

Article

Research on the Influencing Factors of Art Intervention in the Environmental Graphics of Rural Cultural Tourism Space

Jingchun Zhang ¹, Xiaodong Liu ^{1,*}, Zhiyu Feng ² and Xinqun Feng ¹

¹ College of Fashion and Art Design, Donghua University, Shanghai 200051, China; 1229113@mail.dhu.edu.cn (J.Z.); fengfeng@dhu.edu.cn (X.F.)

² School of Design, East China Normal University, Shanghai 200062, China; zfyfeng@design.ecnu.edu.cn

* Correspondence: lxdld@dhu.edu.cn

Abstract: In the development of rural revitalization, the art intervention in rural cultural tourism has become a hot topic recently. With the advent of the new media era, it is particularly important to study the factors that affect the artistic value of environmental graphic design. This study proposes six dimensions of environmental graphic design for rural cultural tourism through literature analysis and experience summary, which are refined into 21 impact indicators. It is based on the case of the environmental graphic publicity of cultural tourism in Chongqing Nanshan Cattle Village, using the SBE beauty evaluation method to evaluate the influencing factors, while using the analytic hierarchy process (AHP) to measure each indicator. The consistency of the two evaluation methods verifies the feasibility of the influencing factors, and this study found the influence of visuality, cultural nature, artistic nature, interactivity, spatiality, and communicativeness on aesthetic value. Moreover, the core of environmental graphic design lies in information transmission, in which artistic nature occupies an important position, while cultural nature, although it has a relatively small weight in aesthetic value, cannot be ignored in social media communication. In terms of visual design, a reasonable layout of equipment significantly enhances visual appeal, while spatial adaptability is considered a key factor. This paper emphasizes the integration of art principles into design to promote sustainable development, while also pointing out that the identification of rural cultural symbols can enhance visitors' cultural experience. In terms of interactivity, it is crucial to encourage visitors to actively participate and share their experiences, while communication emphasizes the important impact of exposure to rural scenes on brand communication. This research provides systematic theoretical support and practical guidance for the environmental graphic design of rural cultural tourism.

Keywords: rural brand; rural cultural tourism space; environmental graphics; art intervention in rural areas



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1. Introduction

With the in-depth implementation of China's rural revitalization strategy and the improvement of people's living standards, rural cultural tourism space has become an important place for people to pursue leisure and vacation and experience rural culture. Art design is a unique cultural form and aesthetic expression medium [1], and its application in the rural cultural tourism space can not only enrich the connotation of the space and add atmosphere, but also enhance the brand image and popularity of rural tourism. At a time when the concept of art is constantly evolving, environmental graphic design is not only limited to the indicative function in space, but also the presentation and excavation of rural emotion and identity. The artistic design injects inspiration into the design of environmental graphics, making the renewal of the rural cultural tourism space more branded and innovative [2].

In the era of new media, the rapid development of digital technology has also brought new opportunities and challenges to the promotion and publicity of rural cultural tourism

space. Through the Internet, social media, and other new media platforms, the effective exposure of the rural cultural tourism space scene can more widely display the rural brand and cultural status, attract more traffic and attention, and thus enhance the visibility of the rural cultural tourism space and the attractiveness of tourists. As an important element of the micro-renewal of rural cultural tourism space, environmental graphics also reflect the extension of rural brands through their exposure on the Internet platform. Therefore, the design strategy of rural cultural tourism spatial environment graphic art has a new thinking and evaluation standard in the new media era.

This study selected the environmental graphic design in Chongqing Nanshan Cattle Village, which has been highly disseminated on social media platforms in recent years. Through the SBE beauty evaluation method for ordinary users, as well as the analytic hierarchy process and in-depth interviews with industry experts, we aim to discuss the influence factors of art design on environmental graphics in rural cultural tourism space and evaluate the feasibility of the factors proposed in this study. Moreover, this study also aims to provide a new theoretical support and practical suggestions for the design and development of environmental graphics in rural cultural tourism space and promote the sustainable development and prosperity of rural cultural tourism space.

