Research on the Application of Virtual Reality Technology in Aesthetic Teaching of Art Design Major

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ABSTRACT

Virtual reality (VR) is a virtual immersive environment constructed by high-tech means. With the advancement of information teaching, this technology has been paid more and more attention in college teaching. In the context of the art design major, from the perspective of aesthetic teaching, this paper expounds the importance and superiority of virtual reality technology in aesthetic teaching, seeks for the method and way to optimize the aesthetic teaching effect of art design major, and explores the application strategy of virtual reality technology in aesthetic teaching, in order to provide reference for the reform and innovation of aesthetic teaching of this specialty.

Keywords: virtual reality technology, art design, aesthetic teaching

I. INTRODUCTION

With the improvement of living standards and the upgrading of consumption, the cultivation of artistic aesthetics has a subtle influence on students of various majors in colleges and universities. Especially for students majoring in art design who are future fashion leaders, aesthetic cultivation is more important. In the context of the information age, VR has been developing rapidly in more and more fields in recent years, especially in the field of education. The educational revolution brought by VR has broken the shackles of traditional education. There are more and more teaching software systems based on virtual reality technology. Many universities in China have established virtual reality labs for teaching. The real simulations and simulations of the structure and functional principle of equipment and engineering objects in Artificial intelligence, engineering, information professional equipment and engineering objects made by virtual reality has obtained socially acceptable teaching results. In addition, the corresponding questions of the

simulation object can be called up from the database to train and test the students. At the same time, the system can also automatically record the operation process of students. In addition to the combination of two-dimension and three-dimension, it is also supplemented by immersion, three-dimensional sense of experience, which can greatly enhance the learning effect. With the commercial use of 5G, the application of virtual reality technology in teaching will usher in a golden age.

II. THE IMPORTANCE OF AESTHETIC TEACHING IN ART DESIGN MAJOR

China promotes the principle of "Educating people with aesthetics and shaping them with culture". The great importance to the cultivation of artistic aesthetics attached by the country shows exactly that artistic aesthetics is the basic accomplishment that contemporary college students should have. The humanistic spirit and aesthetic quality of students majoring in design art are more important. The education of college students should be related to human education first. Baumgarten, the father of aesthetics, established aesthetics as an independent discipline. Schiller, the father of aesthetic education, had an important influence on Marx's historical materialism. Both Baumgarten and Schiller have shown the relationship between aesthetic education and human education to varying degrees.

The functions of aesthetic teaching for students majoring in art design are: On the one hand, aesthetic education restimulates the vitality that individuals should have in civilized society through the cultivation of perceptual ability; on the other hand, improving the

artistic aesthetic ability can help the art design major to realize the all-round development of individuals. Aesthetic teaching is the basic quality of students majoring in art design, which runs through the whole course of study and permeates the whole teaching content and links.

III. THE SUPERIORITY OF VIRTUAL REALITY TECHNOLOGY IN AESTHETIC TEACHING OF ART DESIGN MAJOR

The emergence of virtual reality technology not only solves the problem of disconnection between theoretical knowledge and practical operation, but also provides students majoring in art and design with a trans-generational experience. Virtual reality technology can be used in the aesthetic teaching related to the design major to create and experience the practice of aesthetic, using immersive teaching means to mobilize the visual, auditory and other sensory perception systems.

A. Enhancing the dynamic and intellectual in aesthetic teaching

In the real world, the human body has very rich sensory functions, including visual sense, auditory sense, tactile sense, olfactory sense and so on. Among them, vision is the most important channel for human to obtain information. 80% of environmental information acquired by human comes from vision, and visual effect, visual feeling and visual experience are important links in the teaching of art design major. Therefore, the perception model based on vision is very important in aesthetic teaching. And virtual reality technology has a strong advantage in the interaction of deep aesthetic visual perception, which has incomparable advantages compared with the traditional picture and video teaching resources.

