Analysis and Research on the Harmonious Adaptation of Color and Psychological Environment in the Renewal of Old Industrial Buildings

——Taking the Renewal Projects of Old Industrial Buildings in Kunming City as Examples

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Abstract. The renewal of old industrial buildings is a hot issue in the renewal of urban 2D and 3D spatial structures. The renewal of old industrial buildings in China started relatively late, with the main measures focused on functional renewal, structural reinforcement, and appearance remodeling. There is insufficient attention paid to the adaptation of building colors to the psychological environment, etc., and insufficient attention has been paid to the adaptation of architectural color to psychological environment. The research first conducted a questionnaire survey on the satisfaction degree of color in the renewal of old industrial buildings. Based on the quantitative analysis, the importance of color remodeling in the renewal of old industrial buildings and the guidance of color design were clarified, and then the adaptation of color and psychological environment in the renewal projects of typical old industrial buildings in Kunming was analyzed with examples. This paper summarizes the existing problems of color and psychological environment adaptation in the renewal of old industrial buildings in Kunming, and puts forward the guidance of color and psychological environment coordination adaptation in the renovation of old industrial buildings by comparing with typical successful cases in China, in order to provide reference for the color design in the renovation of old industrial buildings in Kunming.

Keywords: Old Industrial Buildings, Renewal, Color, The Psychological Environment, The Harmonious Adaptation.

1 Introduction

The renewal of old industrial buildings originated in Western countries at the beginning of the 20th century, and Germany made a comprehensive summary and research on domestic industrial buildings in the 1960s, which kicked off the renovation and renewal boom of old industrial buildings. After decades of development, up to the 1990s, about

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80% of European construction projects were old buildings renovation, marking that the theory and practice of old industrial building renovation design in Western countries have formed a relatively mature system.

The renewal of old industrial buildings in China started relatively late, beginning in the 1980s. With the national policy of the national policy of returning two to three in the 1990s, the adjustment and optimization of urban industrial structure and urban spatial structure entered a prosperous period, and the simple and low-level transformation form in the early stage gradually developed to the diversified and innovative renewal so far, and the practical and theoretical system also gradually matured. In general, the renewal of old industrial buildings in China emphasizes the renewal and transformation of basic aspects such as the relocation of architectural functions, structural reinforcement, and appearance remodeling, and the color design and management have not been fully paid attention to, especially the harmonious adaptation of architectural color and psychological environment [1]. This research takes 2 old industrial building renewal projects in Kunming as examples, analyzes the adaptation of color and psychological environment, summarizes the existing problems, and compares with typical domestic successful cases, puts forward the guidance of color and psychological environment harmonious adaptation in the renewal of old industrial buildings, and puts forward suggestions on color design in the renewal of old industrial buildings in Kunming.

2 Analysis of color on psychological environment

Psychology believes that people's cognition of things first comes from vision, and the biggest impact on vision is "color". In environmental psychology, color has the most direct impact on people's emotions. Psychological color is not equivalent to color in colorimetry, but the feeling provided by the brain after people have a visual sense of color. The psychological effect of color is closely related to people's needs, and the psychological effect of low level needs will occur at the level of survival and safety; At a high level of need, people's psychological effects will be generated at the level of belonging and self-realization. Low-level psychological effects are generally produced in the way of direct color stimulation, while high-level psychological effects are mostly produced in the way of indirect association. The human body produces corresponding response after receiving the stimulus, whether it is the low-level psychological effect or the high-level psychological effect, it will eventually cause the physiological response, psychological response and behavioral response of the human body [2].

According to relevant historical materials and documents, the earliest use of color in architecture is ancient Egyptian religious architecture, through rich colors to express people's beliefs and emotions. Gradually, color was applied to palaces or castles to symbolize certain rights. As early as the Spring and Autumn Period and the Warring States period, China had the initial form of color application in architecture, and the architectural color application in the Qin and Han Dynasties was magnificent. The application of architectural color in the Tang Dynasty reached its peak and was passed down to modern times. The application of architectural color in China not only has the

characteristics of traditional Chinese folk customs, but also incorporates western colors. Focus on the color design of the building and the feeling that color brings.

Color is an efficient and unique visual language in space design, which has the characteristics of direct experience. In modern color psychological experiments, it is shown that 75% of people's initial impression of things comes from the perception of color after entering a space. Different colors can not only make people produce size, weight, cold and warm, expansion, contraction, distance and other psychological physical feelings, but also make people produce a variety of related emotional associations [3].

