

The Effectiveness of Modern Lighting Technology in Producing Documentary Films

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Introduction:

With the development of digital imaging technology, documentary films have developed and flourished to reduce their cost. The visual image is one of the most powerful means of conveying information to the recipient, which is the ultimate goal that the documentary film seeks. A good image cannot be obtained without good lighting, because the image under the available light lacks the basic elements of composition, such as contrast, depth, and the general feeling of the scene, as good lighting is what attracts the viewer. In order to produce a good documentary film, modern technology must be used in different lighting sources.

Keywords: Documentary Film- Lighting Sources- Artificial Lighting

Research problem:

The poor visual quality of some documentaries and the aversion of many viewers to this type of film due to the lack of use of many modern technologies for lighting sources.

Importance of the research:

The importance of the research lies in identifying the modern technology of different lighting sources and devices and their effect on the shape of the image and linking this technology to the techniques of documentary film.

Research objectives:

- 1- Identify the changes that modern lighting technology has introduced to the documentary film image.
- 2- Knowing how to distribute lighting appropriately and benefit from technological development to produce a good documentary film.

Research methodology:

The research uses the descriptive analytical approach based on describing and analyzing the devices and tools used from modern lighting sources.

Research hypotheses and questions:

- 1- Modern lighting and photography techniques can change the concept of the documentary film, thus increasing its visual appeal.
- 2- The way different lighting is distributed affects the delivery of information in the documentary film to attract the viewer.
- 3- As a result of the difference and multiplicity of lighting distribution methods, the objectives of the photographed scene vary.

1- Documentary film:

It is the art of observing reality and it is a document about the place, event or person that it deals with and it depends on observation from life itself. It depicts live scenes and real life. Its people and scenes are chosen from living reality to be its basis, culture and reflect the society that it deals with. Therefore, its mission is to record real events for the purpose of archiving to refer to them as a reference later about a specific issue, place or specific story.

2- Lighting:

Lighting is the most important and main element in the image, and lighting in documentary films is what forms the image, represents it, and attracts the viewer to it. It is what tells the story, and its choice is what affects how the audience perceives the story and interacts with it. This is what technological development plays in the lighting industry. Therefore, when the documentary filmmaker plans a specific scene in advance, the audience expects it to be presented in a new way that adds to their visual language and the effective use of lighting and good composition of the shot. The cinematographer is the author of the use of light in the documentary film.

The importance of lighting in documentary films:

Vision is achieved through light rays reflected from objects and forming parts of the image. This is what happens with a movie or television camera, where lighting is used for engineering (technical) purposes and for various artistic and aesthetic purposes, such as the following:

Technical objectives of lighting:

- Emphasizing the presence of the subject and highlighting it among its surroundings to direct and draw the viewer's attention to it, as well as showing certain aspects of the subject and emphasizing their presence and importance or hiding them and not feeling their presence through light and shadow.
- Transferring the viewer to a realistic image of the film's events through visual plans that indicate that the lighting came from logical sources such as lampshade or candle lighting.
- Creating an atmosphere or emotional effects through the use of lighting effects that contribute to the narration of events and people's responses and using modern lighting techniques to clarify certain dramatic situations and manipulate viewers such as a sense of joy, sadness or pride.
- Deepening the sense of emptiness, distance, space and unity of composition in the scene.

2-2 Basic lighting standards in documentary films:

- 1- Light Quality
- 2- Direction Of the Light
- 3- Light Intensity
- 4- Light Color

2-3 Directions and types of lighting used to create the visual image:

- 1- Key Light
- 2- Fill Light
- 3- Back Light

- 4- Side Light
- 5- High Key Lighting
- 6- Low Key Lighting
- 7- Hard Light
- 8- Soft Lighting

2-5 Lighting sources:

Lighting sources are divided into two basic types: Natural lighting and artificial lighting.

2-5-1 Natural lighting:

What we need for outdoor documentary filming is daylight not sunlight, because daylight is a mixture of direct sunlight and reflected rays from around it, therefore, it is preferable to take pictures when the sun disappears behind white clouds and in shady places because the lighting is distributed proportionally and as long as the amount of light is sufficient to enable the camera to record the features of the shot, the sensor unit of modern digital cameras has helped with the superior ability to take pictures even in low light conditions.

2-5-2 Artificial lighting:

1. LED lighting
2. Tungsten lighting
3. Fluorescent lighting
4. Daylight & HMI

1. LED lighting

It facilitates the color correction process, light intensity control function, and the flexibility of controlling LED colors such as RGBW by controlling each color individually, which contributes to saving time in dispensing with color filters.

