

Preliminary Exploration of Lighting Application in Television Cinematography: Postprint

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Abstract

Television cinematography largely determines the quality of television programs. The regulation of lighting is a relatively complex undertaking, requiring camera operators to possess substantial professional experience and to make adjustments based on actual field conditions. The technical application of lighting in television cinematography is also relatively sophisticated. Generally, light and shadow transform according to the actual conditions of outdoor natural light; although certain patterns of variation exist, when light is projected onto objects, phenomena such as reflection and refraction occur, rendering precise control of light and shadow changes difficult. Based on this, this study investigates the application of lighting in television cinematography and presents its own insights, with the aspiration that television programs may present more exquisite and aesthetically pleasing images to audiences.

Full Text

A Preliminary Study on Lighting Application in Television Camera Work

Abstract: Television photography largely determines the quality of television programs. The adjustment of photographic lighting is a complex task that requires photographers to have extensive work experience and make adjustments based on actual field conditions. The application techniques of lighting in television photography are also quite complicated. Generally, light and shadow transform according to the actual conditions of outdoor natural light. Although there are certain patterns of change, when light is projected onto objects, reflections and refractions occur, making it difficult to precisely grasp the changes in light and shadow. Based on this, this paper explores the application of lighting in television photography and presents personal insights, hoping that television programs can present more exquisite and beautiful images to the audience.

Keywords: Television station; Camera work; Lighting application; Exploration

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In television program production, camera operators must respond according to actual field conditions, process the spatial effects of the image, and master the principles of how light and shadow structures affect the picture. For instance, when filming television programs, camera operators should focus on six key aspects that influence the final shooting effect: lighting, composition, color, angle, movement, and shot scale, with lighting adjustment being the most critical. There are many ways to adjust lighting based on actual field conditions. However, since lighting is an uncertain factor, it is difficult to achieve ideal results in its control. This requires relevant personnel to have extensive work experience and strong on-site adaptability—fundamental skills that camera operators should master. When audiences watch programs, they view through television screens, converting visual signals into mental signals to understand the content. Precise control of lighting can enhance the overall quality of the image, making the converted mental signals more stimulating and thereby achieving ideal information transmission effects. This paper analyzes the application of lighting in television photography, hoping to contribute to the improvement of television camera work in China.[?]

1. Key Aspects of Lighting Application

1.2 Temporal Aspects

Currently, many television stations in China employ documentary-style imaging in their photography, which involves temporal spans. To represent events occurring within a specific time period, operators must grasp the temporal dimension, and filming exhibits characteristics of temporal continuity. Therefore, television stations must also pay attention to spatial factors in the application of camera lighting. In terms of spatial characteristics, cameras are rarely in a fixed position or angle during filming; they must change according to the actual requirements of the broadcast content. This requires camera personnel to adjust lighting based on spatial changes to achieve the most ideal picture effects. Compared with planar photography, spatial camera work presents more three-dimensional images and demands more stringent lighting transformation techniques. In practical operation, it is evident that this is a rather complex task. During filming, lighting and angles must be frequently transformed to ensure optimal shooting effects. Staff must have extensive work experience.

1.1 Spatial Aspects

The connection of tonalities and color tones should maintain consistent continuity with time, which also reflects temporal changes to a certain extent. For example, in outdoor filming, the angle of sunlight on objects changes throughout the day, and the shadows presented by objects also change constantly. Through these changes in light and shadow, temporal variations can be reflected to some degree.[?]

1.3 Modeling Aspects

Because television camera work features continuous images, and according to specific on-site filming requirements, single image frames must be processed. Lighting modeling can be accomplished within a specific instant, and this process generally does not undergo significant changes. However, for television camera work, the situation is much more complex, related to changes in the filming environment, lighting, photographic subjects, and equipment. The impact of lighting on camera work is particularly significant, and photographers should consider how lighting transformations affect the subjects themselves. The famous French Impressionist painter Monet created paintings based on changes in light and shadow on people or objects, and the same principle applies to television camera work. Precise utilization and mastery of light and shadow changes can greatly assist television photography work. Light and shadow can have various effects on images, which may be positive or negative depending on actual field conditions. When filming people, as subjects move, careful control of light and shadow contrast is necessary to ensure that facial features and actions remain clearly visible. In other words, when the same person moves through changing light and shadow, effective adjustment of lighting must accompany the transformation of the subject's modeling.[?]

2. Considerations for Lighting Application in Television Photography

2.1 Environmental Light Differences

In general, many factors during television filming influence the final image quality and cause significant variations in ambient lighting. Changes in camera lighting manifest in various aspects, such as light intensity, light source types, and specific properties of light. In summary, television camera personnel must have a clear understanding of the filming process, ensure appropriate angle selection, and ultimately restore on-site colors according to actual filming requirements to guarantee audience viewing quality.[?]

2.2 Rational Lighting Design

When designing filming lighting, television images must reflect the characters and distinct figures that need to be portrayed, which requires environmental

enhancement. Rational application of lighting can achieve ideal thematic expression effects. Typically, the application of filming lighting should be dominated by environmental atmosphere. Based on this, a detailed analysis of lighting utilization is necessary. First, filming lighting must be rationally designed according to actual on-site camera requirements to develop a plan and implement lighting design according to basic practical requirements. Camera operators should also immerse themselves in daily life, carefully observing patterns of light and shadow changes and summarizing them. The changes in light and shadow in daily life are identical to those in television camera work—both are phenomena produced by natural light illuminating objects. For camera operators, careful observation of light and shadow changes in everyday life can provide valuable inspiration for actual work, thereby improving the quality of television image filming.[?]

2.3 Color Temperature Regulation

Precise regulation of color temperature during filming is extremely important. This requires relevant personnel to have extensive work experience and strong on-site reaction capabilities, paying constant attention to white balance adjustment to ensure that image colors are in the most favorable state for viewing, which can greatly enhance audience visual experience. Therefore, television camera operators should be fully aware of the importance of color temperature.[?] Generally, changes in color temperature affect images to a certain degree. If not well controlled, they can seriously reduce the overall quality of camera images. Additionally, color temperature is extremely susceptible to external environmental influences, whether natural or human factors. When color temperature changes, the image is adjusted along with it. This adjustment may improve image quality, but it may also reduce overall image quality to some extent. Manual adjustment of color temperature often involves adding transparent colors in front of light sources to achieve flexible regulation of light color temperature, requiring television camera workers to flexibly apply dynamic lighting modeling.[?]

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