In space design, compared with shape, structure, line, lighting, materials and other design elements, color often brings people a strong and direct visual appeal, and can directly affect people's psychological environment. Therefore, in space design, reasonable color design is crucial to create a comfortable psychological environment (Table 1).

Table 1. Correlation analysis table of color and psychological environment

Serial Number	Color type	Psychological and physiological reactions of color	Color expression	Color emotion
1	Red	Stimulate the brain nerve, promote adrenaline secretion, dilate or contract blood vessels to change blood flow. Create a sense of excitement and great inspiration.	Enthusiastic and unrestrained, fierce and festive, danger and warning function.	Warm color system. Warm colors tend to be slightly cooler.
2	Orange	Produces vitality, stimulates appetite, and produces happiness and satisfaction.	Feelings of happiness, joy and abundance. The warmest colors, reminiscent of fire.	Warm colors make you feel the warmest.
3	Yellow	Stimulate the endocrine system, promote the secretion of stomach acid and increase the human appetite.	Light, warmth and wisdom, wealth and power.	Warm color scheme, moderate to moderate in warm color scheme.
4	Green	It plays a role in regulating and balancing the bodies of the human body, can make people in a state of emotional stability, has a rich creative thinking, is conducive to thinking, and work efficiency is greatly improved.	A feeling of comfort, tranquility, peace.	Cool color system.
5	Blue	It slows down the heart rate, regulates homeostasis, eliminates tension, and helps relieve headaches, fever, fainting and insomnia.	Calm, sensible, pure and high-tech. Broad, broad feeling.	the coldest color in the cold color system.
6	Purple	It mainly acts on the motor nervous system and is related to people's associations, leading to laziness and listlessness.	calm, elegant, mysterious and noble.	Cool color system.
7	White	Simple emotions.	Purity, simplicity, infinite possibilities. Death, terror, mourning, conservation, etc.	No color system. Reminiscent of daytime, warmer. No heat absorption, cold.
8	Black	More complex psychological experience, the spirit produces a sense of depression.	Elegant and noble,Calm, solemn, upright,dark, mysterious, scary, unlucky, etc.	No color system.Feeling of the night, cold,endothermic.
9	Gray	/	Neutral color, moderate, mild, calm, ambiguous, no personality feeling, large area gives people a feeling of depression and depression.	No color system.

As can be seen from Table 1, when the aesthetic characteristics reflected in the architectural color matching can resonate with the aesthetic taste, that is, when the form of color matching is coordinated with the form of aesthetic psychology, people will feel

the pleasure of color harmony. Therefore, in the renewal of old industrial buildings, we should focus on the coordination of color and psychological environment [4].

3 Survey and analysis of color satisfaction in the renewal of old industrial buildings

The research selected 8 samples from Beijing, Qingdao, Nanchang and Kunming as old industrial buildings (Beijing 798 Art District, Qingdao Textile Valley, Nanchang 699 Cultural and Creative Park, Kunming Jinding 1919 Cultural and Creative Park, Kunming 108 Think Tank Space, Kunming M60 Creative Park, Kunming 871 Cultural and Creative Factory and Kunming Chunyu 937 Industrial Heritage Cultural Block) Updated color satisfaction survey analysis sample.

3.1 Analysis of emotional condition after color stimulation in old industrial buildings

Among the 8 samples, Kunming M60 Creative Park was selected as the research sample. The experiment was conducted by randomly selecting 100 tourists from Kunming M60 Cultural and Creative Park. The test subjects were aged between 15 and 65 years old. The test contents were as follows: the subjects were asked to see the feelings of the same building after viewing the cards with different colors on the facades, and the characteristics of their facial expressions were observed. Six words were used to describe the feelings of excitement, calm, sadness, fear, anger and depression. The results are shown in Table 2.

Table 2. Analysis of emotional expression after building color stimulation

Emotional expressions / Colors	Excitement	Calm	Sadness	Fear	Anger	Depression
Red	78	20	0	2	0	0
Orange	65	27	0	0	0	8
Yellow	32	48	0	3	2	15
Green	0	85	0	1	8	6
Blue	14	72	7	1	4	2
Purple	12	82	2	1	2	1
White	0	32	30	17	1	20
Black	0	3	62	21	3	11
Gray	0	52	12	1	2	33

According to the analysis of Table 2, 78% of the participants were excited and happy about red; 65% of the participants were excited about orange; Thirty-two percent of participants were excited and happy about yellow and 48 percent were calm. 85% of the participants felt calm about green; 72% of the participants felt calm about blue; Eighty-two percent of participants felt calm about purple; Most participants felt calm

or sad about black, white and gray, while a few felt depressed. The research and analysis results once again confirm the relationship between color and people's psychological environment as shown in Table 1.

