The Light Design in Exhibition Spaces

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Abstract

The light design in the exhibition space plays a vital role in the exhibition space and has irreplaceable value. At the same time, excellent light design also plays a positive role and influence in the communication of excellent exhibition space design. This article mainly uses qualitative research methods combined with appropriate quantitative analysis and comprehensive analysis. After studying a large number of relevant literature and cases, it is concluded that the light design in the exhibition space is thematic, dramatic, diverse and integrated. These characteristics improve the design effect of the display space, help achieve the design goals of the display space, promote the communication and development of the display space, and fully reflect the importance, role, value and influence of light design on the display space and the communication of the display space.

Keywords: Exhibition space; Lighting design; Light art; Design impact

Introduction

Smith, J. A in the book "The role of lighting in exhibition design" proposed “Light is the fundamental element of nature and the core of how we perceive the world. “It reflects the appearance, texture and color of things and is the main way we understand our surroundings. Without light, the world would become dim, like a pool of stagnant water. The presence of light gives life and vitality to the space, making it no longer dull. Light is also important because it allows materials to display a variety of colors and textures. Therefore, light plays a very important role in conveying the emotion and artistic conception of a space. It is the function of light that gives the space diverse forms and artistry, thereby giving the space environment a profound connotation.However, how to select and use the characteristics of light and effectively apply it to indoor spaces so that it can play its characteristics while making the main space design is a question worth studying.

Exhibition space design aims to convey information, stimulate thinking, and meet and promote social needs. Johnson, L. K. mentioned in the article "Dynamic lighting effects in museum exhibitions: Engaging the visitor's experience" “Display space is a form of visual art, and it is also a blend of space experience aesthetics and information communication aesthetics.” Literally "display" includes the meaning of display, display, demonstration and performance. Modern display design concepts have been widely used in various occasions such as museums, science and technology museums, fairs, exhibitions, and commercial promotion displays. Regardless of the form of display, it relies primarily on vision to convey information, but information can also be conveyed through other sensory pathways.The prerequisite for effective transmission of display information is that it needs to be visible and clear, and light

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is the key factor that determines this. Therefore, for the display space, it is of great significance to study the role and influence of light in the display space.

Lee, S. Y pointed out in the article "Interactive lighting systems in exhibition design: A case study analysis" that "Light plays an important role in exhibition space design, whether from a physiological, psychological or aesthetic perspective. . Without light, human beings' various sensory organs will not be able to receive information." However, most of today's display spaces ignore the research and application of light design. Therefore, this study comprehensively considers the shape, color and other elements of light in the display space, and uses the principles of visual art, such as chiaroscuro, layering, rhythm, differences in warm and cold tones, and changes in light shape, to reflect the light in the display space. The importance and value of design.

In the context of the information age, display forms have changed, and technical means have become diverse and intertwined. This inevitably affects the concepts and methods of light design in exhibition spaces. People are paying more and more attention to creating an experiential, emotional and artistic space atmosphere. These thematic display space artistic conceptions require the integration of new design methods and concepts. Wang, Q mentioned in the article "Lighting design in contemporary art galleries: Enhancing the viewing experience" that "the role of light in display space design is no longer limited to shaping exhibits and presenting space, its expressiveness and artistry need to be Give full play to it." However, in actual practice, many display designers lack a systematic understanding of light design. Especially when they go beyond practical functions and enter the field of free artistic expression, it is often difficult to give full play to the role of light design in creating artistic conception of the display space. Huge potential, which is also one of the necessities of this study.

Therefore, research combining theory and practice is crucial for light design in display spaces. The research of this article aims to deeply explore the role of light design in exhibition space design, taking the relationship between light and physical space as the starting point. By enriching the expression means of display space design, we actively explore how to understand the subtle relationship between light, people and the display environment through this process, making light an invisible tool for freely displaying spatial taste in the display space.

Research Objectives

Analyze the importance and value of lighting design in exhibition spaces.

The role and influence of indoor lighting design on the communication of excellent exhibition space design.

Research Methods

This article will focus on using qualitative research method as the main research method. First, the theoretical research of this article will be carried out based on the collection of a large amount of literature, such as academic monographs, journal articles, atlases and other related literature. Secondly, after collecting a large amount of literature, the analysis of the display space will be carried out. In-depth analysis and discussion of lighting design cases and content. Finally, the quantitative analysis method and the comprehensive analysis method were used as auxiliary research methods to study and elaborate on the lighting design content of the exhibition space and clarify the importance and value of lighting design in the exhibition space,

as well as the role and influence of lighting design on the communication of excellent exhibition space design.

