

## Application of Virtual Reality Technology in 3D Animation Teaching

Chen Xiaoran\*, Gao Yu

Kunming University, Kunming, Yunnan, 650214, China

\*corresponding author

**Keywords:** Virtual Reality Technology, 3D Animation, Teaching

**Abstract:** At present, the rapid development of science and technology in our country, the virtual world of the Internet has become a tool that can connect people in the world instantly, as a means to shorten the real distance is curious. Virtual reality technology, as a technology method with high technology content, has developed rapidly in recent years under the blessing of the development of science and technology, has gradually entered people's daily life, has been sought after by more people, and has shown its own strengths in more and more fields, including film and television works and the production of some online games, even on some stage live performances, the technology has become a new bright spot. This paper aims at the virtual reality technology in 3D animation teaching, through the research of the application of virtual reality technology in this background, to better use this technology, to play a role in our teaching work and other related work.

### 1. Introduction

Virtual reality technology is a kind of high-tech technology which uses a variety of technical means synthetically. It has many characteristics, such as interactivity and immediacy, so that people can immerse themselves in the virtual world produced by computer through the help of this technical means, and can interact with related languages and actions in this virtual world, produce the same effect as real space, and create a suitable space for people. In this space, people can go beyond the limits of time and space to make a real feeling of things thousands of miles away and not in line with the season, at the same time, can also according to their own feelings of the observation of all feedback. And the teaching of 3D animation, to some extent, pays special attention to the emphasis on the sense of space. For the composition in the creation of three-dimensional animation, a three-dimensional space, more help to let the designer feel immersive, so that it is conducive to the trigger of their own inspiration, create a better work, perfect interpretation of the purpose to express. Therefore, it is necessary to integrate virtual reality technology into 3D animation teaching, but when the two are combined, what kind of ways and measures should be carried out, and it is worth further exploring.

### 2. Significance of Applying Virtual Reality Technology in 3D Animation Teaching

#### 2.1. Creating a Good Teaching Environment

With the support of virtual reality technology, 3D animation teaching can have more possibilities and provide more practical ways. First of all, teachers and students can make good interaction through virtual reality technology, use technical means to achieve realistic communication, can reduce the distance sense brought by traditional distance education, close the relationship between teachers and students, show the knowledge to be taught more clearly and clearly in front of students, and let students devote themselves to learning. Secondly, virtual reality technology can help teachers to construct a perfect space in which to impart knowledge, which is an innovation of the single knowledge imparting in the previous classroom. In this space, teachers can impart more knowledge, including space knowledge, to students in an immersive manner, which is more authentic and acceptable than the plane of classroom teaching. Finally, the virtual reality technology enables the teaching to be carried out in a three-dimensional environment, using the resources and

images under the three-dimensional, can appear more three-dimensional than the traditional two-dimensional teaching, thus producing better visual effects, so that the quality of teaching can be further improved [1].



Figure 1 Virtual reality technology

## 2.2. Development in Keeping with the Times

Virtual reality technology has achieved initial results in many industries, has been recognized by professional practitioners in various industries, and in the sustainable development of science and technology, there is a trend to open new markets. With the development and prosperity of the economy, the people of our country are demanding more and more material culture, and the quality of 3D animation works is improved accordingly [2]. Virtual reality technology and 3D animation are closely related, relatively speaking, in the 3D animation teaching industry can quickly apply the virtual reality technology, and the overall level of 3D animation teaching industry will bring about the advance of the 3D animation industry [3]. To create more excellent 3D animation products to meet the spiritual and cultural level people are increasingly pursuing. In addition, virtual reality technology involves a wide range of knowledge itself, in the design of 3D animation, usually requires the mobilization of a variety of knowledge, his application in 3D teaching, so that students can learn 3D animation production while learning virtual reality technology related knowledge, so that can also be applied in other scenes, to help students in the teaching process of 3D animation to become a multi-skill complex talent.

## 3. How to Apply Virtual Reality Technology in 3D Animation Teaching

### 3.1. Strengthened Related Infrastructure

At present, the development of 3D animation production itself is also very rapid, the content described above the traditional classroom has no way to meet the requirements of students to learn and the requirements of the times innovation for students in this industry, so we have to use other technologies to change the relevant classroom teaching methods as a starting point to promote the development of 3D animation. Virtual reality technology is a new teaching tool with three-dimensional space as the dimension, which is very different from the traditional teaching methods of teachers and textbooks. Therefore, in the construction of teaching facilities, we should break away from the traditional teaching method with books as the carrier and construct the whole teaching base, that is, virtual reality resource bank. In this way, students have more ways to learn independently in addition to teaching, through virtual space for three-dimensional animation teaching, but also can arouse students' curiosity, according to their own interests to coordinate learning to learn the knowledge they want to acquire, in order to ensure more efficient learning results.

