Analysis of Modern Film and Television Special Effect Synthesis and Post-production Technology

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Abstract: At this stage, with the development of digitalization of science and technology and the common development of the film and television industry, the application of computer technology in film and television is becoming more and more widespread. Many film and television works show a single form of expression without post-processing. The plasticity and surprise degree of film and television works can not meet certain standards. Based on this, reasonable use of computer synthesis, editing, special effects and other technologies has become an indispensable important link in film and television production. In this paper, based on the process and specific elements of special effects synthesis and post-production technology, the two post-production technologies are analyzed.

1. Introduction

As early as the 1950s and 1960s, the application of digital technology appeared in film and television works. Although the technology at that time was not developed enough, it also brought different perception experience to the audience. Nowadays, with the rapid development of information technology and the gradual maturity of the application of digital technology in film and television, the emergence of 3D, 4D, 5D and other multi-dimensional films provides audiences with a more real, vivid and ornamental visual experience. The content of special effect synthesis technology and post-production technology, which play an important role in film and television production, is also worth studying and exploring.

2. The Basic Process of Film and Television Production

Figure 1 Basic process of film and television production

2.1 Pre-production

Systematic production of a program, referring to such materials, the use of split mirrors, shooting scripts, lighting debugging, scenario, actor selection, music samples and other aspects of the general idea, and the necessary shooting props, costumes, makeup and other things to do a full preparatory work.

2.2 Filming stage

In the actual shooting work, arrived at the site arranged in the preparatory stage, and started the actual shooting work according to the shooting script. Attention should be paid to the perfection of preparatory work in the process of shooting, so as to avoid the occurrence of inadequate props, uneven personnel, limited space and other events that hinder the normal shooting.

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2.3 Post-production

In the shooting process, the shooting material does not necessarily appear in the positive film, and the photographer will often mark the shooting material accurately. The editors need to view the material and outline the plot according to the previous position, such as narrating in positive order, or clipping the video material in the way of flashback and episode. This requires editors to carefully deliberate, according to the annotation, reorder the video material, highlighting the theme of the film. In some larger film and television projects, they often take the way of shooting and editing at the same time to show the edited parts to the directors and producers, so that they can more clearly understand the shortcomings of the film, so that they can choose to make-up or focus on some parts of the material in the next shooting [1]. This way of work enables more feedback in the post-production process, and can continuously improve the film structure based on feedback.

3. Overview of Post-editing Technology of Film and Television

Post-editing technology is the most important step in film and television production. Editors need to integrate all the video, audio, text and other materials logically. Through computer technology, film and television works will be fully displayed in front of the audience. Whether the late editors of a work are excellent or not will directly affect the perception of the work in the hearts of the audience and the quality of the work. At present, the late editing technology mainly focuses on linear editing and non-linear editing. Linear editing is a more traditional editing method, which occupies the main position in the early editing of film and television. Non-linear editing uses computer technology to perfect the integration of multimedia technology and film and television production. Through computer technology, the recorded video and audio information can be sorted out, and special effect pictures can be added according to specific circumstances, so that the film has more impact and ornamental. Traditional post-editing technology belongs to pure manual post-editing. In the process of development, people find that this method is not only difficult to meet the requirements of the film for the lens, but also wastes a lot of manpower and material resources. Modern editing technology based on the editor avoids the occurrence of bad results.

4. Elements of Post-production of Film and Television

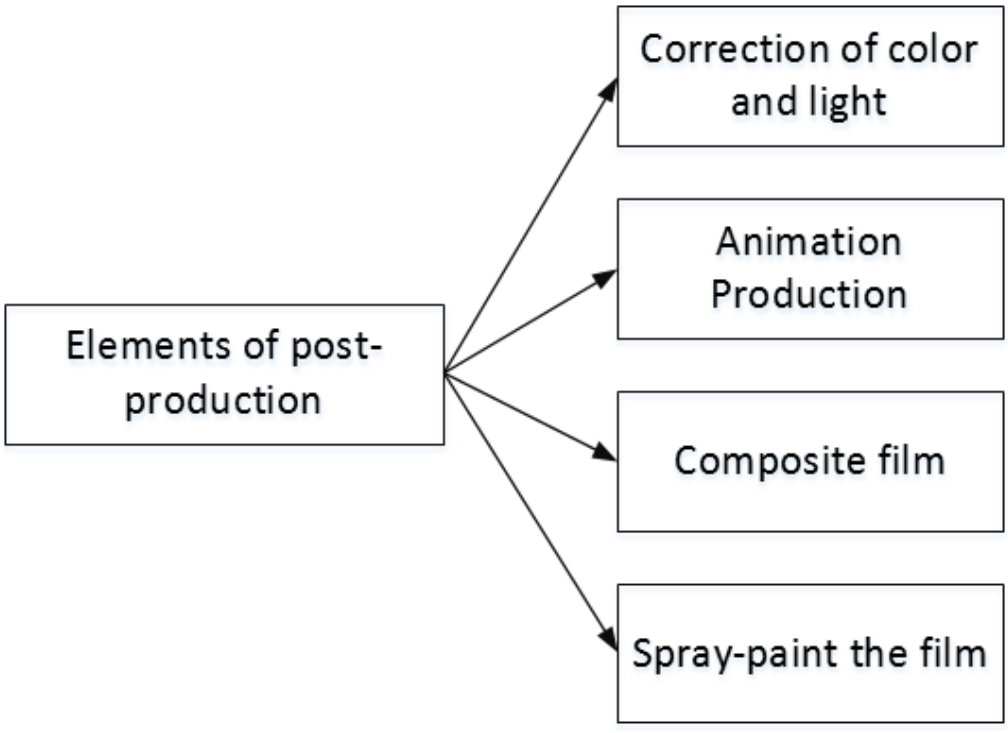

Figure 2 Elements of Post-production

In general post-production, it includes the following four elements:

1) Correction of color and light;
2) Animation production;
3) Composite films;
4) Spray-paint the film.