Research Scope

This study mainly takes the exhibition space as the research carrier and scope, and conducts in-depth discussions around the light design in the exhibition space. Starting from the four aspects of light and space, light form, light color, and light level, the role and importance of space light are studied and displayed, and research conclusions are drawn.

Literature Review

1. Integration of light design and space in exhibition space

The lighting design of the exhibition space is slightly different from the lighting design of other spaces. Most of the exhibits in the display space carry information such as deep cultural and historical connotations. Therefore, in lighting design, more emphasis is placed on the promotion and communication of "good things" and "culture". At the same time, lighting design, as the fourth dimension of the space environment in addition to the length, width and height of the space, must also create a visual environment with comfortable light for the audience to visit and appreciate. When it comes to modern display space design, we can think of it as an information transmission and communication activity. No matter what kind of display space they are, they all pursue comprehensive planning to make the display content more attractive and persuasive. , to cater to the needs and emotions of the audience. Exhibition space design is regarded as an art, which not only involves visible display site planning, but also includes the creation of invisible psychological fields, in which light design plays an important role. In the pursuit of excellent display effects, today's display space design increasingly focuses on emotion, personality, and theme (Smith, 2015: 45-58). These trends have attracted great attention from exhibition space designers, and many of them have invested a lot of time in studying the artistic expression of space and exploring new materials and media. These efforts will inevitably become the basis for successful planning of exhibition design. In display design, light design emphasizes unique visual effects more than other design fields. The artistry and expressiveness of light are particularly important in the display field. This is because the light design in the display space is not only a lighting design to illuminate the environment, but also the visual art of light, which can give the entire display space a unique style. , and enrich the main way to display the spiritual connotation of the theme (Figure 1).

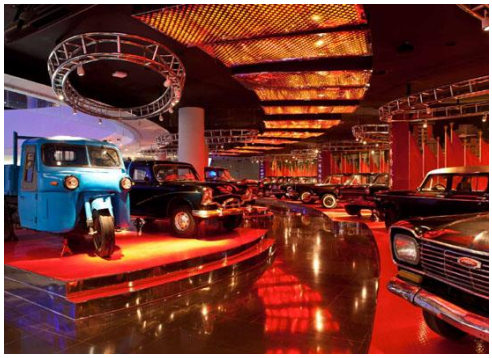

Figure 1 Visual art of light
Source: Photographed by the author

The core of the concept of "light and space integrated design" requires exhibition space designers to fully consider the role of light, that is, lighting, from the beginning when planning the exhibition space. This means incorporating the visual design of the entire space into a blueprint for integrated light and space design, uniformly considering all factors, including display boards, props, walls, stairs, lighting equipment, top styling, etc., to create according to a comprehensive blueprint Display environment. The light design of the exhibition space is a fusion of art and technology, so the composition of the entire space must be established in a display environment that conforms to visual rules and artistic aesthetic rules. Through the synergy of light, shape, and color, an artistic and dramatic display space light environment is created. For example, whether it is the overall planning of the entire exhibition space or the design of a booth or props, a comprehensive design of light, shape and color can be used. Designers need to comprehensively consider the expression and language of the display form, the relationship between medium and light, the light effects of different forms, the brightness and darkness of light and space, color contrast, and the characteristics of space, etc.

The light design of the display space should be a comprehensive expression of light and physical space, rather than simply attaching the light design to the display space, making it a supplement to the physical space design. Studying light and physical space separately, whether it is only focusing on the construction of physical space and ignoring light in the design of exhibition space, or vice versa, is an incomplete method. This may be a common problem and misunderstanding in the current field of exhibition space design. Integrating light design with the art of display space is the key to successful display space light design. Without the introduction of this kind of integrated design thinking, studying light design in exhibition spaces will be just empty theory.