Virtual technology device can mobilize more dynamic intellectuality of students. From verisimilar to the presentation of virtual reality, and then to the experience of transcending time and space, the traditional art teaching mode has been completely overturned. In the teaching of art design major, aesthetic teaching runs through the whole teaching process, spanning the basic courses and core courses of the major and various historical periods in time. However, in the traditional teaching, these courses can only be presented in the form of pictures and videos, and the teaching effect is not stereoscopic and the visual perception of students is weak. For example, for students majoring in product design, three-dimensional modeling beauty is particularly important. However, in ordinary teaching, two-dimensional pictures are often used to display, so students' three-dimensional perception of modeling beauty is relatively weak. Virtual reality technology has exerted a subtle and profound influence on the art aesthetic cultivation of students majoring in art design.

B. Changing the psychological mechanism of accepting knowledge in aesthetic teaching

The essence of aesthetic art is people's understanding of the beauty of the world, which is not only people's subjective consciousness but also the objective existence of the world itself, and vision is the first window for people to open the intuition of beauty. Virtual reality has three characteristics: immersion, interaction and conception. These three characteristics are conducive to bringing aesthetic experience directly to the eyes and enabling students to have a sense of presence, which can stimulate the psychological mechanism of students' learning. Danish artist Olafur Eliasson created an artificial sun for the London audience in his work "The Weather Project", using 200 yellow sodium lamps, and extended the illusion of the sun with a huge mirror at the top of the exhibition hall. As can be seen in "Fig. 1", the project allows participants to feel their consciousness leave their bodies and enter the scene within reach, moving with the flow of space. This is a good confirmation of the psychological mechanism of telepresence, and virtual reality technology can make this visual impact more intense.

Fig. 1. Olafur Eliasson, "The Weather Project".

C. Enriching the cognitive form of aesthetic teaching in art design major

Kant divided human cognition into three forms: sensibility, intellectuality and rationality. In aesthetic teaching, students' cognition of beauty is also obtained from sensibility, intellectuality and rationality. The first is to directly perceive and understand the external appearance of beauty. The second is to judge the form of beauty through the phenomenon of beauty, which is a transcendental cognition. The third is to form the concept of beauty through abstract thinking and the analysis of phenomenon and causality. The features of

immersion, interaction and conception of virtual reality technology can bring rich aesthetic cognition forms. In other words, aesthetic education can be acquired through perceptual knowledge with strong visual impact, intellectual form can be acquired through interactive experience, and rational aesthetic education can be acquired through interactive experience. In addition, in the teaching form, virtual reality technology can be used to re-interpret new forms of graphic image existence, to present static art as dynamic art, and interactive comprehensive art such as movies and games can be displayed in front of students from the real perspective.

D. Increasing multidimensional approaches to knowledge acquisition

For students, if they are to cultivate artistic aesthetics, environmental edification is very important. VR technology not only provides students with a super-real artistic environment, but also enriches their access to knowledge. From the dimension of aesthetic education acquisition, virtual reality technology can provide more abundant four-dimensional experience than two-dimensional and three-dimensional experience. For example, Tilt Brush (see "Fig. 2") is a VR based drawing application developed by Google. It allows people to draw in virtual space. Users can draw in 3d space as they wish, just like building in a 3d world. Paper, pen and paint are the raw materials of painting, and in this software, in addition to simulating various materials in reality, there are also elements such as stars, lasers and petards. With the help of VR, almost all the imaginary scenes in the mind can be truly presented. Users can enjoy the feeling of creating a beautiful world here. VR painting software like this can improve students' aesthetics from the perspective of practice.
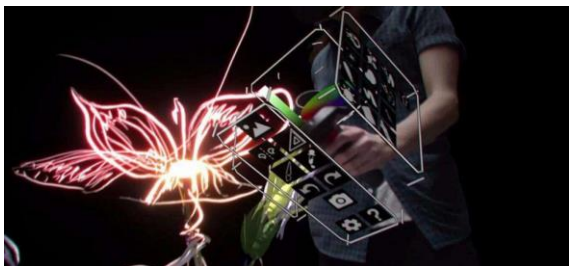

Fig. 2. Tilt Brush.