3.2 The main type of color design application of old industrial buildings

Combined with the analysis of relevant data, the color design used in the renewal of old industrial buildings mainly falls into the following categories:

(1) Whether it is the exterior facade or internal use space of the building, retaining the color of the original brick walls and steel structure of the industrial factory building itself, this treatment method accounts for a large proportion of the renovation and renovation methods, that is, not excessive color treatment is applied to the original building during the renovation (Figure 1).

(2) Old buildings that have undergone color treatment often focus on several colors such as white, gray, red, orange, yellow, black, and blue, with a relatively small proportion of other colors (Figure 2).

(3) Wall and ground painting has become an important means and symbol of color application in the renovation of old industrial buildings.

Fig. 1. Beijing 798 Art District Yue Art Museum (retain the building's primary colors)

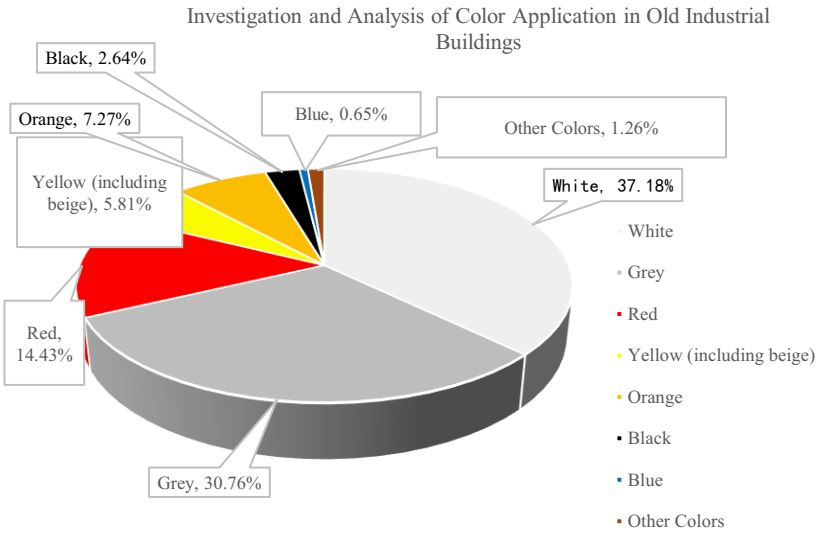


Fig. 2. Survey and analysis diagram of color application of old industrial buildings (except raw material color)

3.3 Survey and analysis of satisfaction degree of color application in old industrial buildings

Questionnaire survey of visitors and users was conducted on 8 samples, and statistical software SPSS22.0 was used to analyze the data of valid questionnaires (Table 3). The average score of "internal satisfaction" and "external satisfaction" of visitors and users on old industrial buildings is 1.83±0.41, 1.56±0.42, and the total average score of "job satisfaction" is 1.64±0.35, which is less than the theoretical median value 3.

From Table 3, visitors and users are generally at a low level of satisfaction with the color renewal of old industrial buildings. In terms of color design and management of the renewal of old industrial buildings, they are not satisfied with allowing the color of industrial plant building materials to be ignored or not processed, and they believe that the renewal of old industrial buildings should fully consider the coordination and adaptation of human psychological environment in order to reshape colors. At the same time, through the survey, it is found that the richer and more reasonable the use of color in the old industrial building renewal project, the more people can be attracted to visit or stay, and the happier the mood of users. On the contrary, the less color is used, or even a large number of those that do not do color processing and retain the original building materials of industrial plants, the fewer the number of people who will be attracted to visit or stay, and the more people will inner exclusion from contact or use of the building, resulting in disgust and aversion.