2.Shape design of light in exhibition space

For light form design, the form and combination classification of "point, line, and surface" light sources are the most common content. The use of "point" light is mostly a basic lighting method, which refers to the light form that emits uniform light from a point to the surrounding space. It is mainly formed by single lighting fixtures, such as downlights, ceiling lights, spotlights, etc. "Line" light has a clearer and simpler psychological effect than "point" light sources. Different shapes of linear lights create different visual effects and psychological atmospheres. For example, arc-shaped light will bring people twists, softness, and continuity. The flowing beauty; while the horizontal straight lines of light give people a sense of tranquility, and have the function of extension and guidance, etc. The characteristics of "surface" light are gentle light feeling and gentle transition, which can produce uniform and

bright lighting effects, create a soft and elegant atmosphere, etc. The specific content of the "point, line, and surface" light source is as follows:

Point Light. In geometry, a point is usually defined as an object that only has a position but no size. However, in space we can think of points as relatively small shapes and call them points. Points serve as a focal point in space, or a focal point that attracts visual attention. Therefore, a fundamental property of a point is its cohesion. Since points are a basic component in design, changes in their size, shape, or combination of shapes will directly affect the artistic expression of light visual space. In some cases, points can also be regarded as surfaces, and the contrast of surfaces can produce the effect of points or non-points. The subtle relationship between points and lines, if handled properly in design, can produce unique effects. In a large space, sometimes a point is too small to become the visual focus. In this case, multiple points can be used to form a point group to enhance visual appeal and balance the visual effect. They can be arranged according to rules to form lines or areas to create a visual effect. To a certain modeling effect (Figure 2). In the exhibition space, various new types of lamps can be used and combined and arranged in certain ways to create rhythm and rhythm. For example, by arranging the light sources, the shape of the lamps and the luminous effect of the light, a special space aesthetic can be formed, which is especially suitable for large spaces. In some exhibition space designs, in addition to considering artistry, the lightness and economy of the enclosure materials also need to be considered. Therefore, you can consider using light to make up for the deficiencies of the material, and choose different lighting methods according to the texture and reflective properties of the material to give the space a special artistic beauty (Johnson, 2017: 201-215).

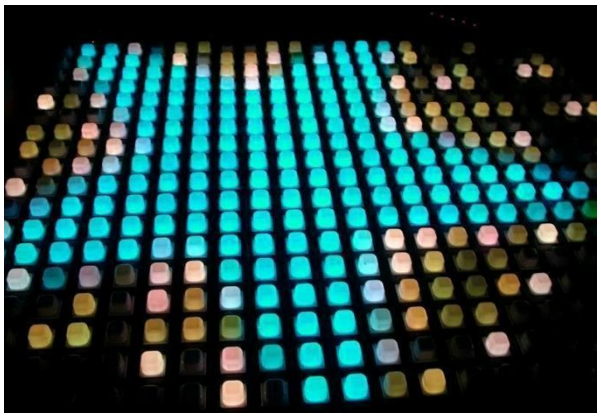

Figure 2 Point Light
Source:http://en.bestsoon-china.com/news/441.html

Lne light source. Lines are defined in geometry as "trajectories of moving points", and lines can also arise from the intersections and intersections of surfaces. Line shapes give people a clear and direct visual experience, and their basic attribute is guidance. Unlike the cohesion of points, lines can always guide the movement of people's sight, so the essence of lines is full of energy, not static. Lines can be divided into two categories: straight lines and curves. Straight lines include horizontal lines, vertical lines, rays and diagonal lines, etc., while curves can be divided into geometric curves and free curves. These different types of lines themselves convey different expressions. For example, parabolas will appear smooth and pleasant, horizontal lines

will give people a sense of stability and tranquility, and vertical lines will have a positive and noble character. In the design of the exhibition space, the addition of light further enhances the symbolic meaning conveyed by these lines. The task of linear light design is to use the light strips formed by light and the solid structure to express the dynamics and perspective of the space and guide the direction of the line of sight. It also has a certain decorative effect (Lee, 2014: 89-102). For example, in the scene shown in Figure 3, curved and straight light strips are integrated with the solid structure, which not only enhances the beauty of the space, but also clarifies the audience's visiting route.