2. Literature Review

2.1. Rural Cultural Tourism

Rural tourism refers to tourism activities that take place in rural areas, which offer visitors some experiences tied to the natural environment, traditional culture, and rural life [3]. Moreover, cultural tourism refers to travelers' travel while feeling the culture of a destination. This includes experiencing the local customs, traditions, history, arts, architecture, and other cultural elements of a destination [4]. In contrast, rural cultural tourism refers to a type of tourism that focuses on the unique cultural heritage or traditions of rural areas, which seeks to attract visitors by offering immersive experiences that highlight local customs, history, and community life, ultimately aiming to improve the quality of life for residents [5]. Meanwhile, rural cultural tourism is a value co-creation system [6], which integrates and interconnects three elements of rurality, culture, and tourism to realize the multiple functions of cultural, economic, and social value in a rural area. It aims to preserve these cultural elements across generations while fostering economic growth and social regeneration in rural areas [7].

2.2. Environmental Graphic Design and Art Intervention

Environmental graphic design (EGD) is an ancient profession, with a history that dates to when humans began making marks for visual communication long before the invention of paper [8]. EGD is defined as the graphic communication of information within the built environment, applied in internal spaces and urbanization, as well as in external urban spaces like streets, squares, and green areas [9,10]. Common media include posters, signs, advertisements, and designs for public service spaces [11].

In the creation of rural environment graphics, form and connotation complement each other and are inseparable. Unlike traditional art installations, environmental graphics are designed to provide people with information to help them navigate or understand their surroundings, often with a greater focus on functionality and practicality. Moreover, the creation of environmental graphics is a process of symbolic communication, where the creator encodes specific information into the work, the viewer then decodes that information, and the viewer's decoding process helps the individual to understand the creator's creative process more deeply [12,13]. Similarly, the Society of Environmental Graphic Designers (SEGD) [10] defines environmental graphic design as an activity that creates an image through planning and design and uses graphic and visual elements to convey spiritual and cultural messages. This design is linked to environmental and spatial factors and aims to create a visual effect that is consistent with the spirit of the place, promoting the transmissibility and communication of the theme. The application of rural

cultural tourism space environment graphics still maintains the characteristics of the plane, while due to the three-dimensional environmental conditions, these are combined to form a medium for communication and transmission with people in the space and spread the unique cultural connotation of the rural.

In addition, the core of art's intervention in the graphic creation of the rural environment is the designer's abstraction and expression of the beauty of rural spirit. Generally, the creator encodes specific information into the work, and the audience decodes and understands the information [14]. This involves the mode of communication between the creator, the planner, and the audience, from the emotional to the cognitive communication process [15].

2.3. Overview of the Graphic Characteristics of the Spatial Environment of Rural Cultural Tourism

The Danish scholar Gehl [16] summarized in his book *Life Between Buildings* that spatial accessibility, spatial boundaries and scale, use functions, landscape environment, and public facilities can make indoor and outdoor environments have humanization and organic vitality, which provides a basis for the rational layout of the number, location, and orientation of space-limited facilities in planning.

Moreover, Ho and Chen [17] point out in "Community Design" that more important than designing a space is the connection between people; especially, the shared urban environmental creates interesting interventions through narrative design, brings community residents together through storytelling and emotional design, and weaves social cohesion. This it does by creating engaging, interactive, and plot-specific narrative spaces to connect a diverse group of residents, providing moments of awakening and engaging with playfulness. Like the modern urban aesthetics use public art to enhance the value and vitality of the city [18], the rural can also improve the space through art:

1. Art intervenes to create spatial aesthetics

Artistic micro-space creation can make the rural space a more attractive and meaningful place and enhance the emotional connection between the audience and the rural space.

2. Art intervenes to construct shared memories

Art is an effective tool to convey historical memories and strengthen people's sense of identity with the countryside. Art can intervene in rural spaces to shape local characteristics, history, culture, and environment, and convey the spiritual values of the countryside.

3. Arts intervene to promote public participation

The micro-renewal of rural public space under the intervention of art can guide and shape people's daily life and spirit by fully excavating the micro-space and building a new platform for residents' active participation through the art form of comprehensive media, which is conducive to promoting the public life of the countryside. In addition, art installations that conform to the spirit of rural culture are conducive to increasing the exposure of rural space in the all-media era and helping to awaken rural culture [19].

