

Study of The University Digital Media Art Course Model Based on the Project-Based Learning

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Abstract: *Digital Media Art is a highly practical subject. The students trained should have the ability of knowledge application, practical operation, teamwork, and lifelong learning. They should have the ability to hard work and a strong sense of responsibility in terms of personal qualities. The application of project-based learning in the course of digital media art can better train students' abilities in these aspects. This paper discusses the overall implementation plan of the four-year project-based learning in Digital Media Art in university and elaborates on the implementation steps and Strategies of the project-based learning with the course "H5 Interactive Design" as an example.*

Keywords: *Project-based learning, Digital Media Art, Curriculum Innovation, Teaching resource construction*

1. Introduction

Today with the rapid development of science and technology, digital media art has been unprecedented development. It is a new art form of human rational thinking and artistic thinking (Peppler, 2010). Digital media art has been set up as a new major in many Chinese universities since 2002(Wang Y, 2019). The author's university began to recruit undergraduates majoring in digital media art in 2015. As one of the pioneers of this major, the author participated in the training plan and the compilation of the teaching syllabus of this major, and undertook some courses of digital media art, so we gained some teaching experience.

The development of digital media technology, the connotation, and extension of the concept of digital media art is constantly enriching and expanding, and its application fields have been highly extensive, mainly in the fields of digital media art that are related to the creative industries (Wang Y, 2019). For example, advertising design, architectural and industrial design, network media design, multimedia product design, CG film and television special effects, animation design, interactive game design, clothing, and textile design, and digital information design (Wang Y, 2019). All these fields need digital media artists with their characteristics. The corresponding jobs include digital media art production companies, television stations, media advertising companies, digital film, and television companies, multimedia courseware production companies and game development companies, and virtual reality technology enterprises (Fan Y F P R Z, 2009). These enterprises are generally small and medium-sized, mainly to do some projects to keep the companies running. Therefore, project-based learning is especially suitable for the teaching of digital media art.

Project teaching focuses on the concepts and principles of learning research and solves problems by students participating in the investigation and research of an activity project, to construct their knowledge system and apply it to the real society (Thomas J W, 2000). Studies have shown that qualified digital media artists need have good industrial adaptability and cultural knowledge accomplishment; in terms of professional skills, they should have practical operation ability, team spirit, independent learning ability, independent innovation ability; and in terms of personal quality, they should have the quality of hard work and a strong sense of responsibility. We found that these abilities can be better exercised in the course of project-based teaching.

2. The characteristics of digital media art courses

In today's digital environment, digital media is a method, tool, technology, but also a media. Digital media art has a wide range of cross-industry practical applications, such as digital media art of film and

television, advertising, network interaction, multimedia, games, video packaging, special effects of film and television and education, scientific research, military, and other fields. The course of digital media art major is a combination of art and technology. The rapid development of technology has brought challenges to practical teaching in many colleges and universities. Project-based learning can not only cultivate students' awareness of market competition but also expand teachers' practical teaching content through the timeliness of tasks (Blumenfeld P C, 1991), to achieve the goal of win-win between teachers and students.

3. The overall implementation plan of project-based learning in the four-year study of digital media art major

The project teaching method requires students to have certain professional skills. In the process of project implementation, students can get comprehensive training and improvement by combining the theoretical knowledge they have learned with practical problems in real life. According to the characteristics of project-based learning, four-year college teaching can be divided into three stages.

3.1. Preparation stage

In the first year of university, teachers guide students to learn all kinds of basic knowledge. It is worth mentioning that in the practice of theoretical learning, we find that the learning method combined with a mind map can greatly improve students' learning efficiency and cultivate students' good habits of current thinking. At the same time, at the beginning of the freshman year, students can start to contact various projects. It mainly includes the following aspects:

Innovative training programs for college students at the school level, provincial level, and national level. Funds can be obtained through a project declaration, which is an essential condition for project initiation. Take our university as an example, every year there are some undergraduate practical innovation projects, and students can get 8,000 RMB project funding.

Actively participate in various types of creative and innovative competitions. In the process of participating in the competition, the students' union continually improves its projects according to the requirements. If the works can be highly praised, it will significantly stimulate students and stimulate their enthusiasm for entrepreneurship.

The real projects of enterprises can be achieved through the combination of schools and enterprises to achieve the goal of win-win between students and enterprises. In this way, students will be familiar with the operation process of the project and accumulate relevant knowledge. Through the study of various cases, students will be more explicit about their learning purpose and determine their professional direction.

3.2. Improvement Stage

Professional courses have been offered in the second and third grades of universities, and students' professional skills have been gradually improved. In this process, students can begin to participate in real projects that are appropriate to their level, such as digital media art short film production, interactive interface design, advertising creative planning, C4D film, and television packaging, game creation, digital image editing, etc. These tasks require a high comprehensive ability of students. Students must learn following the whole process of project production in the course of project bidding: from communication with customers in the early stage, market research, the determination of design scheme, project production, and feedback from the later stage of the market need to personally participate.