Figure 3 Line light source
Source:http://eww.verydesigner.cn/article/165839

Surface light source. From a geometric point of view, the surface can be understood as the trajectory and result of the movement of the line. It is the balanced expression of the line, and is also the product of the development of points and lines, acting as the background for their expression. Surfaces can be divided into geometric shapes and free shapes. In three-dimensional space, the most basic geometric shapes include square, rectangle, circle, ellipse, triangle and trapezoid. In the exhibition space, the shape of props and booths is usually dominated by plane (Wang, 2018: 34-45). Although these single geometric shapes may appear dull, their appearance can be transformed through the application of light. The role of light can be to create a contrast between light and dark by adjusting the lighting intensity. You can also make use of the transmission characteristics of light and choose materials with higher transparency to make the solid surface a new light source, thereby creating interesting and vivid visual effects (Figure 4). Light surface design is not only suitable for the top and facade structures of space, but also increasingly used on the ground. Some booth designs will install imaging equipment on the ground to form a circular or square arrangement, or use translucent glass to create a geometrically shaped glossy surface. The glossy surface not only helps to define the function of the space, but also creates a psychological scene under the glossy surface, which is actually a "virtual" space centered on the light source. However, this form of artistic expression is best used locally and not for widespread use. Even if it is necessary to use it, the brightness of the light must be reduced or translucent materials must be used to avoid affecting the information transmission of the exhibits and to avoid visual fatigue for the audience, similar to overexposed photos. In surface light design applications, the emotional expression of different surfaces needs to be considered.

Figure 4 Surface light source
Source: http://sjz.a963.com/works/2021-02/800229497.htm

3.Color design of light in display space

The color of the light source is an inevitable part of the lighting design of the display space, and the color of the light source in the display space will determine the effect of display information transmission to a certain extent. If you choose a light source color that is conducive to creating the atmosphere of the display space and displaying exhibits, it will greatly help to effectively transmit the display information and achieve the final display purpose. However, choosing an inappropriate light source color will have exactly the opposite effect. "Light is color, and color is light." From a physical point of view, light color has two key meanings. First of all, it refers to the color of the light source itself that is directly perceived by the human eye, that is, the color attribute of the light source itself, which is called "light source color". Secondly, light color also involves the objective visual effect produced by an object under light, that is, color appearance, which is called "appearance color". The lighting and color design in the display space can be roughly divided into the following two aspects:

(1)Highlight the color charm of the entity: Under the overall light and space design thinking, the light design in the display space needs to skillfully integrate light, color, and shape into a unified design. On the one hand, it is necessary to accurately present the color characteristics of the physical material itself; on the other hand, it is necessary to strengthen the color expression of the entity so that the displayed light color and the physical image can be skillfully integrated, making the space a painting and sculpture of light. Such a design allows the audience to feel the role of color more deeply (Chen, 2013: 67-78).

(2)Use light and color to reshape the spatial situation: In response to the unique requirements of exhibition space design, it is necessary to attract the audience's interest in a very short time. This requires enhancing the contrast of spatial elements. In addition to the richness of shape and structural language, light color is an important factor affecting people's vision, behavior, memory and even physical and mental health. Different hues have different expressive and symbolic meanings and can evoke different emotions and experiences in the audience. For example, red tones can inspire excitement, yellow can feel refreshing and help inspire, green can create a sense of tranquility and coolness, purple can help inspire artistic creativity, etc. (Figure 5). Through changes in light and color, the personality of the display space can also be enriched, making people full of reverie and surprise.

Figure 5 light color
Source: https://www.sohu.com/a/216821782_619150

In the design of display space, designers need to make good use of the psychological effects of color to create spatial situations. Compared with traditional static color contrast, light color is more suitable for creating dynamic color changes. Once the basic layout of the display space is completed, the display effect can be quickly improved by optimizing the light and color scheme. The advancement of modern science and technology has led to the continuous development of lighting equipment technology. Various intelligent computerized lamps have become tools for adjusting the color of space, allowing designers to create unique spaces like paintings. Light color is both scientific and artistic, but it also needs to consider economic and energy constraints (Turner, 2018: 234-247.). Therefore, on the premise of meeting moderate lighting needs, designers need to give full play to the artistic potential of light and color, and constantly explore new expressions of the overall design of light, shape, and color, so that the space can show artistic charm in a beautiful light and color environment. Highlight the theme of the display and convey the spirit of the times. "

4.Light level design in exhibition space

Light, shape, and color in the display space can present ever-changing effects in various arrangements and combinations. These arrangements and combinations can highlight the different artistic styles of the display space. Organizing these combinations efficiently is a key challenge in light design. The famous lighting design pioneer Richard Kelly proposed three levels of lighting design in the 20th century, including ambient lighting, accent lighting and atmosphere lighting. This concept is very suitable for exhibition space light design that emphasizes the artistic expression of light. In actual work, according to the content and theme of the display, the light design can focus on a certain level as the main lighting method to make it unique; it can also make the three lighting levels intertwined, and choose which performance Method decisions should be made based on the topic and type of presentation. Each lighting level has unique expressive power and can create a distinct spatial atmosphere (Jackson, 2019: 45-58).