Combined with the above advantages of virtual reality technology in teaching, virtual reality technology can not only optimize the effect of teachers in aesthetic teaching, but also optimize the effect of students' learning.

IV. THE WAY AND METHOD OF VIRTUAL REALITY TECHNOLOGY APPLICATION IN AESTHETIC TEACHING

Virtual reality technology is a system simulation of multi-information fusion, interactive 3D dynamic view and entity behavior. It can create and experience virtual world, and it is a simulation technology to guide users to immerse in aesthetic environment. Virtual reality technology integrates computer graphics, man-machine interface technology, multimedia technology, sensing technology, network technology, etc., and simulates the environment at the same time. Through perception, natural skills and sensing equipment, the computer generates real-time dynamic three-dimensional realistic multi-perception images. In the aesthetic teaching of art design major, the teaching methods can be enriched and innovated by using the features of virtual reality technology, such as multi-perception, existence, interactivity and autonomy. At the same time, the powerful stereoscopic vision of virtual reality can be utilized to create the unique observation power required by aesthetic education.

A. Virtual reality technology is conducive to the innovation in the content and form of aesthetic teaching and appreciation

The multi-perception of virtual reality technology is reflected in the sensory functions of hearing, touch, movement, taste and smell, in addition to the visual perception of traditional teaching. The rational application of these perceptual functions in aesthetic teaching can innovate the content and form of appreciation in aesthetic teaching. In teaching, teachers can derive aesthetic feeling from the simplest visual effect to the action reflected in the vision. By letting students do body movements, they can feel and cooperate with the artistic rhythm of beauty, and then express beauty through the language of pictures. Through VR rendering technology, students can experience multi-perception, use hearing, touch, movement, taste and smell to experience the details and sense of space of artistic works, and the single form of "seeing" in traditional aesthetic teaching can be changed and innovated.

B. The sense of presence of virtual reality technology enriches the practical experience of aesthetic teaching

In the traditional aesthetic teaching, students mainly appreciate, watch and analyze artistic works to obtain aesthetic education. The perfect integration of VR technology and art contributes to the transcendent aesthetic space experience. Its sense of existence enables students to feel the beautiful art environment as the protagonist in the virtual environment. In addition, the interactive nature of virtual reality technology

enables students to simulate objects in the art environment, carry out relevant practical operation of artistic aesthetics, and get feedback, so as to enrich practical experience from the perspective of aesthetic ability training. Aesthetic courses of art design related majors are usually synchronized with professional skills courses, which are interspersed with professional courses. The purpose of this is to link aesthetic ability training with professional skills courses and professional design courses, so as to finally improve students' comprehensive quality. Therefore, the cultivation of students' aesthetic ability is ultimately to serve the course of professional design and settle in the practical part of professional design, which is also the goal of cultivating applied talents of art design major. Only through constant practical application can students really know and test their esthetic level. In addition, aesthetic teaching practice experience can consolidate knowledge and skills on the one hand. On the other hand, it can improve students' communication ability, which is beneficial to the cultivation of students' comprehensive ability.

C. Enhancing the aesthetic interest through the autonomous characteristics of virtual reality

The autonomous characteristics of virtual reality technology can change objects in the virtual environment according to the characteristics of physical movement in the real world. From the perspective of technical rationality, it can actually provide users with the visual tension of "concentration to release", which can greatly enhance students' curiosity and interest in learning. In addition, the 720-degree image transmission feature of virtual reality technology breaks the traditional linear narrative method in teaching and presents the possibility of multiple narratives in synchro. It has a distinctive attraction to the multi-temporal and multi-historical aesthetic education in teaching, which is different from the traditional learning process of image narration.

V. CONCLUSION

The application of virtual reality technology in aesthetic teaching of art design related majors can optimize the artistic effect of aesthetic teaching and bring innovative means of information technology to art teaching. Now, the virtual reality technology can achieve VRay rendering by use of the Internet and electronic classroom and whiteboard technology, allowing students to experience unprecedented visual art experience. For the art design major closely connected with frontier science and technology, it is an inevitable trend to use virtual reality technology to reform the teaching mode in the future.

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