The second and third grades of the university are the critical period for cultivating students' professional skills and consolidating their professional foundation. According to the needs of professional development, teachers try their best to select real projects for students and formulate detailed practical teaching plans. Through classroom discussions and group discussions, students are guided to grasp the dynamics of the market and industrial development on time, to improve their practical solutions.

3.3. Professional Practice Stage

In the fourth grade, students have entered the stage of graduation design creation and employment. After three years of project teaching training, students are familiar with the project production process of

design companies, digital media art companies, game companies, advertising media companies, and other related industries, and have made clear their professional development direction and career planning. Some students can directly choose the case of project teaching as the topic of graduation design; some students can enter the unit practice through their contacts and teachers' recommendation; some students can enter the studio practice set up by teachers; some students have accumulated a high reputation through the practice of projects, established their teams, and provided conditions for individual entrepreneurship.

4. Practical teaching process of digital media art major based on project-based learning

A deliberate and public interplay between imagining and expressing is generally produced as a method for practice and research in the digital media arts (Brown A R, 2009). Teachers should first determine the students' learning objectives, starting from the students' learning objectives, to organize teaching and select appropriate learning content and learning methods. In the whole process of the project, teachers should pay attention to evaluation and feedback, and continuously reflect on and revise the teaching design (Bell S, 2010). For example, in the course of "two-dimensional animation production" in digital media art major, Project-based learning can adopt the following process to teach.

Firstly, teachers can choose research projects according to the curriculum content. For example, students can choose some corresponding tasks in the drawing stage: cartoon character design, logo design, cartoon icon design. With the deepening of learning, we can do some more difficult projects, such as short film production, illustration design, and so on. Choosing projects suitable for students' study and research is a critical factor in the success of teaching, so we should be cautious. Teachers can first analyze students' learning objectives, initially formulate learning content, and on this basis, conduct pre-tests and interviews with students, to know more about students' foundation and needs. According to the previous work, the projects selected by teachers will be more suitable for students' learning and participation.

After the project is determined, teachers should make a more detailed and feasible teaching design according to the project. In the process of teaching design, teachers can gather ideas, such as using the way of communication between colleagues in the teaching and research room, to make the teaching design as close as possible to perfection.

In the process of teaching practice, there may be some unexpected situations. For example, due to students' misunderstanding of the project, students' works deviate completely from the original intention of the project. Others are not serious about doing the project, but only completing the task-based homework. To enable students to complete tasks will, complex tasks can be used in group collaborative learning. Social learning or learning as part of a group is an important way to help students gain experience in collaboration and develop important skills in critical thinking, self-reflection, and co-construction of knowledge (Brindley J, Blaschke L M, Walti C., 2009).

There are seven basic modes of collaborative learning: competition, debate, cooperation, problem-solving, partnership, design, and role-playing. Effective collaborative learning facilitates students to use diverse different learning styles and accommodate diverse cultures more easily (Palloff & Pratt, 2005). Further, skills gained from the experience of collaborative learning are highly transferable to team-based work environments (Shaw, 2006). A cooperative learning lesson should follow five principles and elements: 1. Positive interdependence 2. Individual accountability 3. Face-to-face promotive interaction 4. Appropriate use of social, interpersonal, collaborative, and small-group skills 5. Group processing (Lie A, 2002.). Competitive mode is conducive to stimulating students' learning enthusiasm and initiative. In the process of task completion, team members need to cooperate, help each other, promote each other, or cooperate according to the nature of the learning task. After the completion of the project, each group needs to select a representative to report on the project of the group. The result evaluation of the project can adopt the way of teacher evaluation and student mutual evaluation to select the best scheme, to cultivate students' competitive consciousness. Teaching following the above model can stimulate students' interest and enthusiasm in mastering knowledge, and enhance their abilities in all aspects in cooperation. To improve the teaching level of teachers, other teachers can attend and watch the course in the teaching process. By watching the class, other teachers can give suggestions on how to optimize the teaching.

After the end of teaching practice, teachers should conduct post-test and interview analysis on students, review the overall teaching effectiveness, write corresponding reports, and share the results with other teachers. Through the reflection, research, and evaluation of the whole teaching process, we can make more adequate preparations for the next cycle. With this method, teachers can revise teaching

design and practice in the next round of new project teaching, to improve students' learning effect and teachers' teaching level (as shown in Figure 1).