Ambient lighting expressiveness: The entire display environment remains relatively bright, which helps to clearly display the content of the space and ensure the basic visual effect of the space. This method is usually used to create a relaxed and pleasant display atmosphere or simple and concise spatial content (Zhang, 2019: 56-68). The overall color temperature of ambient lighting is suitable for high color temperatures with white as the main tone, such as above 4500K, such as book trade exhibitions and other display types (Figure 6).

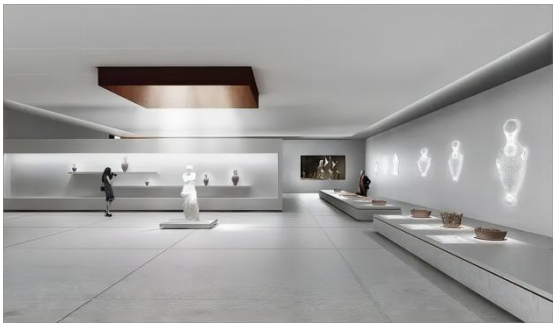

Figure 6 Ambient lighting
Source: http://www.zhuxuncn.com/articles/170917551.html

Accent lighting expressiveness: This light design technique is relatively common in displays. The display environment is relatively dark, but with accent lighting, specific areas become particularly bright, easily attracting the audience's attention and interest. This method can enhance the artistic appeal of the exhibits' image, shape the mystery of the display environment, and greatly enhance the rhythm of the display space (Figure 7) (Anderson, 2020; 112-126).

Figure 7 Accent lighting
Source: https://travel.tom.com/202109/1791217475.html

Ambient lighting expressiveness: This technique is usually used in display types that highlight the atmosphere of the display environment or have the main goal of shaping the theme image of the station display. The details of the display content may not be clearly visible, but it has a strong visual impact, easily resonates with the audience, and creates a dramatic display theme. This method can create a mysterious atmosphere through situational lighting that cleverly adjusts light and shadow (Figure 8) (Smith, 2021: 89-102).

Figure 8 Mood lighting
Source:http://www.coolde.com/forum.php?mod=viewthread&tid=84940&extra=&ordertype=1&page=2

Conceptual Framework

The content of this article will be researched and written in the form of a total score. By collecting and organizing relevant information on light design in exhibition spaces, and analyzing, summarizing and summarizing a large amount of data, we finally drew the conclusions of this study and made suggestions for future research and practice on light design in exhibition spaces. . The specific conceptual framework is shown in the figure below (Figure 9)

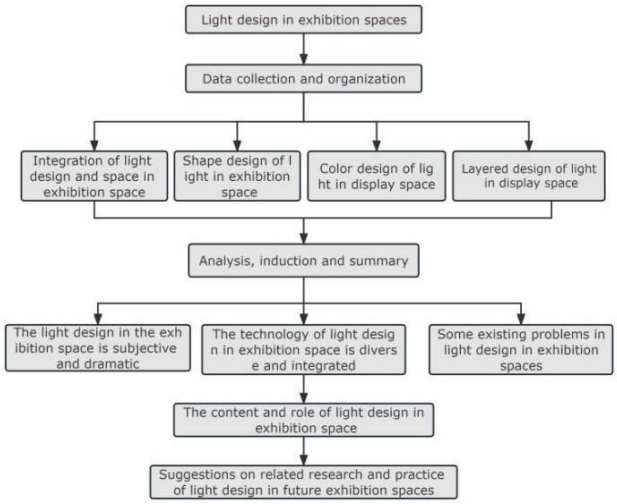

Figure 9 conceptual framework
Source: Drawn by the author

Research Results

1.The light design in the display space is thematic and dramatic.