Table 3. Descriptive statistics of visitors' and users' satisfaction with color of domestic sample cases of old industrial buildings

Dimension	minimum	maximum	mean	standard deviation
Intrinsic satisfaction	0.83	2.83	1.83	0.41
External satisfaction	0.75	2.50	1.63	0.42
Total average score	0.58	2.70	1.64	0.35

*Note: 400 questionnaires were sent out, 400 were recovered, 3 invalid questionnaires were excluded and 397 valid questionnaires were collected. Statistical software SPSS22.0 was used to analyze the data.

4 Case analysis

4.1 Analysis of harmonious adaptation between color renewal and psychological environment of typical old buildings in Kunming City

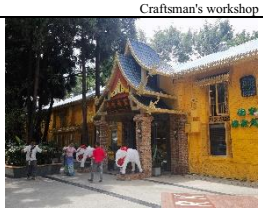
4.1.1. Kunming M60 Cultural and creative Park.

Fig. 3. Kunming M60 Cultural and creative Park color remodeling layout diagram

The predecessor of Kunming M60 Cultural and Creative Park is Kunming Battery Factory of Yunnan Textile Group, and the renovation target is cultural industry park, with an area of about 39500 square meters. In August 2015, the park was officially built into a unique creative gathering place integrating photography studio, Yunnan

intangible cultural heritage and other artisans' studio, design studio, ethnic style restaurant, leisure restaurant, etc. It is a typical example of the transformation of an old industrial building into a cultural and creative studio and a successful catering and leisure function in Kunming City [5].

Table 4. Color and physiological and psychological analysis of Kunming M60 Cultural and Creative Park

Color	Typical	Physiological and psychological analysis
White	   Wedding photography studio Interior space	Pure, Noble.
Gray, Brown, Dark brown.	  Craftsman's workshop Art studio	Quiet, peaceful, in a corner.
Minority characteristics	  Dai restaurant	Minority characteristics.
Blue	  Badminton hall exterior color Badminton hall interior color	Physical and mental relaxation, regulate homeostbalance, reduce work and life pressure, reduce visual fatigue.

Paintings	   Paintings	Feeling happy, generating excitement.

Through field research, the functional transformation of the old industrial buildings in the park has been completed (Figure 3). About 73% of the old industrial buildings have been remodeled in color , mainly as follows (Table 4):

(1) The most functional replacement of the wedding photography studio in the park, the building facade is basically processed into white, so that people directly feel the purity and nobility of the wedding.

(2) Yunnan intangible cultural heritage inheritor's studio mostly treats the facade of the building as gray or raw wood (brown or dark brown), and the interior is simply painted white, creating a sense of pursuing a peaceful atmosphere.

(3) Several ethnic restaurants set up in the park integrate the characteristics of traditional ethnic folk colors into the architectural color renewal. For example, the Dai restaurant uses yellow walls, golden Windows and green decorative characters, coupled with the slope roof of the Dai folk houses, fully demonstrating the Dai folk style.

(4) The badminton hall set up in the park has a simple white facade and a light blue interior. Light blue increases the light in the interior space of the old industrial building, and at the same time, makes the athlete feel relaxed during the exercise, eliminates tension, regulates homeostasia, reduces the pressure of work and life, and does not produce visual fatigue in the space for a long time.

(5) Another major feature of the park is the use of a large number of colorful paintings with rich themes, combined with landscape pieces and old machinery and facilities of the original factory, to create a variety of historical and cultural landscape of the park, which fully reflects the activation and utilization of industrial heritage while carrying out modern functional transformation.

In summary, the renewal of the old industrial buildings in Kunming M60 Cultural and Creative Park can better reflect the expected goals, among which, the color remodeling not only reflects the core theme of the renewal construction, but also takes into account the unique ethnic and folk characteristics of Yunnan, which can make people happy physically and mentally, and the color is highly coordinated and adaptable to the psychological environment.

4.1.2. Kunming Chunyu 937 industrial heritage cultural block.

Kunming Chunyu 937 Industrial Heritage Cultural Block, formerly known as Kunming Smelter, began to be renovated in 2018, and the target function of the transformation is a leisure and entertainment complex, with an area of about 11000 square meters [6]. By April 2023, only about 50% of the old industrial buildings have been rebuilt, and about 50% of the old industrial buildings and sites are still idle. A typical example of the transformation of old industrial buildings in Kunming City has not reached the expected goal.