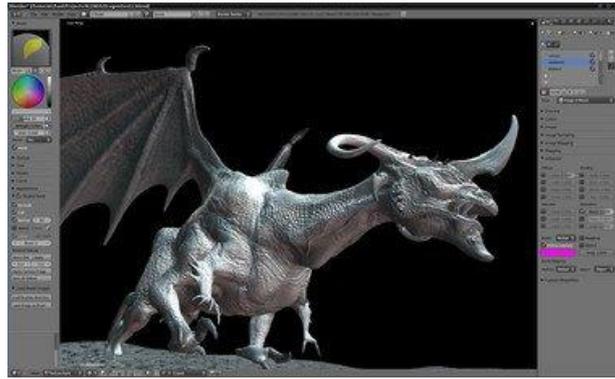


Figure 2 3D animation design

### 3.2. Conversion of Traditional forms of Teaching

In terms of previous teaching methods, emphasis is placed on the teaching of knowledge in textbooks, and students are relatively passive in accepting knowledge above the classroom. But with the development of virtual reality technology, this teaching method must be innovated. Students can use the Internet to self-study the knowledge of the textbook that the teacher wants to teach, and according to their own learning situation, timely consultation with the teacher, teachers can also use the Internet to quickly make relevant responses, on the basis of this, teachers can use the feedback from students to allocate the difficulty and progress of the course, make teaching more efficient, rely on feedback from students, targeted to involve their own teaching program.[4]. In addition, outside the classroom, students can set up groups to carry out experimental activities according to their tasks or their interests, and carry out their own experimental activities under the virtual space, so as to make good use of the Internet as a tool in the experiment, improve their skills and respond to the teacher so that they can explain the related problems during the classroom teaching.

### 3.3. Broadening Students' Knowledge

Virtual reality technology is a new platform, using this tool, students can learn all aspects of knowledge, through this means, people can make direct observation of the things that can not be reached in real life and the related process of change, so that students in the teaching of simple text description has a more accurate and real intuitive feeling, to solve the problem that students can not recognize the dead text. In addition, using the technology can also be a lot of complex steps in front of students one by one to help them better understand difficult topics. At the same time, virtual reality technology is also a good medium to bring students to the palace of knowledge, on which students are free to search for the knowledge they want to learn, to learn in a comprehensive and systematic way, and to integrate the accumulated knowledge into the creation of three-dimensional animation, so that the creation of works more life power and reality.



Figure 3 Office use of virtual reality technology

### 3.4. Platform for Instant Practice

In the teaching of 3D animation, the most important thing is to practice, to apply the knowledge taught by teachers to practical operation, so that students can master the knowledge and technology they have learned in practice, and to apply virtual reality technology to the teaching of 3D animation, so that practice can become very efficient, students can carry out real-time practical design through this platform, thus improving the efficiency of learning [5]. In the process of 3D animation teaching, we should be good at building laboratories, providing practical platform for students, planning vivid experimental templates and convenient means, and cooperating with students to further understand the knowledge they will learn, thus bringing technical support to the teaching of 3D animation.

#### **4. Conclusion**

To sum up, it is necessary to apply virtual reality technology in the teaching of 3D animation, which is not only the requirement of 3D animation industry itself, but also the trend of the whole era. In the face of the introduction of virtual reality technology in various industries and the increasing competition within the industry of 3D animation creation, only by integrating such new means into the teaching of 3D animation can we ensure that students' creation does not derail with the times and can meet the needs of people changing with each passing day. When using virtual reality technology in 3D animation teaching, we should change the traditional teaching methods, speed up the construction of related infrastructure, and provide students with experimental platform that can feedback in time. And under the coordinated development of many ways, the teaching of 3D animation will have a further qualitative improvement, thus promoting the progress of the whole 3D animation industry.

#### **References**

- [1] Zhang, Xiaona. Application of Virtual Reality Technology in the Teaching of 3D Animation. *Art Grand View*, no. 6, pp. 148-149, 2018.
- [2] Jia, Tianyang. Application of Virtual Reality Technology in the Production of 3D Animation. *PARTICULARS: Second half month*, no. 002, pp. 121, 2019.
- [3] Gao, Fengling. Analysis on the Combination of 3D Animation Production Technology and Virtual Reality Technology. *China Science & Technology*, no. 017, pp. 37-38, 2018.
- [4] Yu, Xiang. A Study on the Combination Technology of 3D Animation and Virtual Reality. *Shanxi Youth*, no. 9, pp. 183,184, 2018.
- [5] Wu, Zhanghong. Study on Application of V R Technology in Experimental Teaching of 3D Animation. *Animation Research*, no. 001, pp. 145-149, 2018.