Research and Practice of Flip Teaching Mode Based on MOOC -- Taking 3D Animation Production Course as an Example

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Abstract. Three-dimensional Animation Design is the core course of animation major in university. It is the key and complex of the entire animation course system.It plays an important role in the talent cultivation of the entire study term.MOOC is the most popular teaching method in the world.Hence,it is worthwhile to study the teaching of 3D animation in combination with catechism.This study focus on the effect analysis of the Massive Open Online Course (MOOC)case, building a theory of MOOC teaching design system, based on the MOOC platform for course design and combined with the example of "Three-dimensional animation" course.In this paper, the document research method is used to sort out and summarize the research situation of MOOC firstly and find the research points.Then through the questionnaire survey to understand the Chinese learners' understanding of MOOC and the subjective feelings of MOOC learning. The influence of different video recording methods on the learning effect was studied by the eye movement experiment and the test after the subject experiment.

Keywords: MOOC, 3D Animation course, Teaching method.

1 Introduction

MOOC, namely the large-scale opening of online courses, is the product of "Internet&education". The first letter "M" for Massive (Mass), the second letter "O" for Open (Open), interest oriented, who want to learn the course; the third letter "O" for Online (online), which is done online without time constraints, and the fourth letter "C" for Course (course). MOOC is the advantage of able to combine online resources for public teaching, for offline different basis of optimization, integration of teaching content of students, MOOC characteristics, set up short time, interactive courses, course content is short and rich, convenient students according to the problem organization knowledge for targeted learning. Through each detailed professional problem to guide students, this teaching mode is convenient for students to learn with a purpose in the limited time, the process is easier, the knowledge points are mastered

more firmly, and the whole learning process will transfer the dominance from teachers to students. In this teaching mode, students can focus on the creation and research of projects, develop, work together and mobilize team strength to deal with complex and comprehensive problems, so as to gain a deeper understanding, and teachers also have enough time to communicate with students. After class, students independently plan learning content and time arrangement, and learn knowledge through various ways; teachers adopt project-introduction teaching methods to meet students' needs, promote personalized learning, and let students gain abilities through practice[1].

2   Research Purpose and Framework

2.1   Methodological Framework

The author explore the design methods of flipped teaching mode for 3D animation production course and research how to improve traditional teaching by incorporating MOOC resources in flipped teaching mode.Based on theories of flipped teaching and application of MOOC in education.Literature research to analyze experiences of flipped teaching models[2].Empirical research to conduct experimental group and control group.Experimental group adopts the designed flipped teaching mode.Controlled group adopts traditional teaching mode.Research and compare the knowledge level and attitudes of the two groups of students.Case study to analyze experiences and lessons from model implementation.Questionnaires and interviews to analyze students' learning effectiveness and cognitions.Using a quasi-experimental research design with pre/post tests select 60 students as one each in experimental and control groups for interviewing.selected 30 teachers as interview to discuss the implications of the findings for both teaching practice and future research in the field of MOOC-based education for 3D animation

2.2   MOOC Teaching Mode Connotation

First, Unlike traditional small-scale offline lectures, MOOC can attract tens of thousands of learners to participate at the same time, greatly expanding the coverage of education[3]. Teachers are no longer limited to a small number of students, and students benefit from massive peer assistance.Second,anyone who wants to further their studies can participate in MOOC learning without having to meet admission standards, and time and place are also flexibly restricted, realizing the widest coverage of learning.Third,with the convenience of the Internet everywhere, MOOC make educational resources available around the clock online, and learners can participate according to their own needs. Learners can take control of their own learning pace and objectives, improving initiative compared to the passive acceptance of infusion in traditional education. At the same time, forums also alleviate the embarrassment of solo exploration[4].Diversified tests and evaluations are conducive to accurate feedback on learning outcomes, enabling teachers to specifically improve teaching quality.

In addition,Organically combining traditional classrooms with new techniques ensures interaction and participation while boosting learning efficiency.Most MOOC video content is recorded through openly taught classes, facilitating repeated learning and reviews for learners, while also increasing transparency and credibility.Some platforms provide learning analysis technology to adjust teaching content and difficulty order according to learners' behavior, meeting the diverse needs of different learners.