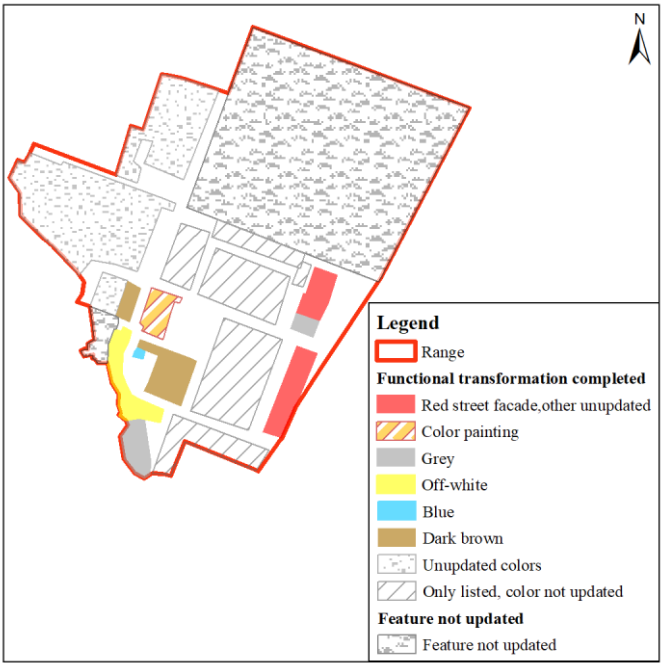


Fig. 4. 937 industrial heritage cultural block in Chunyu, Kunming color remodeling layout diagram

Table 5. Color and physiological and psychological analysis of 937 industrial heritage cultural block in Chunyu, Kunming

Color	Typical	Physiological and psychological analysis
Gray, Red, Orange.	 Block entrance gate	Landmark
Red	 Red stone brick on main facade	Landmark

No color treatment	 Hanging signs at the front of the store  No color treatment for walls	Repressed, lifeless, disconnected.
No color treatment	  Street without color treatment on the walls for "Market Day" (buildings not used)	Decay, depression, the bustle of the market and the decay of the buildings are not in harmony.

Through field research, only about 12% of old industrial buildings in the block has completed color remodeling (Figure 4). The completed color remodeling presents scattered, chaotic and miscellaneous features, mainly as follows(Table 5):

(1) In addition to the obvious color treatment of the main gate of the cultural block (using gray, orange and red), and the red stone brick pasted on the facade of the building of the cultural block facing the main road of the city, the old buildings inside the block have basically no color treatment, and still retain the brick facade of the industrial factory.

(2) The various types of shops in the block only hang signs on the doorstep without excessive decoration, and the entire block exudes an atmosphere of old industrial decline.

(3) A large number of old industrial buildings in the block only completed the use of the main body of the listing, without substantial function, structure and appearance of the renewal and transformation, coupled with the lack of strict and standardized management, the flow of people and logistics in the block presented a typical scene of a mixed market in the urban and rural areas. The bustling and noisy market and the declining atmosphere of the old industrial buildings not only failed to achieve the positioning function of the cultural block, but also failed to realize the function of the market. Nor has it developed into a coordinated integration area of urban and rural areas with local characteristics and a strong sense of humanity.

In summary, the renewal of Kunming Chunyu 937 industrial heritage cultural block has not achieved the established functional goals, and in terms of building color remodeling, the coordination and adaptability of color psychological environment are poor.

4.2 Analysis of coordination and adaptation of color and psychological environment in Nanchang 699 Cultural and Creative Park

Nanchang 699 Cultural and Creative Park is the predecessor of Jiangxi Hua 'an Knitting Factory built in 1957, the factory building for the red brick Soviet style building, the building is symmetrical, plane rules. In 2010, Jiangxi Hua 'an Knitting Factory began to update, the function target is positioned as a cultural and creative incubation park,

with an area of about 13000 square meters So far, it has built a variety of creative design, cultural education and training, film and television music production, artist studios, exhibition performances and creative hotels, special catering and other multi-functional integration of the park.