Through qualitative research method, after researching and sorting out a large amount of literature, we learned that in the context of the information age, the concept of display space is undergoing a profound evolution, and the definition of display space design is constantly being reshaped. Contemporary exhibition activities have become diverse, integrating multiple creative forms such as planning, installation art, performance, and advertising. This is no longer just a simple display, but an artistic expression that interweaves people, exhibits and space. This multiple interactivity allows three elements that were originally isolated to merge with each other, thus giving birth to the concept of holistic art. This whole is not just a unity in spatial form, but also includes the process of transmission and integration of thoughts and emotions. Contemporary exhibition space design is no longer limited to the container nature of space; its goal is to convey themes that contain ideas and concepts. Nowadays, exhibition space design has moved beyond the simple stage of shaping the image of exhibits and evolved into a complex exhibition activity that focuses on experience, theme and plot.

Learned through research and analysis what the exhibits carry is no longer just functionality, but more profound values, and even represents a deeper meaning such as a specific lifestyle. Compared with space design in other fields, light design in exhibition spaces has become more dramatic and focused more on creating unique visual effects and artistic appeal. Therefore, the artistic expression method of contemporary display design has become more personalized, emotional and dramatic, showing unique charm and characteristics compared with other types of space design.

In short, under the influence of the information age, the display space is no longer a static container, but a field full of vitality and creativity. It not only shapes the form, but more importantly, conveys thoughts, emotions and values. The evolution of this field demonstrates the continued enrichment and deepening of human creativity and culture, providing us with more opportunities to explore, express and share. Exhibition space design and light design in exhibition space have transcended traditional boundaries and become a dynamic modern art form.

2.The technology of light design in exhibition space is diverse and integrated.

Through this research method, which is mainly qualitative research method and supplemented by quantitative research method, it is concluded that. The rapid development of contemporary digital technology has brought rich and colorful opportunities for creative expression in display spaces. The research results of cutting-edge disciplines such as multimedia, materials science and sound and light control technology have been widely used in exhibition space design, injecting new dimensions and infinite possibilities into the exhibition space. Today's exhibition space design emphasizes the audience's intuitive feelings and psychological needs for exhibits and things in a specific environment. Exhibition space design is no longer limited to defining the physical space, but pays more attention to creating an interactive dialogue space between the exhibition space and the audience. This kind of dialogue space emphasizes the construction of atmosphere and conveys emotions and atmosphere through visual cultural elements, allowing the audience to feel the warmth and emotion of elements such as light, form, material, image and sound in the display space, thus making the display language more touching. Charm. Contemporary exhibition space design has entered a new era of digitalization and multimedia, providing a broader platform for

creativity and art. Exhibition space is no longer just a place for displaying items, but also a place where emotion, culture and technology blend to create a fascinating and unique experience. Continuous innovation and progress in this field will continue to enrich our visual and spiritual world, bringing more possibilities and unlimited imagination to display design. The continuous integration and penetration of various new media carriers and means not only make the display field full of vitality, but also trigger the continuous expansion and extension of light design forms and concepts in the display space. In this era full of innovation, the light design in the exhibition space presents a unique fusion, combining the characteristics of static light space and dynamic light space, bringing an unprecedented sensory experience to the audience.

First, the light design in contemporary display spaces is formed by the penetration and integration of technological diversity. New tools such as cutting-edge materials, lighting control technology, and digital imaging technology equipment are widely used in the field of display design, providing strong technical support for light design. This enables light design to achieve two-way interaction with the display space by making full use of the characteristics of new lamps, such as light shape, beam, light color, etc., in changes in different positions, directions and frequencies. For example, through a variety of comprehensive techniques such as the convergence and dispersion of point light sources, the changes in length and straightness of linear light sources, and the expression of surface light sources, elements such as the layer, rhythm, gradient, uniqueness, and color warmth of the display space can be combined in proportion. Create colorful rhythms and rhymes. These changes constitute the dynamic perception of the audience, allowing them to feel the flow and changes of time and space in the rhythmic changes of space. Therefore, contemporary display light space design is no longer just a tool for displaying objects, but an art form that can interact with the audience, allowing people to gain unlimited visual, emotional and perceptual pleasure. This innovative design method will continue to promote the development of display space and bring more exciting possibilities to future display design.

