

# *Analysis of the design and use of stage lighting and artistic expressions*

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**Abstract:** The design and use of stage lighting contribute to displaying the artistic effect of the stage. The use of a variety of colours in the design of stage lighting as well as a combination of elements of the skills of the stage artistic effect of the presentation of the stage play a great role in this. Stage lighting is an essential component of stage performances, and stage performances complement one another, are closely related, and are an important point that constitutes the elements of stage performances. Therefore, before designing the stage lighting, we should first understand the content, theme, purpose, and format of the performance. At the same time, we should combine the stage scene layout, background music, and the actors' performances for the lighting design, in order to powerfully portray the characters, show the transformation of the stage time and space, create the mood and atmosphere, so as to make the stage theme more prominent and greatly enhance the quality of the stage performance. It may substantially enhance the standard of the stage performance, provide the audience with a richer and deeper experience, and better serve the stage art performance.

## 1. Introduction

Early outdoor performances were often held during the daytime. Stage lighting arose and evolved as performance venues changed, indoor and night performances increasingly expanded, and the performance atmosphere greatly improved[1]. Candles were first employed for stage lighting in 12th-century China, while hairpins were first used to reflect the stage during nighttime outdoor performances in 16th-century Europe. Later, stage designers experimented with controlled colour lighting, and in the 18th century, it became normal to turn off the theatre lights while leaving the stage lights on during performances. Stage performances were made possible by the quick development of light sources from the 19th century forward, particularly the invention of tungsten light bulbs in the 20th century. A number of lighting approaches, including the use of many screens, layers, and angles, were developed as a result of the development of multi-screen, multi-layer, multi-angle projection techniques and other lighting shaping techniques in the 1950s. Lighting art

continued to advance with the invention of various light shaping methods. A stage spotlight projection system was first developed in Shanghai, China, in the 1930s, and as theatres built to worldwide standards, the practise of stage lighting performance with Chinese characteristics also started to rapidly advance[1].

People are no longer happy with the wealth of material life; instead, more energy is being transferred to satisfy their spiritual wants, and art is a crucial avenue for them to meet both their spiritual and cultural demands[2]. This is because people's material living standards have substantially increased. According to Zhang Xiaopeng, the fast growth of stage performance artwork may be attributed to the fact that as the social economy develops, people begin to follow the will of spiritual culture more and more forcefully[9]. The ideal integration of lighting and performance may deliver flawless artistic satisfaction to the audience; stage lighting is to employ light and colour for the purpose of artistic creation[8]. Stage lighting uses complicated technological methods to convey rich "rich and colourful artistic effects. The progression of time has resulted in a range of modifications in the shape of lighting as well as the form of the stage, as well as the creation of many new lighting technologies to further improve the quality of the performance[5]. Stage lighting design should be carried out throughout the whole of the stage process in order to bring colour to the stage performance and improve the creative appeal of the stage performance[10]. This investigation focuses mostly on the lighting design of the stage as well as applications that are associated with it.

## **2. Analysis of the concept and characteristics of stage lighting design**

### **2.1. Artistic Concept of Lighting**

Light and color are the colors of light, they represent an artistic form where light and color blend together, and they are also one of the most emotionally expressive artistic forms in stage lighting design[8]. Lighting can cleverly enhance the stage's mood and atmosphere, and convey the thoughts and emotions of characters. It can seamlessly integrate into the expression of the stage's space and time, controlling the rhythm effectively. It encompasses several crucial elements in stage design, including scenery, costumes, makeup, props, and more, forming a uniquely captivating artistic temperament. Therefore, light and color in stage design constitute a significant aspect of theatrical art practice, requiring a better mastery of their application techniques.

