

# Analysis on the Innovative Application of Industry- University-Research Collaborative Education Mode Taking Digital Media Art Specialty as an Example

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## ABSTRACT

The first digital media art major in China was approved by the Ministry of Education in 2002. After more than ten years of development, a more reasonable system has been formed from the formulation of talent training program, the construction of curriculum system, the construction of teaching team, and the construction of practice and training. However, with the development of the industry-university collaborative education project of the Ministry of Education, various universities and relevant scholars have also conducted explorations and researches on deepening the industry-education integration, promoting university-enterprise cooperation, reforming practical teaching methods, and optimizing the mode of talent training. Combining with the industry-university-research cooperation model, this paper takes the digital media art major as the research object, explores specific implementation plans for innovative applications in professional talent training, curriculum system construction, and practical training projects, so as to provide certain reference for the application of industry-university-research training model in digital media art major in the future.

*Keywords: digital media art, industry-university-research cooperation model, industry-education integration, school-enterprise cooperation, practical training*

## I. INTRODUCTION

In the information age, with the rapid development of digital technology and the Internet, human beings have entered the digital age, at the same time, the form of digital media art has gradually entered people's vision. It can be said that the development of digital media art is gradually changing people's thinking mode and communication way for art, which has become an indispensable part of today's life. There is a huge demand for relevant professionals, so the digital media art specialty emerges as the times require. Although the digital media art major and related education started late in China, it has developed rapidly with a wide range of professional applications and a large demand for talents. However, there are inevitably various problems in professional education and personnel training. In today's society, with the increasing demand for digital media art professionals, as well as higher and higher requirements for the comprehensive quality and professional ability of talents, colleges and universities need to adjust the original talent training mode, change the education and teaching methods, and strengthen the innovative construction of the specialty according to the market demand. Only in this way can we meet to the

market demand and the demand for professional talents under social development.

## II. DEVELOPMENT STATUS OF DIGITAL MEDIA ART MAJOR

China's digital media industry started relatively late. However, after several years of development and growth, the relevant education and research in the field of digital media art has shown a certain scale. According to the data of the "sunshine college entrance examination" platform, as of 2017, the undergraduate education of digital media majors is mainly on "digital media art", and the junior college education mainly focuses on "digital media art design".

With the rapid development of digitalization in the information age, the demand for talents in the field of digital media art is increasing. The majors related to digital media develop rapidly and have great potential. However, with the continuous development and growth, there are inevitably some problems, which are mainly reflected in the formulation of curriculum system, the cultivation of artistic quality, the improvement of teaching level and structure, and the docking of talent training mode and social demand for professional

talents. From the development of majors related to digital media and personnel training in recent years, it is not difficult to see that the overall understanding of the professional curriculum system needs to be strengthened; the curriculum structure is lack of systematic composition; and many professional courses present the situation of collapses and isomorphism, lacking of organic combination. It is necessary to integrate and adjust the courses with problems through continuous improvement. At the same time, most universities still take lecturing as the main teaching mode, and the content of practical courses and practical training projects in the teaching process cannot be combined with the social demand. Therefore, it is difficulty to meet the social demand for the professional ability of talents. A series of innovative education researches centering on the mode of industry-university-research collaborative education have been gradually developed and improved in digital media art major.