It also gives complete control over the brightness, color and direction of the light, which allows for multiple adjustments to achieve better results for producing a good documentary film.

1-1 LED lighting features:

- 1- Efficiency & Efficacy
- 2- Color Gradient
- 3- Cool Light
- 4- Dimming
- 5- Shape and life span

1-2 Latest types of LED lighting sources:

- A. Sky Panel
- B. Orbiter
- C. L-Series C

1-2-1 ARRI Sky Panel

It is one of the widespread lighting devices used in documentary film to illuminate large areas that require soft and diffused light. It is a group that includes: Classic SkyPanel – New SkyPanel X

A-a. Classic Sky Panel:

It is a high-quality LED lamp with soft lighting, and it also provides ease of achieving the required lighting settings and color temperature, ranging from 2800 Kelvin to 10000 Kelvin.

Classic SkyPanel types:

S30-C (picture 1), S60-C (picture 2), S120-C and S360-C (picture3)

The S60 adapter is known for its soft lighting distribution and precise control, it is a precision S60-C adapter, easy to carry due to its light weight of 2kg, it maintains a range of accessories such as Light banks (picture 4), honeycombs and SkyBenders



(1)



(2)



(3)



(4)

A-b. New SkyPanel X :

It is a new technology that has been made to be installable in different sizes (X21, X22 & X23) as in the picture 5,6 & 7 providing soft and sharp lighting.



(5)



(6)



(7)

LED Tubes:

It is one of the stimulating lighting sources that is used as an alternative to natural or artificial lighting sources, as the light in the scene appears to have a source coming from it, such as candles and car headlights, which are used in lighting documentary films to obtain some of the color effects required to create a sense of realism, such as: CINE TUBE HUE 120- RGBWW (picture 8& 9) and HYPERION TUBE (picture 10& 11)



(8)



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Tungsten Light:

It is a light that creates sharp shadows that draw attention to a specific part of the scene. The latest development from ARRI in tungsten lighting is ARRI Junior.

CINELIGHT offers tungsten Flood lighting including:

The Cinelight MaxiBrute Twenty-Four Light 24KW (picture 12& 13) is mainly used for lighting up large areas.



(12)



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2- Fluorescent Light:

The light emitted from it is diffused, which results in a soft image without sharp shadows. These lamps are sometimes used in installations that include groups of tubes, and these tubes are color-balanced for daylight or tungsten.

3-1 The advantages of fluorescent lighting:

- Its lifespan is long, up to 10,000 hours, and its prices are good and it is light in weight, which makes it possible to use it in documentary filmmaking.
- It is used as the main lighting for the scene, provided that the color temperature is unified, and it is also used as lighting to fill shadows.

3-2 Types of modern fluorescent lamps:

Studio Cool 2X 55W- 1 Bank ON/OFF (picture 14), Studio Cool 4X 55W- 2 Bank ON/OFF (picture 15) and Studio Cool 6X 55W- 4 Bank ON/OFF (picture 16)



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(16)

4- Daylight & HMI

It is a type of lighting used to simulate daylight and has a color temperature ranging from 5500 to 6000 Kelvin. It is used in outdoor filming for documentary films to focus on important events and figures. Among the innovative daylight products is the M-Series from the company.

The M-Series includes the M8, M18, M40, M90 and ARRIMAX 18/12.

HMI:

The specific gas mixture in the HMI bulb is designed to produce light with a color temperature of 6000K, which is consistent with daylight, making it suitable for outdoor documentary filming, and it produces flicker-free light due to the high frequency of its operating system. These bulbs are used to balance the amount of outdoor and indoor lighting in the case of shooting indoors with natural light, such as indoor shooting of buildings. As, HMI Compact Fresnel 200 Watts (picture 17), HMI Daylight Compact Fresnel 12000W/18000W (picture 18), Cine light X-12/18 HMI Flood Light (picture 19) and Cine Ball H-60 HMI Soft Light (picture 20)



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Search results:

- 1- The use of modern lighting techniques in documentary films contributed to the director of photography's creativity in the form of lighting, which contributed to confirming the information that reaches the viewer.

- 2- The high-efficiency LED light sources in Sky Panel devices provide six color modes: CCT- RGBW- HSI- Source Matching- Gel Selection- x, y Coordinates, to control the strength and color of the light source.

Research recommendations:

- 1- Modern lighting sources must be used in the production of documentary films to attract viewers.
- 2- Different types of light sources should not be mixed in order to obtain a good color gradation and to avoid any unwanted color cast.
- 3- Lighting should play a role in the technical and aesthetic aspects of the documentary film.

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