### **2.2. Analysis of the artistic characteristics of lighting**

Different hues, such red, blue, and others, may create a comparable emotional experience in the stage lighting design[3]. For instance, when red is utilized in the design of the stage lighting, people are more likely to associate blood and gore with terror and to think about battle and the sun from many angles. Light and colour play an important role in stage lighting design through the switching of light and colour, horror, associations with blood, etc., form the emotional expression of different light and colour, serve the overall plot of the stage production, render an exclusive inner emotional expression, as well as adapt to the emotional state of mind of different cultural differences and exert the regulating effect of light and colour.

## **3. The design and use of stage lighting**

### **3.1. The use of various colours in stage lighting design**

Colour plays a very important function in ensuring that the stage is able to successfully express

itself. Lighting and colour are maybe the most powerful ways to portray stage effects. Leng Yibing claims that vivid lighting may be used to show the characters, convey the situation, and set the atmosphere[4]. In order to set the mood of the performance, different performance themes should be matched with the corresponding lighting colours. Changes in stage lighting colour can depict the psychological level of the stage characters. Different colours evoke different emotions in people. For example, dark colours can make people feel depressed and gloomy, while bright colours can make people feel brisk and happy. Lighting designers must thus be able to employ lighting colours appropriately in line with the subject matter of performances and comprehend the many emotions that are conveyed by the colours of stage lighting.

For a truly realistic depiction of a snow scene, you may use white light to play in the snow on the set [9]. You can also use green and the set to produce grass, blue to create a large sky and the sea, and other colours that need the matching set and colours to make other scenes. Some of the stage production's scenes—like the one with the snowy winter—cannot be actual live performances. Real snow cannot be used on the stage during the performance. Each of these objects must be coloured appropriately to blend in with the surroundings in order to create a pleasing tableau with the other exhibits. According to Shang Yanfen and Liu Zheng, many hues also have particular symbolic connotations[11]. White, for instance, is frequently used to express simplicity and purity; red, on the other hand, is frequently used to express fervour and passion and can be used to demonstrate the great revolutionary style[9]. Because of this, in order to create an impactful stage effect, lighting designers need to have a thorough awareness of the meanings connected to a range of colours. Coordination of colours should be used to show the stage lighting, costumes, props, and scene set up. This makes the use of stage lighting hues difficult and diverse, and throughout the process of colour performance, it should be completely mixed with a range of colours while also increasing the visibility of the stage theme via the use of colours.

### **3.2. Combination of multiple elements in stage lighting design techniques**

Lighting design is not a standalone discipline; in order to create effective stage lighting, a lighting artist must grasp the fusion of many different aspects, such as the stage set, background music, and actor performances[6]. Stage lighting works by bringing light, shadow, and colour together in perfect harmony. Lighting design is not a standalone discipline. Wang Yiming asserts that in order to create a unity of colour, shadow, and light, the stage lighting design has to be synchronized with the stage set, music, and performance[12]. The fusion of stage lighting and stage scenery comes first. Stage lighting and scenery are two essential elements of the stage layout, and if they are not properly matched, the programming will suffer. Such a disorganized lighting setup will affect both the audience's seeing sight and mood, which will make it difficult for the audience to pay attention to the performance. Additionally, the combination of stage lighting and background music, particularly soothing music during this time, helps individuals decompress and feel at peace. If the lighting is quiet, it will be simple to reflect the mood of the song performance, allowing the music's impact to be felt more strongly. On the other hand, if the lighting is dynamic or fast at this time, it will be distracting and irritating, making the music less contagious. Therefore, lighting design should not be disconnected from music; it should be based on the background songs of the performance. When background music and stage lighting work together to successfully portray the exceptional creative effect, the performance cannot be deemed complete without it. The performers' performances must be coordinated with the stage lights at the same time. Stage lighting may assist portray the character's inner sentiments and personality features in addition to emphasizing the character's look. The goal should be to achieve a good combination of stage lighting and actors performances in order to achieve the desired effect. As a result, before the lighting design is fully

communicated with the performers, the use of appropriate lighting to enhance the content of the performers to express should be considered.