Finally, MOOC integrate more online experiments and simulated practice links, helping learners master operational skills and get direct feedback on their own level.MOOC educational resources are compatible with various terminal devices, allowing learners to study conveniently anytime, anywhere, such as through course apps on phones.Some excellent MOOC platforms add support for multiple languages to promote open education around the world and realize in-depth localization services.MOOC facilitate sharing and innovation of teaching philosophies and resources among different institutions, enhancing an open educational attitude.MOOC can attract enterprises to participate in course design and provision of internship opportunities, promoting employment quality and matching social demands[5].

3 The Applying the MOOC Teaching Model in the Construction of Animation

First, the teaching methods need to be improved, and the teaching schedule needs to be adjusted. It is necessary to completely change the curriculum system of "big and comprehensive" and "emphasizing theory over practice" in the training of animation professionals in the past, feature professional skills and teamwork, combine the goals of higher education with the standards of industry talents, and explore a new mode of application-oriented talent training with both knowledge and skills. It is necessary to deepen the industry standards and career planning of animators, and feature the standard modules of excellent animators to solve the design problems of the theoretical system of animation courses. The comprehensive training course of 3D animation creation should adhere to the unified teaching method of theory teaching and practice teaching, combine theory with practice, arrange the course with the 1:1 ratio of theory and practice teaching, make full use of the characteristics of 3D animation teaching, enable students to learn in practice, teaching method open and lively, and involve the students, MOOC and network resource sharing to realize the teaching goal. Second, the teaching content should increase the cooperation projects with enterprises. The previous teaching methods are not very interactive, and the teaching results are not significant. At present, 3D animation creation comprehensive training teaching due to the limitation of previous course teaching mode, in the course learning and training, failed to reflect the ultimate goal of the course, teachers often focus on how to, to knowledge integration into the creative training, and ignored the students' innovative thinking digging and different industry requirements, cause with enterprise requirements. In addition, the previous course teaching cannot ensure that students have enough time to discuss with each other, the creative process often can not be deeply

developed, and the interaction between teachers and students is not enough. After the introduction of MOOC teaching mode, 3D animation creation comprehensive training courses can be strengthened in the process of teaching university-enterprise cooperation education mode, to project production as the main body of the teaching mode, according to, digital research in the school for the platform, build the school, by the triad practice teaching mode, make the design practice optimization, the early stage of the project set, production, late propaganda as students compulsory practice link, college training and enterprise personnel demand seamless docking of choose and employ persons. Thirdly, the course needs to combine all kinds of new hardware and software equipment to improve the effective feedback of the course, so as to improve students' enthusiasm for learning. At present, some courses of animation major fail to form a more intuitive feedback system. Different from the previous teaching mode, MOOC can evaluate and test students' learning results according to their comprehensive ability. The projector in the experimental training center, iPhone and other equipment for teachers and students can realize the requirements of MOOC classroom through AirPlay. Students can get the feedback information from teachers in time, communicate with other professional members and enterprise designers through the Wechat group, and obtain the relevant digital information by scanning the QR code, which is very convenient[6]. In addition, the course to expand the students' professional quality as a starting point, the 3D animation creation, training course teaching objectives, teaching content, teaching methods, teaching methods, teaching and performance evaluation scheme reform, can make three-dimensional animation creation comprehensive training course teaching for different grades, different professional, different levels.

4   Presentation, Analysis, and Interpretation of Data

In the process of selecting the topic of the thesis, the author learned about the 60 students of the graphic design major from 30 different University in China, and found that there are some deficiencies in the current "three-dimensional Animation production" course of the department, which are mainly reflected in several aspects:

1.lack of after-class guidance from teachers;
2.learning resources are not rich enough;
3.students' practical ability is not strong.