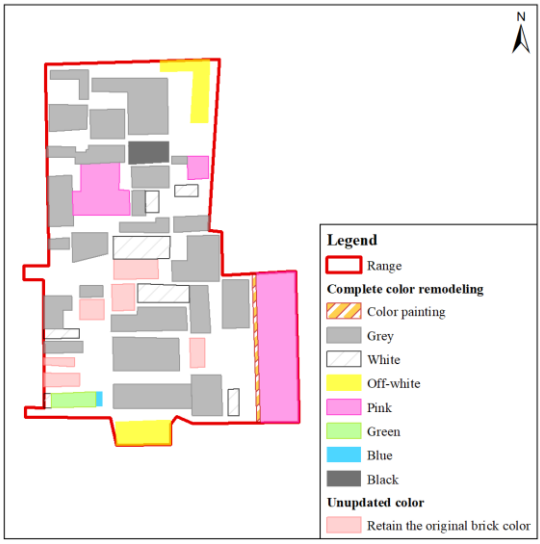


Fig. 5. Nanchang 699 Cultural and Creative Park color remodeling layout diagram

More than 90% of the old industrial buildings in the whole park have undergone architectural color remodeling (Figure 5), and those without color remodeling have retained the original red brick color of Soviet-style buildings. On the whole, the effect of color remodeling is good. While achieving the target of functional orientation of renewal, color and psychological environment are highly coordinated and adaptable, as shown in Table 6:

(1) The park gate and the entrance door of some old industrial buildings are treated in red to achieve the purpose of attracting visual attention, key identification and arousing the interest of visitors.

(2) The old buildings with functions such as media center, film and television experience center, film and television center and exhibition hall are mostly treated with gray, and then equipped with modern building materials (For example, aluminum alloy lines, dry hanging stones, external metal curtain walls, and large area glass curtain walls can be used.), which fully creates a sense of modern art, and gives people a calm and advanced feeling.

(3) 699 Youth Innovation Space has transformed a large factory into a building integrating youth innovation office, cultural education and training, fitness and children's entertainment. The warm color system is the main color diversification design, the building facade transformation color is very rich, high saturation, so that people are easy to generate excitement, stimulate a happy mood and creativity, and take into account the psychological characteristics of children with sunshine and warm color application.

Table 6. Color and physiological and psychological analysis of Nanchang 699 Cultural and Creative Park

Color	Typical	Physiological and psychological analysis
Red	   Gate No. 1 Park Gate No. 2 Park Old industrial building entrance	Visually appealing, focused signage that excites visitors.
Gray	   Film and television culture center Digital media center	Calm, artistic, modern, advanced sense.
Painting	  699 Youth Innovation Space	Diverse colors, warm colors are the main color, which makes people easy to generate excitement, stimulate pleasant mood and creativity.
Pink, Red, Yellow, Orange.	    520Park Plaza Love painting and sculpture Sketch landscape	Stimulate hormones, the mood is easier to be happy, excited, so that the whole person is emitting a "pink bubble".
Blue, Green.	  The dining room. Coffee bar	Comfort, quiet, peace.

(4) 520Park is another core part of Wenchuang Park, taking "love" as the theme, focusing on building form, atmosphere creation, operation concept and other aspects to comprehensively create feelings, dreams, and heat "hot love place". The whole area, whether it is wall and floor painting, or sketch construction or sculpture carving, the main colors are warm colors such as pink, red, yellow and orange that can be associated

with "love". People enter this area, and the romantic impression created by the colors makes people feel more pleasant and warm.

(5) The restaurants and cafes in the creative park use cool colors such as green or blue to create a refreshing, comfortable, quiet and peaceful living atmosphere after enthusiasm and excitement.

In summary, Nanchang 699 Cultural and Creative Park is an example of the comparative achievements of old industrial buildings in China. Most of the old industrial buildings have been remodeled in color, and the renewal is the most abundant in the use of color, and can fully fit the theme design, and create the most appropriate and appropriate spatial sensory and psychological environment.

5 The guidance of color and psychological environment coordination in the renewal of old industrial buildings

Through the analysis of the coordination and adaptation of color application and psychological environment in two examples in Kunming City and one in Nanchang City, combined with the aforementioned analysis of color on psychological environment, it is very important to fully consider the coordination and adaptation of psychological environment and adopt reasonable and appropriate color reshaping in the renewal of old industrial buildings. The more abundant colors are used, the more reasonable the design and the more harmonious the collocation of old buildings. The better it feels psychologically. Therefore, the following guiding strategies are proposed to coordinate the adaptation of color and psychological environment in the renewal of old industrial buildings [7]:

(1) The function of the old industrial buildings is updated into commercial, entertainment and other Spaces, and it is more appropriate to choose a strong contrast and a variety of complementary colors to create a bustling atmosphere. The architectural colors are mostly red, orange, yellow and other warm colors, which make people feel excited and happy, and improve people's creativity. At the same time, the psychological environment of women and children should be considered to adapt to the requirements of group activities, which can be set as pink to give people a sufficient sense of tenderness and affinity.

