the tutor system have gradually gained more and more experience.

D. *Introducing Ideological and Political Education into the Classroom*

During the epidemic, China's wisdom and China's plan shined all over the world, contributing Chinese experience and Chinese spirit to the world war against the coronavirus epidemic. China's great powers have inspired the patriotic enthusiasm and national feelings of the students. A series of courses in line with the development strategy of the "One Belt and One Road" in China have been set up for undergraduate students majoring in roads and bridges, such as project management, contract, regulation, professional foreign language, situation policy and environmental outline. In the teaching process, on the one hand, students' ideals and beliefs should be established, the era connotation of "One Belt and One Road" should be deeply understood, and students should be trained to undertake the historical mission given by the country and nation and actively participate in the construction of "One Belt and One Road" [6]; on the other hand, efforts should be made to cultivate the students' craftship spirit of being strict and conscientious, striving for perfection and pursuing perfection. Based on their own course content and characteristics, the curriculum tutors brainstormed and excavated deeply, explore the ideological and political elements and the spirits of "One Belt and One Road" from different perspectives, and gradually improve the course system and education system [7], as shown in Fig. 2.
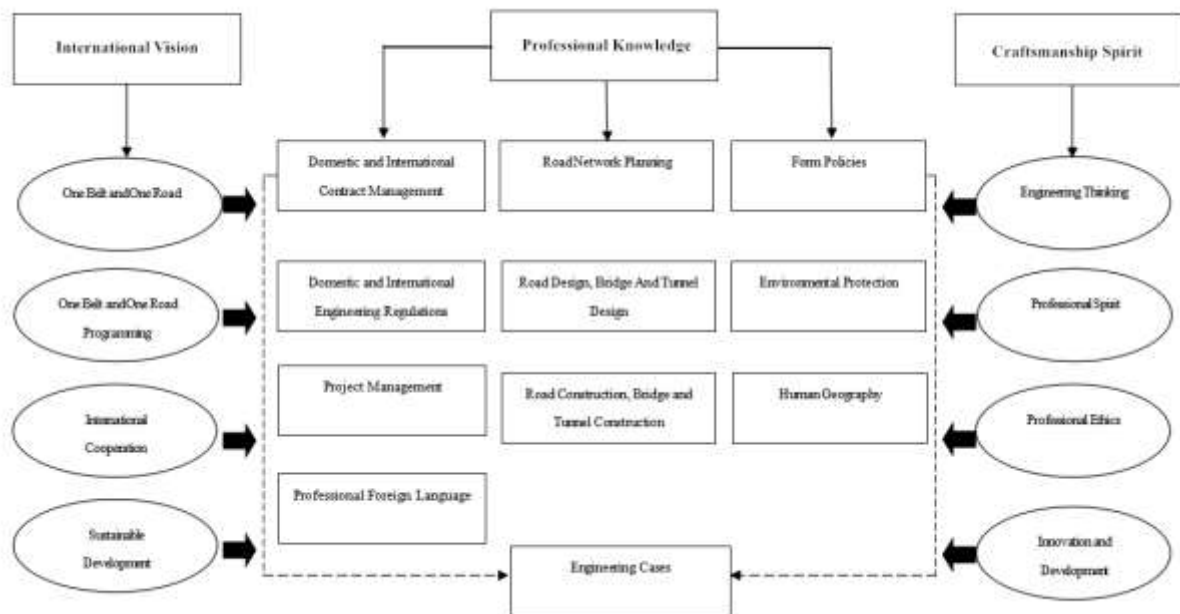

Fig. 2. Professional + education system

III. Conclusion

By introducing the learning tutor system into the classroom and setting up a tutoring study group, we have gained some achievements and experience in online teaching, flipped classroom and driving backward students to improve their learning enthusiasm. However, we also found many problems in students' self-discipline, self-learning ability and adaptability to online courses; we also found that some teachers paid too much attention to the function and use of the platform, while ignoring the most essential requirements of teaching -- curriculum design and classroom control. How to mobilize students' learning enthusiasm and classroom participation, and how to make students really online, these are the key problems required to be solved in online teaching. Although the tutor system into the classroom focuses on the control of the learning status of the backward students in the tutoring group, it also has certain reference significance for the management of ordinary students who are exposed to online teaching for the first time.

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