Kao et al. [20] divided the issue of rural design into five categories: "Person", "Civilization", "Landform", "Industry", and "Scenery". "Person" refers to the satisfaction of the needs of community residents, the management of interpersonal relationships, and the creation of well-being; "Civilization" refers to the continuation of the common history and culture of the community, the management of art and cultural activities, and lifelong learning; "Landform" refers to the conservation and development of the geographical environment and the continuation of local nature; "Industry" refers to the operation of local industries and economic activities, the development and marketing of real estate, etc.; "Scenery" refers to the creation of public space in the community, the sustainable management of the living environment, the creation of unique landscapes, and the self-reliance of residents. In rural cultural tourism, this is aligned with the behavior of a combination of rurality, culture, and tourism to realize the multiple functions of social, economic, cultural, and artistic value in the rural area, the transformative model of artistic intervention in rural space, as shown in Figure 1.

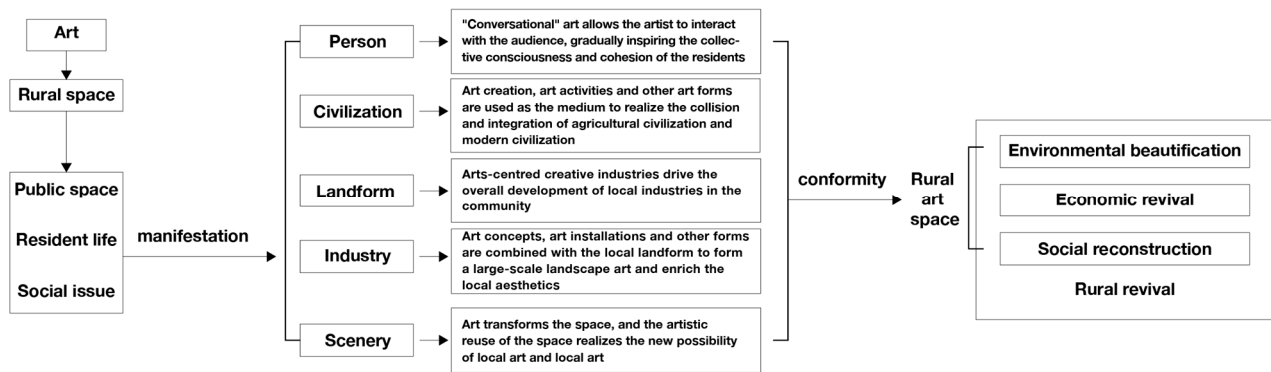


Figure 1. The transformative model of artistic intervention in rural space (Kao et al., [20]).

2.4. The Dimensions of Environmental Graphic Design

Bankole [21] indicated that visuals play a crucial role in environmental graphic design, enhancing and organizing urban spaces to elevate aesthetic value and enrich citizens' living experiences, making cities more attractive and livable. Environmental graphics present the fashions and taboos of social life in a visual and symbolic way and subtly guide people's behavior and spiritual activities.

Secondly, the spatial layout is the fundamental basis of rural environmental graphic design. According to Liu et al. [11]'s research, the effective spatial planning and design enhance visitor experience and comfort while creating an atmosphere that harmonizes with the rural environment.

Thirdly, artistic expression is an indispensable element in environmental graphic design. By incorporating unique rural cultural symbols, traditional crafts, and natural landscapes into the design through an artistic lens, not only are the aesthetic value and attractiveness of rural cultural tourism spaces effectively elevated, but the engagement of the function of interactivity is also improved. For this, Antrop [22] analyzed that people's aesthetic evaluation of a landscape includes the following points: (1) Appropriate spatial scale; (2) the appropriate amount and order of the layout of the landscape structure: the orderliness is an expression of the combined relationship of landscape elements and human cognition, while an appropriate amount of orderliness without strict regularity can make the landscape vivid, so that it is beneficial to have a small number of disordered factors; (3) diversity and variability, which means the diversity of landscape types and spatiotemporal dynamic changes; (4) mobility, including the accessibility of the landscape and the freedom of movement of organisms; (5) sustainability and naturalness, where the development and utilization of the landscape embodies the idea of sustainability and maintains its natural characteristics. In short, the environmental design in rural areas not only focuses on culture remaining, but also on the integration of the reflection of the visual, spatial layout, art, and interactivity.

