Application and Research of VR Technology in Art Design Teaching

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Abstract: In recent years, with the rapid development of science and technology, VR virtual reality technology is now applied in various fields, and this technology is gradually applied to art design teaching. VR virtual technology can construct a simulation learning environment, which enables students to have a comprehensive and systematic understanding of various courses of art design specialty, and cultivate students' creativity and imagination. By analyzing the advantages of VR technology in teaching, this paper puts forward the teaching method of integrating VR virtual reality technology into classroom teaching, and explores the feasibility of applying SLOODLE platform to art design teaching, so that the platform can be widely used in art design teaching.

1. Introduction
Most of the courses of art design specialty are practical courses, which need to explore new teaching methods to cooperate. In classroom teaching, students should be guided to think actively, understand and master relevant professional knowledge, and apply the learned professional knowledge to practical design, so that students can change from passive to active learning, and enhance their interest in professional learning. With the development needs of education industry and the development trend of VR virtual industry, it is necessary to further adjust the teaching methods of art design specialty, change the traditional teaching methods, expand the teaching content, and form the unique teaching characteristics of art design specialty, so as to better adapt to the future higher education environment.

2. Analysis of the application of VR technology in art design teaching
With the continuous attention to the field of VR virtual technology, the form of teaching curriculum education of art design specialty in China is also changing. Single multimedia teaching cannot further meet the current classroom teaching. It is necessary to update the teaching methods of art design specialty so that students can integrate into the classroom environment and quickly grasp the curriculum knowledge. However, the traditional classroom mode is still continuing in all subjects of the college, and the teaching system of art design specialty needs to be improved. In order to effectively improve the classroom teaching quality of art design specialty, new teaching methods and changes of teaching methods need to be further studied.

With the continuous development of electronic products, the price of VR hardware equipment has gradually decreased, but the price is still relatively high, which cannot be fully popularized in colleges and universities. The main reason is that the application of VR hardware equipment in colleges and universities is too few to form a trend, so that the promotion of VR hardware equipment is not widespread, and the proportion of the applied population is also less. This requires colleges and universities to attach importance to this aspect, properly introduce some equipment, gradually promote...
the use, in order to make VR hardware devices as common and widely used as mobile phones in the future.

Colleges and relevant education departments are far from aware of VR virtual reality technology. They do not realize that the application of high-tech technology can update teaching methods and improve teaching efficiency. Nor do they realize that VR software needs constant innovation, especially in the development of virtual education technology, a part of teachers and company professionals need to develop VR virtual reality software suitable for universities.

3. Advantages of VR technology in art design teaching

With the development of VR virtual reality technology, this technology will be more and more popular, and gradually accepted and recognized by most people. All walks of life are constantly updating their technology and methods. The education industry should also use VR virtual reality technology to enrich art design courses and activate the classroom atmosphere. VR virtual reality technology has the advantages shown in Figure 1 below in the teaching of art design specialty.

3.1 Construct virtual teaching environment for teachers

The advantages of VR in the teaching of art and design specialty are firstly reflected in its realistic sense. Computer and electronic technology realize the simulation environment supported by VR virtual reality technology. This simulated environment seems to be more real, efficient simulation of the real environment is conducive to teachers' classroom interaction, so that students can experience in the virtual simulation teaching environment, and timely feedback problems and discoveries to teachers, really stimulate classroom enthusiasm.

3.2 Develop students' ability of self-regulated learning

In the traditional teaching mode, students are learning knowledge under the guidance of teachers, which is relatively passive and lack of subjective learning consciousness. However, when VR virtual reality technology is introduced into teaching, it will break the previous single rigid teaching method and form a multi-faceted interaction between teachers and students. It also shows another advantage of this technology is the sense of interaction, which enables students to experience and express what they see and think independently, and create an environment of independent learning.

3.3 Display of 3D stereo works

Another function of VR virtual reality technology in art design teaching is to show students' works in class. In the past, all the students saw were two-dimensional pictures, which were not vivid enough and lacked stereoscopic sense. The emergence of VR virtual reality technology just makes up for this gap. This technology can effectively promote students' learning enthusiasm. Students show their works to teachers in the form of virtual three-dimensional. Teachers can understand the contents conveyed by students' works more comprehensively and promptly put forward the problems existing in students'
works. Other students can also learn from the highlights of their works and overcome common problems in order to improve their works.

4. **Application of VR technology in art design major**

The construction of art design teaching based on virtual reality technology is superimposed on the basis of existing space, and the continuous learning space from real to virtual is further expanded to introduce learning into a deeper, more detailed and more realistic environment. Using virtual reality technology to construct art design teaching is an important trend of future education development. Art design teaching under virtual reality technology can compress learning activities into molecules or expand perception activities into space. This immersive and realistic situation demonstration is incomparable with any previous learning. Undoubtedly, the educational application of virtual reality technology will achieve remarkable results.

In the teaching of art design, SLOODLE integrates network-based virtual learning environment with mature learning management system, i.e. object-oriented distributed learning environment based on Second Life. As shown in Figure 2 below.

![Figure 2. Object-oriented distributed learning model based on second life](image)

Using SLOODLE platform can create a lifelike and intuitive learning environment for art design, let students immerse in the virtual world for real-time observation, interaction, participation, experiment, roaming and other operations, will be boring and difficult to understand the art design knowledge to feel and experience in the way of immersion. It transforms passive inculcation into active and interesting learning and exploration, and enables learners to internalize their original knowledge and build a new knowledge system in the process of hands-on cooperation. It can improve students’ deeper art design knowledge and skills training, make learners rationally use self-learning and cooperative learning on the basis of building learning theory, and improve the ability of art design learning and practice. As shown in figure 3 below.
5. Conclusions

The application of VR technology in the teaching mode of art and design specialty can stimulate students' interest in learning specialty courses, cultivate students' ability of independent learning and innovative thinking, and make students grasp the knowledge more firmly. To a certain extent, it creates a simulation teaching environment and effectively improves the learning efficiency of students, which is an effective teaching mode for the current art design specialty. At the same time, VR virtual reality technology will help art design teachers to further carry out the teaching of art design courses, which will also become a major breakthrough in the teaching methods of art design specialty in the future. Therefore, teachers and students should be encouraged to join VR virtual reality technology research, brainstorming, and truly achieve the desired teaching objectives.

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