Research on the Application of Flipped Classroom Teaching Mode in 3D Animation Court

Ding Guodong

(Colleage of Media Communication, Anyang Normal University, Anyang, Henan 455000)

Abstract: *3D animation was a required course for many college majors. However, the 3D animation course had less class hours, more teaching contents, more learning difficulties and poor learning effect.The author applied the flipped classroom teaching mode to the teaching of 3D animation course, which improved students' interest in learning and achieves good teaching results.*

Key words: *micro-lectures; flipped classroom; 3D animation; teaching mode; Tetching experiment*

I.   Introduction

3D animation course is a course that many undergraduate majors have to learn, although the name is different, the arrangement of class hours (theoretical course, experimental course, project course), syllabus, key content, homework form are more or less different, but there are also some common points. For example,The related software of 3D animation production, such as 3ds Max, Maya, Cinema 4D, has huge data, complex installation, various functions, difficult interface and complicated operation process, which bring a lot of difficulties to learning. Many students basically do not have the relevant knowledge of animation, nor the basis of painting, and most of them have only seen 3D animation.There is no concept of the production process of 3D animation, and the 3D feeling in their mind is very poor. All these have brought a lot of difficulties to the learning of 3D animation, coupled with the small amount of class hours, the heavy learning tasks in the same period, the teacher's animation production steps in the classroom are too many to remember, and the students themselves often can not recall the key steps and stop learning.

In order to enable students to learn more knowledge of 3D animation production in the limited learning time and effectively improve the actual animation production ability of students, this study uses the most popular flipped classroom teaching mode to carry out the corresponding teaching reform of 3D animation course, and obtains good teaching effect, and also provides relevant empirical experience for the teaching reform of related courses.

II.   The urgent needs to carry out the teaching reform of 3D animation course

(1) 3D animation is difficult to learn and needed targeted continuous help.

3D animation learning contents are lot, difficult, and is difficult to produce results. It is easy for students to lose confidence and interest in the process of learning, and it is difficult for them to have better quality works.

The interface of 3D animation software is complex and the operation steps are cumbersome. 3D animation has a detailed division of labor in the actual workflow, which is divided into three components: model, rendering and animation. Often, one field can be competent for future work. However, in teaching, these three parts can not be separated and must be fully involved.Only in this way can they be comfortable in their work and communicate smoothly with colleagues in other processes. All these add to the difficulty of learning for students.

In the process of students'own production, providing continuous help become the key to whether the teaching achieve the desired results. But now it is almost impossible for every student to have good individual guidance.

(2) There is a big difference between the learning knowledge of 3D animation and the actual work needs.

University classes still focus on the study of basic knowledge and skills, and the lack of application links lead to the fact that students'works are for the sake of technology, and seldom touch on the practical problems of 3D animation work. Therefore, there is no problem for students to imitate the production, once they needed to design independently, it would be difficult.

(3) The cultivation of 3D animation production ability should break through the limitation of course hours.

Reducing class hours has become the focus of the reform of talent training programs in many colleges and universities. In some colleges and universities, the amount of 3D animation class hours has been reduced to about 50 hours, but these class hours are far from enough for the mastery of 3d animation. It is a great challenge

for every teacher.How to complete almost the same teaching content in the limited class hours has become a problem that every teacher should seriously consider.

(4) Self-study ability has increasingly become a necessary ability for college students.

In the information age, the speed of knowledge updating is accelerating, and a lot of knowledge may be out of date before students leave school, so the acquisition of learning ability is far more important than the acquisition of knowledge. It is more important for students to master the golden key of how to learn in the information age. The cultivation of college students' self-study ability is an indispensable part of university education.Flipped classroom teaching mode has unique advantages in improving students' self-learning ability and the ability to find problems.

III.   The possibility of developing 3D animation flipped classroom teaching mode

(1) The majority of students have the necessary hardware equipment for flipped   classroom.

The development of flipped classroom can not be separated from the support of relevant hardware equipment. The vast majority of students have purchased their own computers, and the school computer room is open to students for self-study all the year round. Students can use their spare time to study in the laboratory.

(2) Students have the relevant information technology skills required for flipped classroom learning.

With the study of computer foundation and other related courses and the continuous promotion of network course teaching mode, the majority of students have the necessary information technology ability for flipped classroom teaching mode. Students can independently use computers and networks to search online course resources, and when they encounter problems, they can also get corresponding solutions from relevant channels.

(3) Most of the students have certain self-management ability.

In the process of project task-oriented learning, most students can manage themselves, arrange their own learning and cooperate with teaching arrangements in order to complete the corresponding work tasks.