The above factors have played a very important role in the post-production of film and television. All four factors are indispensable. If a part of the film is missing, the work presented will not be complete [2].

5. Overview of special effects synthesis technology for film and television

The special effect synthesis technology in film and television production mainly combines some special pictures with videos through the image processing technology of computer system, creating more visual impact simulation pictures or special effects, giving the audience a real stimulation, as if they were in their own unique experience. On the one hand, the extensive application of special effects has satisfied many scenes that were once impossible to achieve, such as swordplay flight, planetary motion and other scenarios. On the other hand, special effects also make it easier for the crew to shoot. Some dangerous shooting environments, such as high altitude, deep sea and so on, can now be achieved through special effects synthesis technology. Actors only need to perform in front of the green screen indoors. The connotation of digital synthesis is to integrate different materials into a picture through the processing of computer editors. Integration is based on the processing of some pictures. It is not only one-sided overlapping of pictures, which requires special effects artists to have a certain understanding of the pictures to be processed, in order to achieve the desired results.

6. Typical Digital Synthesis Technologies

Digital synthesis technology refers to the operation of combining multiple images into a single picture through a computer. At present, the typical digital synthesis technology mainly embodies the following aspects:

6.1 Colour proofreading

Colour correction is a basic requirement in digital synthesis, which requires that the pixel color of the image be adjusted appropriately. In order to keep the overall tone coordinated, special effects artists should proofread the background painting before making special effects. In addition, in the absence of special effects, color correction can also be used to bring better visual experience to the picture. At present, many non-linear editing systems have their own correction software, which also facilitates the process of color correction.

6.2 Geometric transformation

Geometric transformation is to move or transform the material in the picture according to the requirements of the work. Rotation, translation and scaling are the most basic effects of geometric transformation. Reasonable adjustment of material size in the process of special effect synthesis helps to coordinate the proportion of each material in the picture. Geometric transformation is not only horizontal transformation, but also possible in multi-dimensional space.

6.3 Filters

Filter is a digital technology based on the calculation of the pixels in the picture, which can calculate the new pixel values. It is also a widely used technology at present. To a certain extent, the filter can be said to be similar to PS graphics effects. It can adjust the picture or background by blurring, sharpening, projection and other effects. In the post-production of film, television, photography and other fields, the sharpening, projection and blurring effects of filters have brought certain visual impact to the audience, and greatly enhanced the aesthetic level of the image.

6.4 Image synthesis

After the adjustment of digital technology such as color correction, geometric transformation and filter mentioned above, it comes to the image synthesis stage. Digital reproduction technology is a common synthesis technology. It realizes the layout of the picture by one-time reproduction of the unit picture. This technology is widely used in the more magnificent scenes such as war. The technique is to take several shots of a small number of actors first, and then copy the scene many times. In addition, blue screen technology is also a common synthesis technology.

7. Three Relations of Special Effect Production in the Late Period of Film and Television

1) In the process of special effects production in the later stage of film and television, we must coordinate the relationship between pictures and pictures. In the early shooting stage of the work, the pictures are often fragmentary rather than sequential fragments, so in the process of splicing the pictures, we need not only to achieve orderly and logical artistic splicing, but also to pay attention to the compactness of splicing the pictures and enhance the viewing of the pictures.

2) Harmonizing the relationship between music and pictures is also an indispensable existence in post-production. For film and television works, besides video, audio matching is also very important. In order to achieve good audio-visual effect, we should focus on coordinating the relationship between music and pictures. Video plays an important role in the film and television works. The most intuitive way to output views to the audience is the presence of language. The addition of audio can not only make the picture more popular and understandable, but also express content according to different scenes. For example, in a sad situation, it can be selected slowly. Rhythm, dull music to foil the atmosphere of sadness [4].

3) We must coordinate the relationship between subtitles and sound pictures. If the subtitle is not synchronized with the sound and picture, it will bring the audience a very bad viewing experience, so we must pay attention to the coordination of the relationship between the three. In addition to paying attention to the non-synchronization of the sound and picture, we should also pay attention to the following points:(1)We may not pay attention when watching, but slight changes will certainly have an impact. It is the problem of subtitle background and subtitle color. Different color fonts can render different atmosphere. White subtitles often give people a solemn and solemn feeling, while red, yellow,blue and other vivid colors give people a natural and warm feeling. Chaotic color matching can give the audience a bad impression.(2) In the relationship between audio and picture, audio can render the atmosphere very well. The color of subtitles can also be used. In different situations, specific color, size and font of subtitles should be used. There is no reason and logic to associate the color of subtitles with the scene will make the audience feel operatic.

8. Conclusion

At this stage, the development of digital technology in the film and television industry has a very large space. The emergence of computers has replaced the traditional film and television equipment, and achieved the effect that can not be banned in some functions. From the perspective of the film and television industry, mature technology brings them more profit space. As long as we keep up with the development of digital technology and apply technology to film and television production, film and television works will show a more perfect visual effect, and our excellent film and television works will also mount a larger stage.

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