Study on the Inverted Class Improved by Students’ Micro Learning Resource

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Abstract. In the era of network information highly developed, the traditional classroom teaching model has been greatly challenged. The low rate of class attendance has become a common phenomenon. In the teaching of college optional courses, teachers try to use micro learning resource to change traditional teaching model. They organize the student group to work together to record micro learning resource and apply to the inverted classroom. Teachers get the experience from the teaching practice and continue to improve the quality of teaching.

Introduction

In recent years, the responsible teachers fully prepared before class and designed all aspects of classroom teaching. Teachers completed the course of teaching in the classroom in accordance with their own design, but sometimes there always was a strong sense of frustration. The primary reason is the low listen rate. Most students play the phone or play the computers in the back of the classroom. The rate of attendance is different from attention. Nowadays, college students are growing up with internet. They used to get information through network platform. “Internet + education” put forward the direction of thinking and action for the reform of the traditional teaching model and use the internet to improve the quality of school education. There have been a lot of attempts and researches on micro-class teaching in China since 2011. Through the study of various related literatures, it is found that the micro-class is a good supplement to the traditional classroom teaching. It is a new type of teaching mode with a positive effect on teaching.[1] In the “physics and human civilization” elective course, teachers try to use micro-class to change the traditional teaching model. They get teaching experience from the inverted class and continue to improve teaching quality.

The Inverted Classroom

The meaning of the inverted classroom

The inverted classroom is to re-adjust the time inside and outside classroom. The decision to learn is transferred from teachers to students. In this teaching mode, students can focus more on active project-based learning and joint research to solve the problems faced so as to obtain a deeper understanding. Teachers no longer occupy the classroom time to teach information and the information needs students to study by themselves after class. So teachers also have more time to communicate with students.[2]

The characteristic of inverted class

1) Short but effective learning resources

The resource, which is short and effective based on video, is known as the micro-class. It is usually about 5-10 minutes, only for a knowledge point or a specific. So its theme is clear, incisive and short conforming to the visual presence and cognitive characteristics. Students are not easy to fatigue and distraction [3].

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2) Relaxing pre-learning time and place

Learners are not constrained by time and space. They can choose the content they are interested in to learn, anytime and anywhere, and where is not clear can also be repeated making up the lack of traditional classroom teaching mode.

3) More effective learning

Before the class, the teacher provides learning resources, such as video, PPT, etc., students did the "information transmission" before the class. Teachers can also provide online counseling through internet to understand the students learning difficulties in advance. In class, teachers give students effective guidance. The exchange between the students can promote the absorption of students. And the rate of attendance and listen can achieve unification. After class, through pre-class and classroom learning, students can detect learning results through the question from the teachers. If the problems cannot be answered or they are ambiguous, students can come back to see the learning resources provided by the teacher to achieve the ideal learning results.

The theoretical basis of the inverted classroom

The theory of constructivism advocates the learner-centered learning under the guidance of the teacher. It believes that the acquisition of knowledge is not the process of simple "stimulus-response" from the teacher to the student, but the process of self-discovery by the student.[4]

Self-learning is a series of processes that learners decide their own learning behavior and learning content, autonomy to themselves. Students set their learning sessions, learn goals and control their own learning procedures. They continue to deepen the content of learning. The three characteristics of the process are self-reliance, self-nature and self-discipline.[5]

The Implementation of the Inverted Classroom

The implementation of the inverted classroom is roughly divided as three steps.

The first step: the provision of teaching resources

Teaching resources is important for the implementation of inverted classroom. With the continuous development of network information, online micro learning resources become increasing. Collecting and screening excellent open educational resources can greatly save manpower, material and time. But the resources and the actual teaching situation is inconsistent and cannot be directly applied. It will affect the teaching effect. According to the level of students and the school's network platform, teachers generally prepared micro learning source including teaching design and teaching content. Contemporary college students grow up with the development of internet. They get comfortable using tablet PC, mobile phones and other equipment and have a better information technology quality. In the efforts of teachers and student groups, college students can produce high-quality micro learning source. The following mainly introduces the production of the micro learning source by students.

