Analysis on Application of Virtual Reality Technology in 3D Animation Production

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Abstract：Although our country started a little late in animation production，in recent years，it has been particularly rapid development. The most obvious is that in 3D animation production level，and the country has achieved very good results. The rapid progress in computer technology also promotes the rapid development of animation production. With the help of virtual reality technology and its application in 3D animation production，the whole animation industry has been extremely rapid development，which has a very far－reaching effect. Combined with the current development of 3D animation，this paper analyzes the significance of applying virtual reality technology to 3D animation，and reveals the important role of this technology in the animation industry.

Keywords：3D Animation Production；Virtual Reality Technology；Application

1. Introduction

3D animation plays a very important role in multimedia teaching. Usually，due to the relatively high cost and low efficiency of animation production，it is difficult to meet the specific quality and specified standards. With the advent and development of virtual reality technology，3D animation has ushered in development opportunities. At the same time，it also injects fresh power into it. This is because in the traditional mode of animation production，through the computer to provide help for the early creative and post editing work，this link involves a lot of work，so it takes a lot of time，resulting in a waste of time，manpower and material resources. The use of virtual reality technology can perfectly solve these problems.

2. The current situation of 3D animation production

The so－called 3D animation production is a kind of relatively complex computer processing technology，mainly through the interaction of graphics and computer technology，and use image generation technology，processing technology etc. ，to achieve the display of animation effect，so the production process requires specific personnel to have professional comprehensive quality，and personnel ability should also be able to meet the needs of this content. Throughout history，animation technology has three main stages of development.

2.1 Prophase

About the production of 3D animation，this stage has a very key role in all aspects，because the production at this time includes the development of the role scene，as well as the overall idea of the model.

2.2 Medium term

After the construction and creation of early ideas，this step is mainly the specific implementation of the first step，including material mapping，setting up key frames，editing，processing，and integration of output rendering，so as to make the production process complete.

2.3 Later stage

After the first two steps are completed，it is the work of this stage. Specifically，it is to process and integrate the previous scattered processes again，so that it can become a complete step and complete the

animation production.

Generally speaking, the level of 3D animation production in China is different from that in western countries. The most important factor is that China's science and technology started later than that in the West. However, with the enhancement of national economic level and the increase of scientific research investment, China's science and technology has made considerable progress, at the same time, it provides an opportunity for the development of 3D animation. In practice, 3D animation has a very common application, which can play a role in animation, games, and advertising industry, so the state should pay attention to the selection and training of talents in this area, create good conditions for the development of three－dimensional animation, and strengthen the investment in three－dimensional animation.

3. Detailed introduction of virtual reality technology

Virtual reality technology can create an artistic conception similar to the actual environment for people. When people are in this environment, they can get a more real feeling. This technology is mainly based on three －dimensional animation, and combines sensor technology with advanced scientific equipment, so as to provide people with a kind of virtual environment similar to the actual environment, and people seem to be in it. It has the following characteristics:

3.1 Diversified perception

It means that when people are in the virtual environment, they can obtain diversified perception, and then interact with the virtual environment based on these perceptions.

3.2 Very strong interactivity

Because you can interact when you are in the virtual world, that is to say, specific actions and related instructions can get real responses in it, which can be realized by operating the keyboard and mouse. And with the help of VBR helmet, VR glasses and data gloves, we can experience more realistic and natural interaction, because the application of the device can realize real－time monitoring of people's related activities, and transfer the information to the computer. With the help of the computer system, people can get a better sense of virtual reality experience.

3.3 Strong sense of immersion

People can get a better sense of interactive experience in the virtual world, in order to immerse in it.

4. The specific role of virtual reality technology

Due to the rapid update of modern network technology and information technology, it has played a supporting role in the software, hardware and material aspects of 3D animation production. Through the support from the software and hardware level, combined with the application of virtual reality technology, we can comprehensively absorb the advantages of all parties, so as to make the animation industry develop rapidly with the support of advanced technology. In the process of adapting the traditional animation and virtual reality technology, it optimizes the existing problems of 3D animation production, makes animation production more transparent and flexible, and promotes the growth of work efficiency.

For example, the popular children's "bear haunt" belongs to the full 3D comic action animation, in its production, the use of virtual reality technology. When building a model, to ensure the physical dynamic characteristics and retain the deformation process of the object, we can use the combination of virtual and real method to make the object model consistent with the actual scene through the computer, and simulate the actual scene through the computer, so as to improve the speed and efficiency of modeling, and at the same time, make it more flexible in terms of authenticity, which is more similar to real objects.

4.1 How to ensure the consistency between the built model and the actual scenery

In order to make the information data of the model consistent with the actual scene, we need to use the 3D scanner to obtain the required 3D data by scanning the real object, and use the method of 3D coordinate points to store the data. In addition, when an action cannot be taken with the help of an ordinary camera, it is necessary to

introduce the software related to 3D animation production, run the motion capture system to track and capture the moving object information, and then process the obtained information by computer, so as to obtain the specific data information necessary for animation production. Finally, with the help of computer data recognition, the animators can control and adjust the moving objects, and the director can set the lens position atwill when making, to make the lens that was difficult to show before. It can not only observe the actual situation of the scene comprehensively, but also let the audience join in, so as to greatly shorten the distance between the audience and the picture.

4.2 How to improve the communication

So, in the 3D animation production stage, how to improve the required authenticity? It is necessary to combine all kinds of methods, collect the data through the motion capture system, and adjust the 3D animation production, then use the enhanced application adjustment technology to collect the characteristics of the collected data. Under the processing and analysis of the programming language, the data is modified by combining with the method of insertion and superposition. After repeated adjustments, the data can meet the specific requirements. After full study of the adjustment mechanism, we can summarize most of the skeletal systems, coordinate the relationship between forward dynamics and direction dynamics, and finally make the motion data reflect higher efficiency in the adjustment, processing standard degree and work.

5. What should be paid attention to in the construction of virtual environment

In order to make good progress in 3D animation production, we need to make the virtual reality technology be used scientifically and effectively, so that the virtual technology and animation can form a high degree of integration, which requires the regular setting of each camera in the motion capture system. Generally speaking, the projection instrument installed on the top of the house, which belongs to the stereo projection system, can also be placed in the center of the top of the house, and the stereo projection screen can be placed close to the wall. In addition, 3D scanners can be placed in the left and right corners of the room, and other instruments can also be placed in the side of the wall opposite the screen, which can make the middle of the room wider and have more space.

6. Conclusion

Therefore, the introduction of virtual reality technology in the 3D animation production can have a very obvious role. The specific responsible personnel should pay attention to this technology, and make in-depth research and use this technology, so that it can better promote the development of 3D animation production. In addition, we should also do a good job in academic communication, actively study advanced concepts and technologies of other countries, and promote strengths and avoid weaknesses, in order to match and integrate with actual application scenes, display the characteristics of virtual reality technology to the greatest extent, and promote the reform of 3D animation production.

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