

Research on Special Effects of 3D Animation Based on Art Design and Performance

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Abstract: With the continuous improvement of science and technology, making technology has been developed more and more. The special effects of art design should be made according to the story of three-dimensional animation. As a new technology, three-dimensional animation comes into being with the development of computer hardware and software. One of the greatest charms of animation art is that it can create a virtual world to intoxicate the audience, and the joining of computer animation technology undoubtedly adds to this charm. In the application of special effects technology in 3D animation, in order to achieve more realistic and beautiful visual effects, sometimes it is necessary to add various dazzling special effects, which not only helps transform the film and television style, but also brings great changes to the film and television art. Production technology has been further developed as the level of science and technology continues to improve. Film and television special effects production is based on the storyline of three-dimensional animation to develop special effects.

1. Introduction

The content of art design and expression in animation art is very broad. As a special form of film, it involves the use of lens language, various narrative techniques, and even montage; as a special form of art [1]. The determination of color is based on the characteristics of the objects to be represented in the design of three-dimensional animation, so the design of three-dimensional animation color should fully represent the main characteristics of the objects in the design of three-dimensional animation, and also conform to the creativity of three-dimensional animation design [2]. The artistic design style of animation is basically limited by the existing style in the market, and it is difficult to see a refreshing artistic style design, among which the result of innovation is self-evident [3]. In an animated work, the style is mainly determined by the art style of the visual language. Animations of different art styles have either documentary, abstract, or simple, or complex styles and features, which in turn create a diverse and diverse artistic appeal. In the promotion of animation products, there is a boosting effect. The three-dimensional animation design process in art design is very different from the traditional animation design method. The three-dimensional animation design in art design mainly uses digital electronic technology as the design platform, and uses a variety of design software to realize the technology of three-dimensional animation design. Therefore, the digital simulation effect of 3D special effects is based on the background of the animated story and the overall style atmosphere, and realizes special visual creativity in the limited digital means resources [4].

The special effects of three-dimensional animation is the part of adding gorgeous special effects in animation, and also the part of simulating natural and real scenes in animation. After animation production, the style of the whole animation picture is basically formed [5]. The three-dimensional animation software first establishes the virtual world in the computer, then the designer builds the scene and model according to the size and shape of the object, and finally establishes it in the virtual three-dimensional world [6]. For the use and emergence of special effects of film and television, often more common, a variety of large films appear in front of the audience, for film and television works, when the effects of human and natural factors can not be achieved by means of special effects of film and television can better show, the performance of three-dimensional works, for the film and television industry is a huge innovation. The principle of animation design in art

design is basically the same as that of traditional animation design. The animation design in design only applies computer science technology to the design and processing of animation, which realizes the effect that traditional animation design can't achieve [7]. When viewing 3D animation design, the first to show the audience is the entire design scene and color features, which makes the image in the animation more prominent, but also reflects the design style of this animation. The body of the character in the film is given scalability, bold and exaggerated deformation, all the ridiculous art design has achieved excellent picture effects, but also makes the film rich in entertainment. Obviously, in the future, animation works with similar animation and art styles will gradually be buried in the corner of the audience's eyes. This is bound to be a new exploration topic and challenge for China's animation industry, especially animation art design [8].

2. Materials and Methods

In different angles of moving and moving scenes, using multi-dimensional scenes in the animation to show more realistic three-dimensional animation picture, promote the role of authenticity, expand the appeal of the plot rendering range. In order to make special effects, we should first perfect the characters step by step. Firstly, we can do it according to the original picture. Then, we can perfect the characters according to the point, line and surface characteristics of the film and television, so that we can model the characters and establish the moving track and information. The use of three-dimensional animation design strives to make the character's dress matching and every move realistic. Therefore, in three-dimensional animation design, the use of environmental effects, transparency effects, sports effects and so on, constantly pursuing the vivid image of the game scene. Computer graphics' particle systems provide solutions to these blurred motions and objects without fixed shapes. The particle system simulates these irregular objects with tens of thousands of particles, and performs similar operations with a random range of values within a certain range to achieve the ever-changing effect of nature. The three-dimensional animation effect elements are constructed as shown in Table 1 and Figure 1.