### **III. THE NECESSITY OF EXPLORING THE INDUSTRY-UNIVERSITY-RESEARCH COOPERATION MODE FOR DIGITAL MEDIA ART MAJOR**

Digital media art major is a comprehensive discipline covering "nature, society and humanities". Digital media art can organically combine technology and art. For the humanities, digital technology is "body" and art is "media", thus forming the digitization and artistry of information. Digital media art has the professional characteristics of the integration of digital technology, visual art and media. It takes the Internet, interactive media and other emerging technologies as the means of creation and communication, integrates various artistic forms such as pictures, images and sounds as its creative language, and has diversified communication effects.<sup>1</sup> At the same time, digital media art major is in line with the development trend of information society and education and teaching guidelines, combined with the industry-university-research collaborative education, as well as the concept of vocational education in colleges and universities emerged as the times require. Therefore, on the basis of its own characteristics of the times, it is supposed to have the industry-university integration mechanism, school-enterprise cooperation mechanism and other collaborative education mechanisms. However, in the process of vigorously developing specialty construction in the early stage, some problems inevitably exist, which lead to the disjunction between teaching and practical application, and the trained professionals cannot meet the market demand. Therefore, it is more urgent to explore the new mode of industry-university-

research cooperation in the aspects of specialty construction, personnel training, teaching reform, school-enterprise cooperation, etc. Through the cooperation of industries, schools, scientific research institutions, etc., they can play their respective advantages to form in-depth cooperation between enterprises, universities and scientific research institutes, promote the effective combination of various production factors required for technological innovation, promote the training of skilled talents and students' professional skills and abilities, as well as practical training and experience, and complete teaching tasks, corporate projects, etc. Only by establishing the talent training objectives, curriculum system and education and teaching mode oriented by market demand, can we keep up with the development of the times, achieve the purpose of in-depth school-enterprise cooperation and collaborative education, and further develop digital media art specialty through industry-university-research cooperation mode, and make contributions to regional economic development.

### **IV. INNOVATIVE EXPLORATION OF INDUSTRY-UNIVERSITY-RESEARCH TRAINING MODE OF DIGITAL MEDIA ART MAJOR**

With the continuous development and innovation of the industry-university-research training mode of digital media art major, it is necessary to adhere to the cultivation of compound talents with solid professional technology and professional ability to meet the market demand. For this purpose, it is required to carry out innovative exploration and research. This paper proposes that only by implementing further reforms in both theory and practice, can we better cultivate outstanding professionals through the industry-university-research training model.

In terms of exploration of theoretical innovation, it is required to take the service area development as the purpose, fully realize the importance of school-enterprise cooperation, comprehensively analyze the feasibility of industry-university-research collaborative education, strengthen the guidelines and top-level design, and construct relevant policies and specific measures. In the construction of theoretical guidelines, there are the following contents.

#### *A. Paying attention to top-level design and improving policies and measures*

For example, industry and enterprise experts should be invited to participate in the formulation of talent training program, and curriculum reform and improvement should be combined with the needs of social employment, so as to build a reasonable and practical collaborative education system. At the same time, colleges and universities should formulate corresponding incentive systems and policies to

<sup>1</sup> Li Zhenpeng. Thinking of Media Art Teaching in the Framework of Fine Arts [J], *New Fine Arts*, 2014, (2): 121.

encourage teachers to continuously improve their teaching and research abilities, enhance the cultivation of "teachers' quality", and build a "double-tutor" teaching team. In order to adapt to the trend of industrial development, colleges should take the market demand as the guidance to carry out professional curriculum setting and optimization, and improve the specific implementation measures of school-enterprise cooperation. At the same time, the relevant government departments should play a positive role in promoting the industry-university-research collaborative education process, such as improving the relevant laws and regulations on school-enterprise cooperation, clarifying the rights and obligations of both sides of the school and enterprise, and providing necessary financial support and policy and regulation support.

*B. Fully recognizing the importance of school-enterprise cooperation and comprehensively analyzing the feasibility of collaborative education*