(4) Flipped classroom teaching mode and the emergence of a large number of excellent online educational resources

Flipped classroom teaching mode is a novel and effective teaching mode, which helps learners to better grasp the required knowledge and skills, and also saves a lot of classroom teaching time. Many students have a corresponding understanding of the flipped classroom teaching mode through various ways in peacetime, and they will not resist this new mode from their hearts.The emergence of a large number of online excellent educational resources also provides the possibility for the implementation of flipped classroom. For example, Youku, iQIYI, BiliBili, Tencent classroom and other website platforms have a large number of high-quality 3D animation micro-lecture resources, and teachers are also recording relevant micro-lectute resources and constantly updating them on the network.

IV.   Introduction to Relevant Concepts

(1) Micro-lecture

Micro-lecture is a new term that has just appeared in recent years. The earliest initiator in China was Hu Tiesheng. Micro-lecture is known by most people in China because he held the first micro-lecture competition for primary and secondary schools in Foshan in 2010.

Looking at the existing research literature, it is not difficult to find that there are many names for micro-lecture in China. "Micro-lecture" are used most frequently. In addition, there are many other names such as "micro course", and "micro video course". Regardless of the name, micro-lecture refers to the micro-teaching video as the main carrier.It is a new online video course designed and developed for a certain subject knowledge point (such as key, difficult, doubul, test points, etc.) or teaching link (such as learning activities, themes, experiments, tasks, etc.), which supports a variety of learning methods[1].

(2) Flipped Classroom.

Some yesrs ago, "flipped classroom" came quietly as a new teaching mode and became an academic term well known to many educators. In recent years, the flipped classroom teaching model has been widely used in teaching practice, and there have been many excellent teaching results, as well as rich scientific research results. So what is a flipped classroom? Flipping the classroom,which actually refers to students completing the learning tasks of the course with the help of various teaching resources (mainly micro-lecture resources) after class, while solving learning problems in the classroom, which is different from the previous teaching in the classroom and completing homework after class.So it is called flipped classroom. Flipped classroom can effectively mobilize students' enthusiasm and initiative in learning[2].

Flipped classroom has been widely used in the daily teaching. This topic mainly wants to obtain the practical application effect of the flipped classroom through the application of the flipped classroom in the 3D animation course, and get the relevant information of the flipped class, and can be widely promoted in the future teaching.

V. Measures for Teaching Reform of 3D Animation Course

In order to solve the above problems in the actual teaching of 3D animation course, make up for the shortage of course hours and the disconnection between the knowledge and skills learned and the actual work needs, the corresponding teaching reform measures are formulated.

(1) Reform objectives

According to the demand, the micro-lecture teaching resources for 3D animation course learners are developed and published on the Internet, and the excellent micro-lecture resources on the Internet are continuously introduced to students to realize the flipped classroom teaching mode. Make use of the discussion function of QQ group, a network platform used by students, to build a network learning and communication platform for the cultivation of 3D animation production ability.

(II) Main measures

1. Determine new course objectives

According to the new class hour arrangement in the new version of the talent training program and the new characteristics of the current 3D animation industry, and selecting some students who have learned the course to interview, understand the students'learning needs, learning attitudes and learning barriers of 3D animation, re-obtain the students' learning status and learning needs, and combine with the relevant industries.The course objectives have been revised.

2. Develop new teaching content

According to the goal of 3D animation course, we should redefine the teaching content, highlight the special needs of the profession, compress unnecessary teaching content, and focus on the cultivation of students'practical ability.

3. Developing micro-lecture resources

The important resource base of flipped classroom is the perfect micro-lecture teaching resources. The production and development of micro-lecture resources become the basis for the implementation of flipped classroom teaching mode. Therefore, when the teaching content is determined, the next most important work is to develop micro-lecture resources. The author carefully designs the new teaching content and chooses more suitable content to develop micro-lectures. For some teaching content, there are very rich video teaching resources on the Internet, which will also be shared with students for their reference in learning. However, there are many and miscellaneous micro-lecture resources on the Internet, and students can not have the corresponding ability to distinguish, so teachers need to screen them first, and give detailed instructions and learning steps, so that students can understand the learning order of these resources, so as not to get lost in the messy micro-lecture resources. In the information age, the role of teachers as gatekeepers of information has become particularly important. The author has collected a wide range of online teaching resources, screened out courses suitable for students'self-study after class, and provided more practical tutorial resources.It is convenient for students to study and review by themselves after class. First of all, the author carefully watches these courses, understands the contents of the courses and records the relevant difficulties, so as to facilitate students'consultation.

4. Micro-lecture resource release

About 200 students in the Colleage of Media Communication need to learn 3D animation courses every year, so in order to let so many students learn the knowledge they want to learn anytime and anywhere, we must find a suitable network platform to publish these courses for everyone to watch and learn online for free.