Figure 1: Teaching Process of Digital Media Art Major Based on project-based learning

5. Practical teaching strategies of digital media art major based on project-based learning

5.1. Building Project-based Practice Case Resource

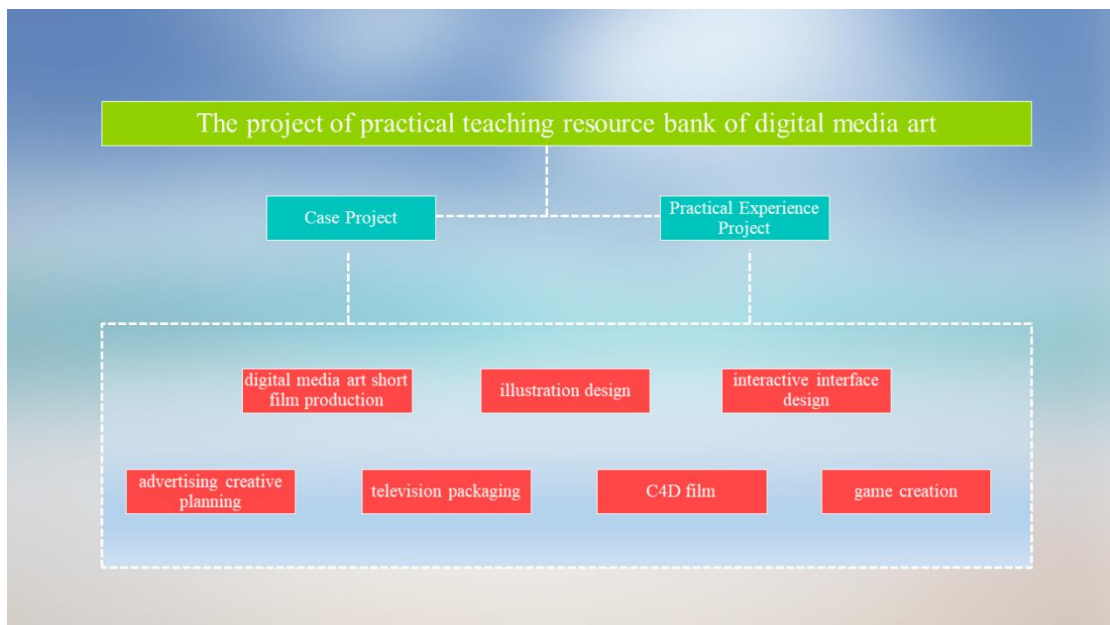


Figure 2: The project of practical teaching resource bank of digital media art

The project teaching method provides students with a large number of realistic and effective practical cases and promotes them to realize "knowledge internalization" in participating in the actual project. The abundant resources of project teaching can be used to enrich the practical teaching content of teachers majoring in digital media art, to construct a project-based practical teaching resource bank, and to increase the opportunities for students to practice. For example, in project teaching, there are many design schemes for interoperability, and the link of interactive discussion facilitates the construction of the resource pool. A variety of schemes of the same case can broaden the scope of students' thinking. Students can compare their schemes with others and find out their gaps.

The project of practical teaching resource bank of digital media art specialty mainly consists of two parts: case project and practical experience project. Case projects are those that have been completed by teachers and students in the past and can be retained as examples. Practical experience is the project that enterprises and markets are currently working on (as shown in Figure 2).

Teachers should choose appropriate tasks according to the needs of the practical teaching plan of the digital media art specialty. According to the content and objectives of the course, we can choose several cases, such as digital media art short film production, illustration design, interactive interface design, advertising creative planning, C4D film, and television packaging, game creation, and so on. Teachers classify these projects in the form of cases and add them to the teaching resource bank.

5.2. Creating a Teachers' Guidance Studio

A studio is an important form of a combination of production, specialty in teaching, and research in digital media art. Many famous companies started and developed from the studios. Practice shows that the studio system has played a good role in the cultivation of students' practical ability. Team studio is the main studio in our department. Teachers and students with certain project production experience have relatively strong competitiveness. Students can choose interesting projects according to their hobbies and work in teams to complete them.

Students can also create their personalized studio, personalized studio gives students more choice space, also in line with students' personality characteristics, can stimulate students' creative enthusiasm.

6. Conclusion

In the process of teaching, students must take the initiative to operate to internalize the teaching content into their knowledge. That is to say, we should not only rely on teachers to teach but also grasp the students' time after class so that students can be more active in learning after class. To achieve this goal, on the one hand, students need to have a high degree of self-consciousness, on the other hand, teachers have to rely on supervision. The ultimate goal of teaching digital media art courses is that students can independently complete relevant design projects of digital media art majors. These contents include digital media art short film production, digital media installation art, illustration design, interactive interface design, advertising creative planning, C4D film and television packaging, game creation, and so on. There are too many contents so we cannot require students to become experts in every aspect, but through project learning, students can have a deep understanding of the needs and current situation of various industries. In teaching, we should pay attention not only to the learning of explicit courses but also to the learning of potential courses, which is what we usually call tacit teaching. In the whole learning process, students will not only learn the relevant theoretical and practical knowledge, but also learn the rules of designing projects, and understand the needs of society in the process of communicating with others and customers.

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