In the past, most of the school-enterprise cooperation mode is to send students to enterprises for internship, and the professional knowledge and skills learned by students in school cannot be effectively connected with the work content during the internship, and students can not apply what they have learned. Therefore, it is necessary to fully understand the importance of school-enterprise cooperation, further reform the mode and content of cooperation, clarify the "dual subjects" of enterprises and colleges, and analyze its feasibility on the basis of fully and comprehensively understanding the concept of "collaborative education", and formulate specific implementation plans to change the previous cooperation mode. In the process of industry-university-research collaborative education, it is necessary to change the deadlock of doing things in their own ways, cooperate with each other, set up a leading group, formulate specific cooperation contents, implementation plans, guarantee measures, etc. and combine with modern apprenticeship, order-oriented training and other modes. Through a series of measures, it is helpful to solve the shortage of human resources, reduce the cost of employment and management, and further promote the cooperation between enterprises and universities. On the other hand, colleges and universities can reduce the cost of personnel training through in-depth school-enterprise cooperation, and improve students' practical ability and professional technology application ability through practical training and practice.

*C. Strengthening ideological and political education and connotation construction*

In recent years, colleges and universities should pay attention to the ideological and political education in the process of personnel training. The students of digital media art have certain technology and unique

artistic thinking to deal with digital information, they should be guided and cultivated in ideology and other aspects to improve their comprehensive quality and healthy personality, as well as correct ideology and ideological morality. At the same time, in the aspect of connotation construction, colleges and universities should constantly improve the curriculum system, enrich the teaching contents of public courses, professional basic courses, professional core courses, professional development courses, elective courses, and organize students to participate in various professional competitions at the national, provincial and municipal levels, so as to broaden students' horizons, stimulate learning enthusiasm, and carry out the construction of campus culture to create a good campus environment of industry-university-research collaborative education.

In the exploration of innovative practice, colleges and universities should pay attention to the comprehensive reform and innovation of teaching and practice. In the aspect of teaching, it mainly includes the exploration of curriculum system, teaching links and teaching methods in the teaching reform. In the aspect of practice mainly, it includes the exploration of innovative modes such as practical training courses, practical training projects, school-enterprise joint studio and so on. In the teaching reform and innovation, professional core courses, such as animation design, film and television production, graphic design, play an important role in the overall project system of digital media art major. In this kind of course, it is mainly to cultivate students' innovative thinking and operation ability. However, in the actual teaching, it is found that although such courses account for large class hours, the training effect of students' practical ability in actual teaching is not good. Therefore, this research proposes to try to reform and innovate in the following aspects through the reform and improvement of teaching mode and teaching method, and the combination of industry-university-research collaborative education mode.

*1) The construction of diversified and multi-dimensional curriculum system:* At present, the types of professional curriculum system of Chinese digital media art mainly include public courses, professional basic courses, professional core courses, professional development courses, elective courses, graduation design, a total of six categories. Among them, public courses are compulsory courses for college students at the national level, and the rest are related courses formulated by majors according to the talent training program. The professional main courses include digital graphic art, digital media design and application, data structure, graphic design, three-dimensional graphic design, theory on film and other related courses. Professional core courses are mainly designed according to different training directions, such as visual

communication design, motion capture, photography and video recording, digital media post-production and other related courses on special effects, computer animation principle and technology, animation motion law and other animation courses, game animation creation, introduction to game design and other game development courses, web application development, human-computer interaction design, web design and technology and other multimedia courses. Based on the above training directions, this study proposes that in the construction of professional curriculum system, it is necessary to add professional practice courses, pay attention to the construction of knowledge system of ideological education, digital media technology and art design, so as to diversify the subject system, improve the existing curriculum system and promote the industry-university-research collaborative education.

2) *Innovation and improvement of practical teaching methods*: Traditional teaching method mainly refers to the teaching method, lack of practical application. Students often receive the knowledge passively. However, the teaching content, mechanical processing and application of relevant technology do not have the characteristics of practical teaching. Therefore, it is better to highlight the "student-oriented" education and teaching concept, and reform and innovate the teaching methods. For example, all kinds of professional competitions are put into the classroom teaching and integrated into the teaching reform. Through the way of promoting learning and teaching by competition, teachers guide students to take the theme and content of the competition as the basic content, and mobilize students' learning enthusiasm and creativity through team building, relevant knowledge learning, technical ability guidance and other modules, and can improve the previous teaching method. Through guidance, extracurricular guidance, co-learning and co-construction between teachers and students, as well as teacher-student evaluation, student-student evaluation, and other evaluation and assessment methods, the teaching methods under the industry-university-research mode are innovated and improved.