Table 1 Composition of Special Effect Elements in 3D Animation

	Location	Parameter
Mapping Diversified Application	17.23	16.13
Key Frame Settings	15.53	15.92
Pictures and Irregular Modeling	16.71	16.33
Quantity of Particle Material	16.22	15.08

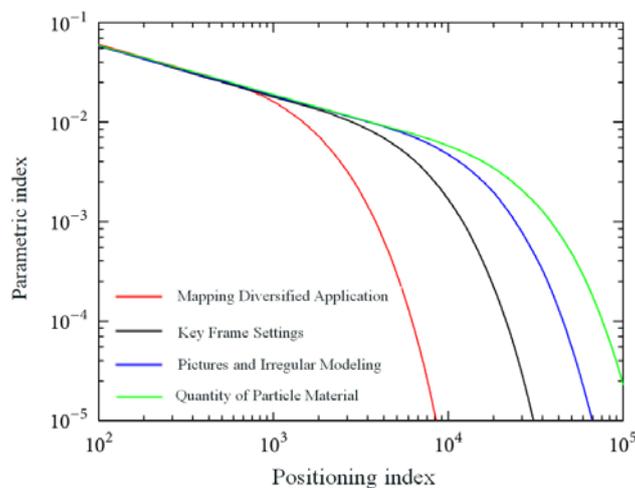


Figure 1 Composition of Special Effect Elements in 3D Animation

For animation art design, it is the different qualities of the designers themselves that form the diversified style of animation art design. Characters have a strong appeal, whether they are characters, animals or other living objects, they are unforgettable. This design model is one of the visual manifestations of three-dimensional animation design. This vivid also reflects a sense of rhythm, which is a regular change. From color to character design, from the background to the final composite effect of the picture, the hand-painted feeling and the Ukiyo flavor are rendered to the greatest extent. With such an artistic style to interpret Japanese mysterious stories, the expression is appropriate and appropriate: the magnificent and mysterious atmosphere of the works has been strongly foiled, and the form and content have been perfectly integrated. In the early stage of art design, animation creators must find a large number of reference materials, draw conceptual drafts and styles, consider the creative intentions of the works, regional cultural characteristics, etc., and conceive the most accurate concept map after brainstorming, designed for art. Expand the basis for the offer. As one of the forms, animation not only meets the requirements of artistic communication, but also keeps pace with the times and meets the requirements of modern people for aesthetics. To strengthen and streamline subjective emotions, in order to make the works accurately reflect the author's spiritual characteristics and aesthetic tendency, it uses strange shapes, artistic composition, color matching, creative thinking methods, and conceptual modeling. The world view reflected in the point of view emphasizes subjective creativity.

Diversified infiltration of the fact that even though the plastic design has in fact opened up a lot of art fields that have been independently developed and formed, and made the possibility of artistic expression of works greatly increased, in animation creation, whether scene design, role design or prop design, will ultimately be implemented to the color designation. It can be said that color design gives animation a visual vitality, and every animation with mature style can not be separated from the delicate use of color. Applying means and material materials to master art, art includes arts and crafts, painting, design, sculpture, architectural seal carving and calligraphy. In order to achieve the coordination of the scenes and make people feel the unity of space-time relationship in animation. The particle system's expressions and several dynamic fields provided by the software are used to give the particles, but the parameters are constantly debugged, which is time consuming and laborious. In the plugin, I envision a program that applies a similar force to the particles to achieve several different motions of the particles, and the parameters are automatically adjusted by the program. Special effects scene requirements, particle effects production software and plug-in analysis, particle rendering effects, comprehensively consider the efficient use of particle systems in animation effects. In the application of lens conversion effects, attention should be paid to the design of the lens effect. The particle example replacement effect diagram is shown in Figure 2. According to the overall aberration of the 3D animation and the content of the script, the position of the special effect of the lens conversion is analyzed in detail, and the reasonable and prominent position is obtained to increase the overall performance of the 3D animation.