(2) The function is updated into restaurants, cafes, sports fields and other leisure and relaxation Spaces. The architectural colors often use cool colors such as blue and green, or white, which makes people feel calm and peaceful [8].

(3) Function update into art museum, cultural center, film and television center and other cultural space to reflect the sense of advanced and artistic, color is usually mainly gray, with white and black, to create a simple and clean exhibition environment, make people calm, can use "black, white and gray" three colors to bring a modern simple fashion sense.

(4) The function is updated into creative studio and designer studio. In order to stimulate and express creative thinking and inspiration, bright and active colors such as orange and yellow can be used on the outside, while elegant and soft colors are more suitable for the internal office space [9].

(5) Buildings and structures that require emphasis and identification, often using red and yellow to express purpose; The space that does not want to be paid too much attention is often not treated with any color, and the color of the original brick wall and steel bearing members of the industrial plant is retained after the structural reinforcement, or the simple brown or dark brown treatment is done.

(6) Painting is the most effective means of color remodeling to enrich old industrial building renewal projects. The theme of the painting content is about bright, the richer the expression connotation, the more coordinated the color, the higher the degree of pleasure, excitement and closeness it can bring to people.

(7) Color remodeling should consider the integration of ethnic folk cultural characteristics, and adopt color elements in line with local folk customs according to local conditions. For example, "Shang black" is a characteristic color custom of the Yi people, the Hani people prefer red and black colors, and white is a prominent cultural feature of the Pumi people. The Uyghur people think that they want to be "green", and the Yao people wear red clothes. Blue symbolizes eternity, constancy and loyalty. Therefore, in the renewal of old industrial buildings, the advantages of national colors are fully used, and the main colors of the nation are reasonably applied in the transformation, to show national characteristics, develop national advantages, and reflect the national spirit, so that visitors and users can have a sense of security, belonging, achievement, and self-realization.

6 Conclusion and discussion

6.1 Conclusion

Based on the analysis of color and psychological environment, this study made it clear through a questionnaire survey that color remodeling is an important factor in the renewal of old industrial buildings to achieve the established functional goals.

Through the analysis of the coordination and adaptation of color and psychological environment in two cases in Kunming City and one case in Nanchang City, it is clear that color remodeling should be fully suitable for various themes of renewal. Among them, when the degree of color coordination and adaptation is high, it is conducive to the positive, pleasant, peaceful and quiet psychological environment of visitors and users. In the case of a high degree of color coordination and adaptation, it will undoubtedly bring negative, depressed and ruined psychological feelings.

Through comparative analysis and research, the research puts forward seven aspects of guidance for the coordination and adaptation of old industrial building renewal and psychological environment for the reference of decision makers or designers, in order to meet the functional objectives and create a color environment that is highly coordinated and adaptive to the psychological environment of users of various functional Spaces.

6.2 Discussion

The cases selected in this study are mainly cases on the theme of cultural transformation, and the analysis cases are not comprehensive enough. Meanwhile, due to the limitations of questionnaire design and survey audience, the practical application of color application strategies in the systematic coordination and characteristics of functional design and color design is inevitably ill-considered. Therefore, the implementation measures for practical application are proposed here:

(1) At the beginning of color design, on the basis of clarifying the dominant positioning and various functional themes of the old industrial building renewal project, and integrating regional and national folk characteristics, multiple preliminary plans for the overall color configuration of the renovation project are determined;

(2) To carry out research and analysis on the color configuration scheme of potential users, audiences and professionals, absorb the opinions of high coordination degree of color and psychological adaptation, and adjust and form the overall color design scheme;

(3) In the color design of specific renovation buildings, elements such as the aesthetic transformation of external shapes and pieces, the coordination of internal and external light and color, and the use of environmental protection materials are integrated, so as to achieve a high degree of coordination and adaptation between the internal and external color design and psychological perception of specific renovation buildings.

In the color design of old industrial buildings, people's psychological cognition is often greater than rational analysis and design. Therefore, when applying the guidance strategy of this study, fully integrating the psychological adaptation opinions widely obtained from relevant people into the overall and micro color design is a necessary measure to realize the goal of creating a highly coordinated and adaptive color environment by perceptual cognition and rational design, so as to realize the flexible application of this research strategy [10].

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