Analysis of Art Design Teaching Based on Virtual Reality Technology

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Abstract: With the stable development of modern science and technology, virtual reality technology has gradually appeared in the public. Virtual reality technology in its practical application process mainly simulates a certain environment with three-dimensional space, thus brining an immersive feeling to people wearing VR glasses and related facilities and effectively displaying China's science and technology. Currently, VR technology which has been extensively applied to the development of various industries and applied to art design teaching process has also offered diverse teaching environment for art environment teaching, and comprehensively enhanced teaching efficiency. In view of this, this paper analyzes the role of virtual reality technology in technology design teaching process, and elaborates the technology from its application level. Then, the author proposes corresponding recommendations and suggestions according to own experience.

1. Introduction

Under the background of high-speed development in the information era, virtual reality technology has become more mature, combined with Internet, multimedia and other relevant technologies, thus realizing its advantages of efficiently restoring reality. The technology with extensive application in the process of art design teaching has provided a lot of advantages for art design and guaranteed its application efficiency at the same time. Therefore, virtual reality technology should attract greater attention and concern by relevant personnel so that it can be applied reasonably in art design teaching process and it can give full lay to its role and advantages effectively.

2. The Concept and Characteristics of Virtual Reality Technology

Virtual reality technology which mainly integrates modern Internet, multimedia and relevant information technologies is a relatively advanced technology. During its practical application, it can simulate real scenes and the sound field of the three-dimensional graphics space. Together with the application of multi-sensor interaction technology, it can promote to continuously enhance its differentiation degree and then vividly display the virtual environment in front of the experiencer. The user can truly experience relevant scenes presented in the virtual environment by wearing relevant helmet and devices, obtain relevant rea-time data information simultaneously, feel various senses of touch in their body, and have an immersive feeling. Three main characteristics are elaborated as follows.

2.1 Immersion

Immersion means the degree of experiencer’s true feelings in virtual environment. Experiencer can become a part of the virtual environment in the process of wearing related props, and can effectively feel everything in the virtual environment at the same time, carry out free activities in the environment in line with the feelings about the real world.

2.2 Interactivity

Interactivity means the physical operation degree of experiencer and the instantaneity in the virtual environment. As the subject of the interaction between the experiencer and virtual physics, the experience can respond according to the reaction and experience when objects change, thus

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guaranteeing the realness of the virtual environment. When touching objects in the virtual environment by hand, experiencer can feel the sense of touch consistent with the reality, feel the weight of the object simultaneously, and even move the object according to their subjective thoughts, and give full play to the advantage and role of interactivity.

2.3 Imagination

Imagination refers to that experiencers in three-dimensional virtual space can obtain knowledge in the virtual environment through perception while imagining based on their thinking, give their subjective initiative into full play, and can answer questions in the virtual environment to establish brand new concept and definition which can highly restore the real world.

3. The Importance of Applying Virtual Reality Technology in Art Design Teaching

3.1 Enhance the Imagery Feeling of Art Design

With the rapid economic and technological development in China, and the accelerating pace of China's urbanization, it is necessary to reasonably design the construction of buildings. By rationally applying virtual reality technology, the architectural design and other various design can become more lifelike and vivid. The application of virtual reality technology can also help actual operating personnel to improve design efficiency and quality. At the same time, in the practical application process of virtual reality technology, it can attract viewers to concentrate, deepen their impression and exert the function of beautifying the design.

3.2 Reduced the Expense of Art Design

During the stable development of modern economy, with the ever-increasing scale and quantity of urban construction, it often takes a large amount of money and time to analyze various influencing factors when carrying out traditional design so that the architectural design can meet the relevant standards. Virtual reality technology can effectively make up for the deficiencies of traditional design, and simulate the overall model of the building, thus providing advantageous frame structure for designers and reducing design errors. In the meantime, designers can analyze the use of materials and mechanical equipment according to the actual situation while clarifying the overall design of the building, thus providing advantageous data for cost budget and effectively reducing the expenditures of art design. Furthermore, it can help to integrate the concept of energy conservation and emission reduction, and make contributions for environmental protection.

3.3 Improve the Direct Display of Environment Art

With the high-speed development of construction enterprises, the scale and quantity of buildings are increasing. However, the construction of buildings will inevitably concern design work in the early stage. To improve the level of environmental art design, considering that the accuracy of relevant data cannot be guaranteed in traditional drawing design which also consumes a large amount of design time and funds, it is necessary to reasonably apply virtual reality technology and exert its advantages to improve the intuitive display of artistic scheme design, and increase the realness of art schemes. At the same time, it is possible to simulate the real estate with virtual reality technology for users to experience personally during house purchasing so as to attract users' attention, deepen the user's impression, exert the function of virtual reality technology, and bring certain economic benefits to relevant industries.

4. The Advantages of Virtual Reality Technology in Design Teaching

With the stable development of virtual reality technology, it has been continuously popularized and extensively recognized by all sectors of society. Therefore, it is necessary to reasonably apply virtual reality technology in the process of art design teaching, which can not only activate classroom atmosphere but also give full play to its advantages.

4.1 Construct a Simulation Teaching Environment

Virtual reality technology in its actual application mainly depends on the sense of reality, and integrates relevant new technologies simultaneously, thus improving the degree of environmental simulation realness. Therefore, it is feasible to simulate realistic classroom when applying this technology in actual teaching to help teacher-student interaction and allow students to experience the environment in the virtual simulation. By doing so, students can feedback their questions to the teacher, thereby improving classroom teaching efficiency, and deepening students' understanding of related technologies.