Secondly, light design technology in contemporary display spaces tends to integrate real light space and virtual light space. The information age has brought great changes to light design technology in exhibition spaces. Light design technology has gradually evolved from focusing on the presentation of real scenes to integrating virtual light design with real light design. This evolution is particularly evident in the field of exhibition space design, especially in the prediction of visual artistic effects of light design in exhibition spaces. Designers can now use computer graphics design software, such as LIGHTSCAPE, 3DMAX and PHOTOSHOP, to conduct preliminary simulations and previews. This digital design expression is not only intuitive and clear, but can also accurately set and display parameters such as the type, color, color temperature, illumination, and irradiation range of the light source, and can even be presented in the form of animation. This process greatly facilitates the designer's solution comparison and decision-making process. The rise of this convergence trend makes display design more intelligent and controllable. Designers can observe the lighting effects in advance in the virtual environment and experiment with different settings of various light sources to ensure the best visual effect. This digital simulation not only improves design accuracy, it also speeds up the design process, allowing designers to explore and experiment with creative ideas more efficiently. In addition, this also helps reduce costs because potential problems can be discovered and solved in the virtual environment before actual construction, avoiding tedious modifications and adjustments on site. In conclusion, the

combination of real and virtual light spaces represents an important advance in the field of display design. It not only provides more design freedom and room for innovation, but also improves design accuracy and efficiency. This trend will continue to drive the evolution of display design, creating more opportunities for designers and more engaging experiences for audiences. Display design is no longer limited to the real world, but has incorporated the virtual dimension of the digital age, opening up new design possibilities.

3.Some existing problems in light design in exhibition spaces

In this study, through the use of quantitative analysis and comprehensive analysis methods to investigate and analyze the existing exhibition space lighting design, it was found that the rapid development of modern new technologies provides unlimited creative space for exhibition space designers. At the same time, the application of light shows great potential in creating spatial atmosphere. Although we are immersed in the charm of light art, we are also faced with negative problems such as light pollution. Since many display designers lack a systematic understanding of light, there are currently some design misunderstandings:

Misunderstandings between "bright" and "beautiful": In some exhibition space designs, designers often increase the number of lamps and lighting brightness in order to make the space stand out. However, lack of understanding of the balance between light brightness and darkness, excessive lighting brightness may lead to a lack of layering and rhythm in the display space, affecting the three-dimensional sense and color performance of the information displayed in the display space, and also destroying the audience's imagination. Visual balance leads to confusion of visual center and perception, and fails to produce visual beauty.

Lighting scale issue: The main purpose of light design in the exhibition space is to highlight the image of the exhibits, so not every area requires high-intensity lighting. According to different display objects, the most valuable areas should be selectively illuminated. This can give the display space more layering and drama, and enhance the artistic appeal of the display space.

Excessive pursuit of fancy: In order to pursue fancy and lively visual effects, some exhibition space designers ignore the display type and exhibit characteristics and blindly use various dynamic lighting effects, which is not conducive to the communication of information in the exhibition space.

Indiscriminate use of color light: Color light is the best tool to highlight the atmosphere of a space, but inappropriate use of color may affect the emotional expression of the space and even prevent the exhibit information from being clearly conveyed.

Therefore, in the design of light, it is necessary to consider the brightness of light, lighting scale, dynamic effects and the use of color more comprehensively to ensure that the application of light in the display space is targeted and effective, rather than blind or excessive. .

The light design in today's exhibition space presents increasingly diverse and rich forms of expression. The diverse penetration and integration of light technology make light design more complex. Without systematic design concepts and cognition, many problems will arise in practical applications. However, no matter what means are used to construct a light space, the fundamental goal is to accurately convey the displayed information and its connotation. An excellent exhibition space light design will ultimately reflect aesthetic pleasure in people's psychology, which is the highest pursuit of exhibition space light design. In the light design of the exhibition space, light, shape and color must be integrated to ensure that people enjoy the feeling of beauty and spiritual pleasure in the exhibition space, and to present the unique artistic

conception of the exhibition space. Therefore, during the design process, human physiological and psychological factors must be fully considered, while problems such as light pollution must be avoided. The starting point of display light space design should be to create comfortable visual effects to accurately convey display information, and take the human-centered concept as the guiding ideology. By cleverly controlling the elements of light and shadow, create a human-centered harmonious environment.