Therefore, the teacher proposed to design the course of three-dimensional Animation Production into the current popular MOOC course.The students believe that if there is an online course platform to make up for the shortcomings of the existing courses and improve the students' interest in learning and independent learning ability, they are very willing to try it.The birth of MOOC can be traced back to the end of 2011, when Stanford University professors opened an artificial intelligence course on the Internet. This is the first time that MOOC appeared in the public view, which has attracted the attention of learners around the world. This phenomenon also inspired the construction of three major MOOC platforms abroad. In 2012, China followed the development trend of the world education field and started the establishment of

MOOC[7-10].With the dual support of the Ministry of Education and educational enterprises, the first domestic MOOC platform was launched in 2014. With the continuous development of MOOC, according to the statistics of 2019, the number and application scale of MOOC in China has been the first in the world, with more than 1000 universities offering MOOC, more than 15000 courses and more than 200 million students. At the beginning of 2020, the Chinese government responded to the outbreak of the COVID-19 by making the decision of "suspending teaching and learning". All colleges and universities implemented online teaching. In the spring semester of 2020 alone, 1.08 million college teachers opened 1.1 million online courses and 22.59 million online students participated. At this time, the number of online courses has also increased to 32000, and the number of students has increased to 490 million, which has played a huge role in helping Chinese universities to overcome the crisis of the epidemic and alleviate the anxiety of online education resources. Therefore, we should pay attention to the curriculum design of MOOC, and promote its continuous optimization and improvement.

Table 1. The respondents' Teaching Effectiveness-average score.

Respondent	Score (Normal Model)	Score (MOOC Model)	W	Lift
Students	75.55	86.36	0.25	2.70
Teaching method	80.65	85.34	0.25	1.17
Teacher	78.52	85.56	0.25	1.76
Curriculum group	75.25	90.52	0.25	3.82
Total/Average	77.49	86.95	1	9.45

As Table 2 shown, the Curriculum Group is the most satisfied, comprising 3.82 Lift towards the Teaching Effectiveness. Meanwhile,students have been satisfying for 2.7 lift. This implies that majority of them are satisfying with the MOOC teaching method.

Table 2. Teaching-reword average score in MOOC Model.

Indicators	Description
effect on vocational development	Satisfaction
Strengthen the close relationship with the students	Satisfaction
Strengthen the relationship with the animation Industry	Satisfaction
the close relationship with the film festive	dissatisfaction
Strengthen the close relationship with the Director	Satisfaction

Table 2 presents the respondents' profile according to their number of years as animation teacher. As shown, 20 people have been teaching for 4-6years, comprising 50% of the total population. Meanwhile,5 people have been teaching for at least two years while 3 or12.5% have been teaching for 10 years. This implies that majority of

them are beginning teacher since they only have 4 years or less experience in teaching.

Table 3. Statistical table of the selection method of 3D Animation Production

Q	Option	F	%
Which teaching method do you think the course of 3D Animation Production is suitable for?	General teaching MODE	50	29%
	MOOC	49	28%
	SPOC	34	24%
	Interactive MODE	20	12%
	Inquiry MODE	15	7%

As Table 3 shown in the table, the questionnaire data shows that the students' preferences for the five teaching methods are ranked as: General teaching MODE is the 29%,It shows the demonstration method and appreciation method can present the teaching content in variety, intuitive and interesting, which is the preferred teaching method of all students.

5   Conclusions

The MOOC teaching mode is more suitable for the construction of animation courses. Compared with other majors, the animation major needs more teamwork and a clear division of labor. Due to the comprehensive characteristics of 3D animation, the introduction of MOOC teaching mode is more conducive to completing the teaching task of the course, reflecting the course purpose of comprehensive practical training of 3D animation creation.Connect various basic courses in the early stage, and introduce the project resources of the enterprise, so as to strengthen students' learning effect horizontally and vertically, boost the effective combination and implementation of practical training and theory, and pave the way for students' graduation design in the later stage. Second, MOOC can combine their technical advantages to provide students with rich learning resources and broaden the scope of communication. The online communication and learning of MOOC has established a complete digital platform for students and enhanced the learning effect. At the same time, teachers should timely update the teaching design in combination with the current hot topics in the society, and ensure that both the content and the form have the characteristics of The Times. MOOC can encourage teachers to form a course team and compile relevant textbooks suitable for animation undergraduates based on the teaching content.

Acknowledgments

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