4.2 Cultivate students' Autonomous Learning Ability

Art design teaching under the traditional teaching mode always adheres to the method that students are instructed by teachers, which leads the students to passive learning. As a result, it is hard to improve teaching efficiency and students lack relevant subjective awareness. After applying virtual reality technology, the traditional rigid teaching mode can be changed and complemented. At the same time, it can enhance the communication between teachers and students, create an environment for students' independent study, and promote students to actively participate in learning and give full play to the role and advantages of virtual reality technology.

4.3 Display students' Works

During the practical application of virtual reality technology, it can activate classroom teaching atmosphere and create a high-quality environment for displaying their works by means of three-dimensional space, so as to make up for the deficiencies of traditional two-dimensional technology, and make students' works look vivid. In the meantime, virtual reality technology can also strengthen students' learning enthusiasm. After students display their own works to teachers, teachers can provide instructions according to the actual situation, help students find their shortcoming, thereby improving the quality and efficiency of their works.

5. Analysis of the Practical Application of Virtual Reality Technology in Art Design

5.1 Make Up for the Deficiencies of Traditional Art Design

When actually carrying out art design teaching, the teaching process is often affected and limited by a lot of factors, which hinders the teaching efficiency to be effectively improved. Several common issues include insufficient funds and flaws on the site, which seriously affect the normal operation of art design. Therefore, only by reasonably applying virtual reality technology can we solve problems effectively. By applying virtual reality technology for virtual setting of actual scene, we can effectively reduce costs and effectively compensate the inadequacies of traditional design, thus promoting art design to satisfy relevant requirements and standards.

5.2 Break through Each Link of Traditional Design Constraints

It is known to all that virtual reality technology which integrates different advanced technologies can effectively break through the space and time limitation of traditional art design in its practical application. It can efficiently simulate the scene environment according to actual demands. For example, it can simulate not only the existing objects in the real world but also things that have disappeared. For instance, despite dinosaurs have died out with no footprints detectable on the earth, experiencer can feel various scenes in the era of dinosaurs by using virtual reality technology, and can touch dinosaurs at the same time. It can efficiently restore the scenes at that time, completely break through time and space limitation, provide corresponding evidences for dinosaur researchers, and accelerate the research process. Furthermore, applying the technology to art design teaching can help to demonstrate relevant research topics and offer help for students' research and study.

5.3 There Exist Risks in Effective Ways of Artistic Design

When carrying out art design in traditional way, the unpredictable external environment often results in some dangerous designs and potential hazards. Once they threaten people's life security, most people will not try again, which prevents some art designs to be carried out smoothly. To avoid such risk, it is necessary to reasonably apply virtual reality technology so as to effectively solve problems. As it can simulate scenes with risks, designer personnel can truly experience the actual scenes by wearing relevant devices, thus effectively avoiding risks that may appear in art design. At the same time, design personnel can feel the actual scenes in the simulation process, and get inspired, thus enhancing the overall design personnel can quality and efficiency, giving full play to the advantage of virtual reality technology.

5.4 Effective and Intuitive Display of the Image of Art Design

While applying virtual reality technology to actually practice of art design teaching, the image of art design can be visually displayed, thus strengthening students' understanding and improving the overall application efficiency. First of all, during the practical application in art design teaching, it is necessary to reasonably apply science technology to the actual art design, and formulate reasonable design schemes, promote virtual reality technology to fully exert its advantages. Compared with traditional art design, virtual reality technology by effectively showing computer software technology can bring visual, tactile and auditory experience to students and designers so that people can feel personally on the scene. In this way, it can attract users' attention, improve the reliability and accuracy of art design, and reduce errors. Secondly, with the continuous reasonably of urbanization, reasonably applying virtual reality technology to architectural design teaching can help to establish a real simulation environment and help to formulate reasonable plans so that actual design can satisfy relevant demands.

5.5 Improve the Practicability of Art Design

When applying virtual reality technology to art design teaching process, teachers can demonstrate high-quality design schemes to students according to the situation ask students to compare with traditional design schemes, analyze the deficiencies, improve teaching efficiency and guarantee students to efficiently understand the advantages and effects of virtual reality technology, thus further activating classroom teaching atmosphere. In the meantime, during actual teaching process of art design, teachers need to analyze the actual teaching situation reasonably, and specify the corresponding design scheme and space effect, and give full play to the advantages of virtual reality technology, which can also enhance teacher-student communication so that teachers can know more about deficiencies of virtual reality technology teaching, and can adjust teaching model to lay the foundation for practical teaching work in the future.

6. Future Prospects of the Application of Virtual Reality Technology

To give full play to greater role of virtual reality technology, it is necessary to continuously improve the mode of space and time, completely break through the deficiencies of traditional classroom teaching. In the meantime, it is necessary to set teaching objectives according to the actual situation so as to fuse new teaching concepts, analyze students' learning status, and guarantee to take effect. In addition, by setting assessment according to actual teaching situation, virtual reality technology can fully control the teaching shortcomings and improve accordingly. Thus, only by continuously innovating virtual reality technology can we conform to the development of the times and promote virtual reality technology to play a more efficient role in art design teaching.

7. Summary

To sum up, under the background of continuous reform of art design education, the teaching requirements and intensity continue to strengthen. Therefore, to conform to the development of the times, and guarantee to effectively improve the quality and efficiency of design teaching, it is necessary to reasonably apply virtual reality technology to practical teaching, promote virtual reality technology to play full play to its corresponding roles, so that it can provide a high-quality learning and teaching platform to meet different requirements of modern education. In the meantime, under the background of high-speed development of science and technology, it is necessary to innovate art design teaching based on virtual reality technology, and improve the overall teaching efficiency of teaching, thus cultivating more high-quality design talents for all sectors of society.

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