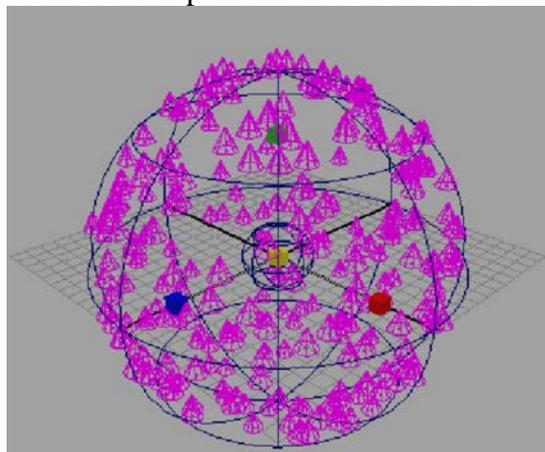


Figure 2 Particle instance substitution effect diagram

3. Result Analysis and Discussion

Special effects technology plays an important role in the authenticity design of three-dimensional animation in film and television. It can be effectively combined with scenes in the process of motion, and can increase the strength of the overall story expression, thus forming a more realistic picture of three-dimensional animation. With the addition of special effects art, the shadow of animated characters and the sunshine shadow in animated environment have been well constructed. Connect each frame of three-dimensional animation to form a dynamic picture. This method greatly improves the efficiency of designers, but also makes the entire three-dimensional animation design convergence is very smooth, there will be no sense of fault. Using all kinds of software and plug-ins synthetically, matching resources reasonably according to the animation style rhythm to ensure the efficiency of the game. The effects that can be solved with model and texture changes are not the particle system, and the control of the model and texture is also a special effect element that 3D animation needs to limit. The elements of 3D animation design should be balanced and complementary, and can form a static phenomenon, which requires the color, shape, quality, space, direction, etc. of its elements in the design of the shape, as well as its overall scene structure. China can be in a stable form, giving people a balance of beauty.

Three-dimensional animation special effects design needs to integrate digital technology and art design forms into three-dimensional special effects according to the characteristics of various animation backgrounds and various styles of animation rhythm, and complete the overall improvement and positioning of three-dimensional animation with rich imagination. When making the original picture, we should bind the animation according to the pre-role of the film and television animation, and on this basis, according to the mid-role. In the later stage, the work is to synthesize the two. That is to say, we should pay attention to the understanding of the relationship between three-dimensional animation design and special effects art. Special effects can not only be achieved by special effects performance technology, but also by artistic special effects based on different film and television works, so that the narration and expression of animation has a strong visual impact and appeal. In theory, "information shaping" means that particles with shape constraints are concentrated or dispersed according to a predetermined path, and finally combined to form the shape of a three-dimensional model set by the user, and the shape and material of the particles are unchanged. For the influencing factors in the scene, designers need to set them up and cooperate with each other to construct a perfect artistic conception, so that people can enjoy a special beauty.

In the artistic design of animation works, prop design can not be ignored and has multiple significance: first, display props can account for the story environment and structure of the plot function; secondly, the use of prop design ingenuity can contribute to the development of the story of the works. The advanced tools of animation create the technical techniques of lens change and modern special effects, special effects to absorb nutrition, so that two-dimensional animation has more exciting points. The design elements are set up, and the motion path of the design elements of the characters is set by building a three-dimensional model, so that the motion trajectory can be designed, which is conducive to the authenticity of the story scene. Because the computer is only a rough calculation of the intermediate process, so it can not produce animated films with higher difficulty, often hand-painted together to produce, to ensure the quality of the film. For modeling, the key is to use the editable polygon to build the patch and the irregular model. For the material key, the various texture effects are diversified. The key to the animation is the key frame selection and setting. For the particle system, the key is the particle texture map. Balanced use with quantity parameters. The special effects expressed by particle art are mainly controlled by particle material and particle parameter adjustment. It is necessary to flexibly use the efficient particle size map size and the maximum active number of particles.

4. Conclusion

In this paper, the special effects of three-dimensional animation based on art design and

performance are studied. Achieve the perfect combination of audio, text, image and other artistic elements, provide real or virtual three-dimensional animation design scenarios for different industries, and make an important contribution to the development of the design industry. Understanding and mastering the combination of three-dimensional animation and effect art, at the same time, we can correctly understand the role of special effect art in film and television three-dimensional animation design. Only in this way can we improve the quality and effect of special effect art in three-dimensional animation. In the use of special effects art 3D film and television animation, actively grasp the performance of special effects light and shadow art, the performance of lens conversion special effects and the expressive effect of spatial dynamic effects and the expressive power of interactive special effects, in order to improve the quality of applied special effects technology in 3D animation. effect. At the same time, control the number of models and the number of textures; with the rhythm of animation style as a pointer, animation design must have its own characteristics, innovation, and deep experience in the ideological connotation, in order to survive in this diversified era. Comprehensive use of various software and plug-ins, reasonable ratio resources to ensure the efficiency of animation rendering output. Turn to create three-dimensional, with a simple and rich image, bright colors to show the development of the plot. Taking the animated rhythm as a pointer, using a variety of software and plug-ins, a reasonable ratio of resources to achieve the integration of technology and art.

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