(1) Teacher introduces the software to students

Every student has a mobile phone with a variety of functions and most students have computers. School also has computer rooms for students to use. The hardware equipment can make micro learning courses. For PPT, handwriting drawing board, recording screen software, a variety of audio and video, subtitles and other teaching software and information technology, students sometimes operate more skillfully than teacher.

(2) Students making micro learning source by themselves

a Student group

Based on the principle of voluntariness, according to the task objectives, 4-6 people make up a collaboration group and complete the production of 1-2 micro learning sources together.
b Select a topic

Micro learning source is different from the boring traditional classroom teaching and the theory of teaching. So learners can complete the entire learning process in a relaxed atmosphere. The student group can complete the process in the optional courses, especially about the exploration of the universe. The team members also choose the topic of the micro learning source based on the relevant introduction of the course from the teachers. For example, in the aspect of the Nobel Prize, students can choose the Nobel Prize in one year in specific physical or biological areas to introduce (research background, knowledge base, the introduction of winners, the contribution to society, etc.) Each part is limited to 5-10 minutes. For the exploration of the universe, they can choose to introduce the universe of mankind (such as the Pythagorean cosmology, ali center fire stark of the heliocentric theory, etc., astronomer Copernicus, Bruno, Tycho and Kepler, Galileo, etc.; Introducing the development of stars, supernovae, black holes, neutron stars, and other topics.)

c Micro Learning Source Making

Students choose the task and spend 2-3 weeks researching on the subject content of the information. They learn more about PPT, video, audio software through the exchange of teachers and students, producing the micro learning source with corresponding content. In the process of the production, the team members communicate through the online platform, such as QQ and other social media, to achieve the optimization of micro learning source.

d The Interaction between teachers and students

After the student group's effort of 2-3 weeks, one student of each group play and explain their works. Moreover, one student of each group do the judge for the micro learning source of other groups (from video audio material, the consistency of pictures, sound effects, humor and vivid, the logic of the language, the color of the picture is reasonable and so on) as grades. For the advice from the teachers and students, the group members modify after class and submit a better work as a reference for the following students. After accumulation of several years, there will be some high quality micro learning source made by students.

Summary

In order to improve the rate of listen and attendance as well as initiative of study, a lot of effects have been paid on the inverted class. On account of the proficiency in network information and the skills of the mobile phone and computer the group tries to complete the inverted classroom making and sharing together. The inverted class stimulates the student's responsibility as a study master. Through it can achieve the ideal teaching effect through the process, but there are still some problems worth thinking about.

(1) The quality of micro learning source produced by students from different professional and grades is very different.

“Physics and human civilization” is the general public education optional courses, students from different grades. Students of the same grade have different professional backgrounds and thus their skill levels of mobile phone or computer are different. Such as computer major, digital media technology and art students, they have an advantage over the quality of text, color and video than other professional students. For the same professional students of different grades, the higher the grade of student class quality is better than that of junior students.

(2) The skills in production of students affect the quality of micro learning source.

Students usually don't have teaching experience, so there are unreasonable phenomenon in production of PPT and video. They also did not know some knowledge and difficult well. They still need to require guidance and recommendations from teachers.

(3) Short production cycle causes students the insufficient preparation of content

Students usually have a variety of activities and some other academic tasks, so team members sometimes can’t have enough time to discuss the implementation of task, resulting in insufficient preparation.

(4) The sense of responsibility and cooperation awareness of team members affects the production of micro learning source.
Nowadays, the college students have strong sense of independence and there are different in their property of participation. After class, teachers can’t control students' behavior of cooperation and only via sending QQ message to urge students. That requires the team leader has a strong organizational ability so they can do reasonable division of labor to complete the task.

(5) Producing micro learning source skills of teachers need to be improved

Though teachers have rich teaching experience, their ability to make the micro learning source still should be improved. In 2015, our school teacher teaching development center organized the teaching design training of micro learning source and invited micro learning source teaching design experts Yang Dongxiao opened lecture based on "micro-curriculum production and application", "Micro-course production process "and" micro-course teaching design " Besides, the center also organized the seminar and teachers discussed and reflected on the recording of micro learning source. They sum up experience and deficiency so that they can achieve superior micro learning source in the future.

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References