BiliBili (HTTP://WWW. BILIBILI. COM) is currently the largest video website in China, with stable service and fast video loading, so I applied for an account in BiliBili. The micro-lecture resources produced are released on this website. BiliBili also has a very convenient message function and private message function, which makes communication very easy.After BiliBili platform releases micro-lecture resources, in order to let everyone see and learn at the first time, teachers will send video links to their QQ group.

5. Predetermined learning objectives and homework requirements

With the micro-lecture resources, the most important thing now is how to make good use of these resources.

In the first class of this course, students will be informed of the assessment method of this course: still frame pictures and LOGO deduction animation. After many years of course teaching, it is found that students' inertia is actually very big, and procrastination has become the norm. The rush to catch up with homework before handing in homework has become a mode for many students.The tasks to be completed in a semester are often completed in the last few days, resulting in poor quality of homework. Therefore, in order to enable students to use these micro-lecture resources step by step, we must strictly formulate the weekly learning tasks,

requiring students to complete the quality and quantity. Every week, the class is to check the students' completion.Teachers record the completion of each time into the final score. Moreover, formulate appropriate reward and punishment measures, if this week's homework is well completed, then increase the usual results appropriately; If the completion is not good, they will use their spare time to study in the designated laboratory for one hour every day until the homework is well completed.

In addition to supervising the completion of homework in weekly classes, the another main task is to focus on explaining the more difficult problems that students encounter when they watch micro-lectures after class. It can also broaden students'thinking and help them solve practical problems more flexibly on the basis of the original micro-lectures. In the final stage of making the examination works,they are required to come to the office every week to report the progress of last week's work and make a plan for this week. The main purpose is to enable students to complete their learning tasks purposefully, systematically and step by step, with the help and supervision of teachers throughout the process.

6. Hold a competition of works in the course to demonstrate academic achievements.

After nearly a semester of hard study and hands-on practice, students can basically master the production methods of 3D animation, and the next important learning content is to improve the artistic beauty and humanistic quality of the works. The improvement of humanity and artistry is relatively more difficult than the mastery of technology, which requires students to watch more excellent works.

In order to let students have a platform to show their academic achievements, and also to communicate with students of different majors, we specially hold a contest of works in each semester, although the scope is not large, it is a good supervision and communication for students.

VI. Reflection on the Flipped Classroom Teaching Model

This teaching model has carried out for more than two years, the completion of a teaching reform experiment is really not easy. As a teacher, I has my own personal experience:

(1) Flipped classroom model requires teachers to spend more time and energy.

The design and development of micro-lectures,and the design and implementation of flipped classroom teaching mode require teachers to participate and manage carefully in every link. The flipped classroom is interlinked, and any link that goes wrong will lead to a total loss. Especially in the classroom of flipped classroom teaching mode, although teachers do not need to teach any more, teachers may be more tired.It is necessary to understand the learning dynamics of each student, to control the learning quality of each student, and to solve and summarize the problems that arise in each student's learning.

The biggest feature of flipped classroom is that students complete knowledge learning after class, but most students have been accustomed to classroom teaching for many years, and the lack of self-learning ability may lead to the failure of learning tasks. Therefore, the teacher's guidance before students study after class will play a great role in guiding students'self-study.To make students more aware of their learning tasks and learning methods. The summary in the next class will help students to grasp the whole picture of knowledge as a whole, and integrate the fragmentary knowledge and the shallow understanding of the content. However, students' self-learning ability needs to be focused on, so the scaffolding function of teachers should be gradually weakened.

(2) Teachers'supervision and perfect reward and punishment system are the guarantee for the success of flipped classroom learning.

The inertia of students themselves is a major challenge to the flipped classroom teaching mode. If the supervision of teachers in the whole process is not in place, it will undoubtedly cause students to learn freely and undisciplined, once the atmosphere is formed, it will certainly not achieve the desired learning goals. Teachers should formulate a strict reward and punishment system and pay attention to supervision at ordinary times.Students who fail to complete their learning tasks on time will be punished accordingly, such as re-learning relevant knowledge under the supervision of teachers until they learn it. Students who have completed their learning tasks well should increase their scores according to the regulations.

VII. Research summary

More than two years of research on curriculum and teaching reform has been completed, and the expected results have been achieved, which has also been promoted within the college. At present, the author is making the second edition of micro-lectures, preparing to better promote the flipped classroom teaching mode in the next semester. But because of the short time, many aspects of the curriculum teaching reform were not put forward.Later, the author will carry out further research, such as the change of teachers'roles and the analysis of social networks of online learning groups.

References

[1]. Hu Tiesheng, Huang Mingyan, Li Min. The Three Stages of the Development of Micro-lecture in China and Its Enlightenment [J]. Journal of Distance Education, 2013, (04): 36-42.

[2]. Guo Jianpeng. The Teaching Model of Flipped Classroom: Variation-Unity-Revariant [J]. China University Teaching, 2021 (06): 77-86.