3) *Reform of practice teaching*: In addition to theoretical knowledge, most of the teaching contents of digital media art courses have higher requirements on practical ability, that is, to have higher requirements for practical ability and creative ability. Therefore, it is necessary to reform the professional knowledge system. Combining with the professional knowledge system of digital media technology and art design, the practice teaching link can be divided into five categories: classroom experiment, work design, project practice, enterprise practice and graduation design. It can also be

said that there are five teaching stages in which the ability of cultivating students is different. First of all, at the classroom experiment stage, teachers mainly carry out experiments on the technical operation, technology application, art design and other related knowledge points to improve students' professional skills; secondly, in the stage of work design and project practice, the enterprise practice project of school-enterprise cooperation, the school-enterprise joint studio and other projects are introduced into the classroom teaching, teachers introduce the production project to the students in the classroom. Through the actual working process of the project, teachers complete the practical teaching tasks, and students complete the practical training tasks, so as to achieve the purpose of cultivating students' practical ability. Thirdly, in the stage of practice and graduation design, colleges and universities generally arrange professional students to enter the enterprise in the last 1-2 semesters before graduation to carry out practical work, while students make graduation design and thesis at the same time. Students are trained mainly in the off-campus practice base of school-enterprise cooperation, and the enterprise instructors lead the students to participate in the actual project of the enterprise, understand the whole project planning and implementation, and complete part of the content. Through this process, students can truly understand the real demand of digital media enterprises for talents. At the same time, through the internship and practical training at this stage, students can make comprehensive application of technical skills, write the graduation thesis and complete the graduation project. At this stage, the instructors conduct practical teaching by training students' artistic creativity, planning and comprehensive design ability, and complete the guidance and evaluation of students.

4) *Adjustment of practical courses*: At present, there are some problems in the practical courses of digital media art major, such as unclear course orientation, disconnection between teaching content and actual operation, the failure of effective training of knowledge points, and insufficient practice due to the allocation of class hours. For example, some related theories and basic operation need to be practiced in time, but due to the curriculum setting, site constraints, course positioning as theoretical courses and other reasons, students cannot timely and effectively grasp the relevant knowledge points and technology application ability. Therefore, it is suggested to adjust the teaching plan, the allocation of teaching time and the proportion of class hours between theoretical courses and practical courses. The combination of

theoretical courses and practical courses is adjusted for teaching. When having theory and technology courses, students should carry out practical operation simultaneously, and integrate the links of theory, practice, project training and competition preparation, and even use the knowledge learned to design and create works through practice. It is necessary to change the situation that the theory course and practical training course are separated, which leads to the students' inability to carry out timely and effective training, and the improvement effect of professional ability is not good.

## V. CONCLUSION

"Digital media art" can be said to span the two first-class disciplines, namely, "art" of literature and "computer science and technology" of engineering, with unique professional attributes. It is combined with "industry-university-research integration" and "industry-university-research collaborative education project" of the Ministry of Education. As a new education and teaching mode, industry-university-research collaborative education mode provides guiding ideology and reform direction for the current professional talent training and curriculum system construction. Through signing cooperation agreements with enterprises, colleges and universities introduce enterprise projects into campus, and even into curriculum teaching. Teachers can lead students to carry out practical operation of enterprise projects, participate in project design and production, and complete part of project contents, or create studio with enterprise tutors, so as to reform talent training mode and curriculum system, and achieve the teaching effect of learning for application. While promoting the vigorous development of digital media art major, it can also promote enterprise production and teachers' scientific research. This not only cultivates double-qualified teachers and compound professional talents, but also serves for regional development.

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