## **4. Artistic expression of stage lighting**

### **4.1. Lighting shapes the characters**

He Lindong believes that the stage's lighting is very important in the development of characters, the expression of their inner feelings, and the accentuation of their roles[7]. Generally speaking, the following two features of stage lighting may be employed to create the characters: One way to convey character and inner feelings while shaping the roles of the characters is via the use of varied hues [10]. Through the employment of shadows, stage lighting may also be employed to form the characters. For example, the colour red may be used to convey a person's inner passion, which highlights a good personality. On the other side, blue has the power to convey a person's inner serenity and sadness, which is an indication of a person's introverted and laid-back personality features. In order to design stage lighting that is successful, lighting designers must comprehend the performance's narrative and assess the psychological traits of the characters. As a result, they will be able to choose the proper hues for the different. On the other hand, you may change the angle at which the light hits the characters to accentuate their purpose. When a performer is the centre of attention, it may be easier to draw the audience's attention to that performance and highlight the character's role. While doing so, using different lighting angles may also help the part stand out more. To highlight the role of an excellent stage work, there must be a prominent role, also known as the leading role. For instance, the use of the front oblique upper angle of light can create a three-dimensional sense; just before the upper angle of light will give people a quiet and stable feeling; just above the side of the upper light can form a contrast between dark and light. By strategically using the theatre's lighting, you can both show the many people on stage and give the theatre an endless and wonderful life.

### **4.2. Lighting shows the transition of time and space on stage**

Can effectively enhance the three-dimensional sensation of the stage by playing the effects of strong and weak contrast to reflect the stage's time and space conversion [3]. This is due to the fact that the stage's arrangement and scene usually must make use of the lighting's colour and its fluctuations in darkness and shadow. For example, changing the stage lights' colour shading may symbolise the passage of time from the early morning to twelve in the morning. The spring lighting design may provide an experience that is both pleasant and enjoyable to people who encounter it by alternating the use of green light and soft light to convey the warmth of spring. By employing colours on the colder side of the colour wheel, winter landscapes may help illustrate the chilliness of winter for the viewer. Varying the brightness of the colour shading will produce these outcomes. Additionally, stage performances may more effectively evoke the sense of space and time blending together by using a range of lighting colours that may help break through the limitations of space and time.

### **4.3. Lighting creates atmosphere**

The stage lighting is crucial in establishing the mood because when combined with the performer's performance, it may make the audience's heart follow the tension and make them feel more involved in the story. For instance, using flashing lights or moving lights quickly may provide a bustling, anxious environment. It is also feasible to create a positive performance mood with the

stage lights. The use of flashing lights, the sensible arrangement of colour changes, and the controlling of the change in lighting rhythm can express the inner feelings of the characters and their character traits, which is necessary to produce a good stage effect while combining the stage set, background music, and the performance of the actors [13]. In the play "White Deer Plains" for instance, the use of hidden lights was employed during the transitional scene without the addition of any brilliant colours, leaving the neighbours with nothing to do but idle and nothing to speak on the surroundings. As a result, for example, the lighting designer might use quick lighting changes to convey the performer's anxiety after a mistake, creating a tight environment for the audience and evoking strong emotions. As a consequence, a great stage lighting design may increase the creative impact of the stage and create a favourable environment for performances.

## 5. Conclusions

Stage performance is a multifaceted artistic endeavour that encompasses several aesthetic attributes and involves the development of a distinct artistic expression. In the field of stage art, the significance of lighting art cannot be overstated. When designing lighting for a performance, it is crucial to take into account a multitude of factors, including the portrayal of character images by actors and actresses, the incorporation of music, the selection of costumes and props, and more. By skillfully coordinating these various elements with the stage, a seamless and harmonious artistic experience can be created for the audience. Hence, it is imperative for lighting designers to engage in rigorous research, enhance their professional skills, and continually reflect upon their practical experiences in order to identify areas for improvement and foster innovation. By doing so, they can effectively contribute to the enhancement of stage art performances, maximise the value of lighting, and generate more captivating works of stage art.

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