Discussion

In this study, through the research and analysis of a large number of relevant literature, it can be found that in terms of the importance and value of light design to display space, a large number of literature materials are consistent with the results of this study. However, this study is based on a large amount of research data. After in-depth research and analysis, it is concluded that the light design in the exhibition space has four characteristics: theme, drama, diversity and integration. In this study, the four major characteristics of light design in the exhibition space were analyzed in detail through the relationship between display content and light design, the combination of display space and light design, and the technology and development of light design. It confirmed that lighting design (light design) design) in the display space. An exhibition space with excellent light design can also give the audience a deeper and richer visual experience and exhibition experience, which can easily leave a profound impact on the audience. At the same time, it also allows the exhibition space to be actively spread among the audience and society. This is exactly the case, and it fully reflects the role and influence of indoor lighting design on the dissemination of excellent exhibition space design. To sum up, the results of this study fully prove that the four characteristics of light design in exhibition space are irreplaceable in terms of reflecting the importance and value of light design to exhibition space, and in the role and influence of excellent exhibition space communication. importance.

Conclusion

In the exhibition space, people's artistic feelings are conveyed through light, and light is a crucial element in the design of the exhibition space. Only through the transmission of light can other elements in the display space design be coordinated and perfected. At the same time, light also acts as a medium for the interaction between the objective environment and human senses. The reason why people can perceive and understand space is because visual perception can capture the visual information generated by the interaction between light and objects. To some extent, designing light is designing space.

The light design of the display space is closely intertwined with the display space, and together they convey the spiritual and material characteristics of the space. The two can never be separated. It is too narrow a design concept to study the performance of display space without light or to study the artistic expression of light without leaving display space. Therefore, the research on light design in display space must be carried out under the overall light and space design thinking, making full use of the overall combination of light, shape, color and other elements, and applying the rules of visual art, such as light and shadow contrast, hierarchy and rhythm, Effective means such as the changing combination of color temperature and light shape are used to achieve the dynamic mutual design of light and physical space.

The design of light in the exhibition space allows the audience to experience the changing spatial themes of time and space in a limited real space. In this space that combines static and dynamic, reality and virtuality, people can find the language to have an emotional dialogue with the space. Regardless of the form of presentation, effective communication of display information is the only criterion for measuring the success of display design. This kind of communication covers the comprehensive transmission of people's cognitive characteristics and emotional experience of exhibit information. The light design of the exhibition space must be based on the concept of "artificial environment". It is not only a way to achieve emotional dialogue between people and entities under the integrated thinking of light and space, but also must be consistent with the theme of the entire exhibition activity. Under this unified theme, the language of light and space will play a decisive role in creating the situation and atmosphere of the display space.

Suggestions

Light design in exhibition spaces is a complex and critical area. In the ever-evolving exhibition space, the study of light design is crucial. The following are some suggestions for light design research in future exhibition spaces based on the content and results of this research:

In-depth understanding of the display content and target audience: In this study, based on the development and display purpose of the display space, the importance and value of light design to the display space was deeply discussed. When conducting research on display space light design in the future, it is necessary to conduct certain research and analysis on the target audience while deeply understanding the content and purpose of the display. Different display types and themes as well as different audience groups require different light design methods to create different display space light environments to achieve the purpose and communication of the display space.

Exploring the psychological effects of light design: In this study, through the study of information such as the color, brightness and illumination mode of light, it was concluded that the light design in the exhibition space has two major characteristics: thematic and dramatic. In future research, attention should be paid to the impact of these two characteristics on people's emotions and psychological states. Future research on the psychological effects of light design, including but not limited to the impact of different colors on emotions and how the intensity of light guides the audience's attention, will help better use light design to convey display information and create spatial atmosphere. , which is more conducive to more in-depth research on the role and impact of light design on display space.

Integrating new technologies: In this study, it was concluded that the light design in the exhibition space has two characteristics: diversity and integration. With the continuous development of science and technology, future research on light design in exhibition spaces should also pay attention to the research on the integration of new technologies, such as intelligent interactive lighting systems, OLED technology, laser projection, etc. Research on these technologies can bring more possibilities to light design in display spaces, creating more creative and attractive display effects.

In short, this study found that light design in exhibition spaces is a field full of challenges but also full of creativity. In the future, through continuous in-depth research and

continuous innovation, we will continue to improve the level and research results of light design in display spaces, and create more attractive and in-depth display experiences and research content for people.

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