Lastly, rural environment graphics aim to enrich the rural public living environment by presenting the rural cultural elements in a graphic way, such as using virtual symbols to construct scenes that stimulate the emotions and imagination of the audience and contribute to the spread of rural culture [11,23]. Meanwhile, communication is the main element in the information transformation, which aligns with the core significance of environmental graphic design and art intervention, as discussed above.

2.5. Design Theory

Design theory refers to the systematic exploration of principles and guidelines that provide a framework for understanding the relationships between various design elements (such as visibility, spatiality, artistry, culture, and interactivity) and their impact on user experience and perception. Theories such as Gestalt theory, color theory, and functionalism serve as foundational tools that support designers in making decisions that enhance the environmental graphic designs [24].

2.5.1. Gestalt Theory

Gestalt theory was proposed by German and Austrian psychologists in the 20th century and indicated that the overall visual experience is greater than the sum of its parts. For example, the viewer perceives a complete structure as superior to perceiving individual elements. Thus, designers need to understand how to change spacing, alignment, and configuration for changing viewers' interpretation of visual information [24].

2.5.2. Color Theory

Color theory is a set of principles and guidelines on how to combine, use, and perceive colors. It is widely used in fields such as the visual arts, graphic design, interior design, and fashion design. Color theory helps designers and artists understand the relationships between colors and how they affect viewers' perceptions and emotional responses. Generally, the central tool of color theory is the color wheel, which divides colors into primary colors (red, blue, and yellow), secondary colors (orange, green, and purple), and tertiary colors (red-orange, blue-green), helping designers understand the relationships between colors. Moreover, the three main attributes of color are hue (the type of color), saturation (the purity of the color), and lightness (the brightness of the color). These attributes together determine the visual and emotional expression of color. Third, the matching relationship between colors, such as complementary colors (strong contrast), similar colors (harmonious and calm), and triangular color matching (balanced and rich), can create different visual effects and emotional experiences. Thus, color not only has a visual aesthetic function but is also closely related to psychological responses. For example, red is often associated with passion and energy, while blue conveys a sense of calm and trust. Color theory is therefore widely used in fields such as brand design and graphic design [25].

2.5.3. Symbolic Interaction Theory

Symbolic interaction theory was first proposed by American sociologists George Herbert Mead and Charles Horton Cooley, and systematized and named by Mead's student, Herbert Blumer, a theory that emphasizes the use of symbols (such as language, gestures, expressions, graphics, and so on) by people in the process of social interaction to understand and construct social reality. This theory holds that social behavior is not simply the result of external stimuli and responses but is constructed through the exchange and interpretation of symbols among members of society [26].

2.6. Communication Theory

The perspective view on the procedural school in communication theory [27] proposes that if the artist's (sender's) signal is to be successfully conveyed to the audience (receiver), certain requirements must be met on three levels [28], the details of which are as follows: technically, the artist must convey the message accurately so that the viewer can perceive it. Semantically, the audience needs to understand the information accurately. At the effect level, the information needs to elicit a specific response or behavior. Thus, communication theory emphasizes three levels of communication: technical, semantic, and effective. The technical level involves perceiving the beauty of the work, the semantic level involves understanding its meaning, and the effect level involves the spiritual experience.

For this, Jakobson [29] developed a communication model in which successful communication occurs through six corresponding functions: (1) Emotional function, based on the relationship between artist and audience; (2) mental function, based on the artist's wish to influence the audience; (3) reference function, based on the practical meaning expressed in the artwork; (4) poetic function, based on the aesthetic expression of the artwork itself; (5) the emotional function of the medium of communication of the expressive work of art; and (6) the multilingual function, which identifies the coding system used for communication. The communication model based on these six corresponding factors and functions is shown in the figure (Figure 2).

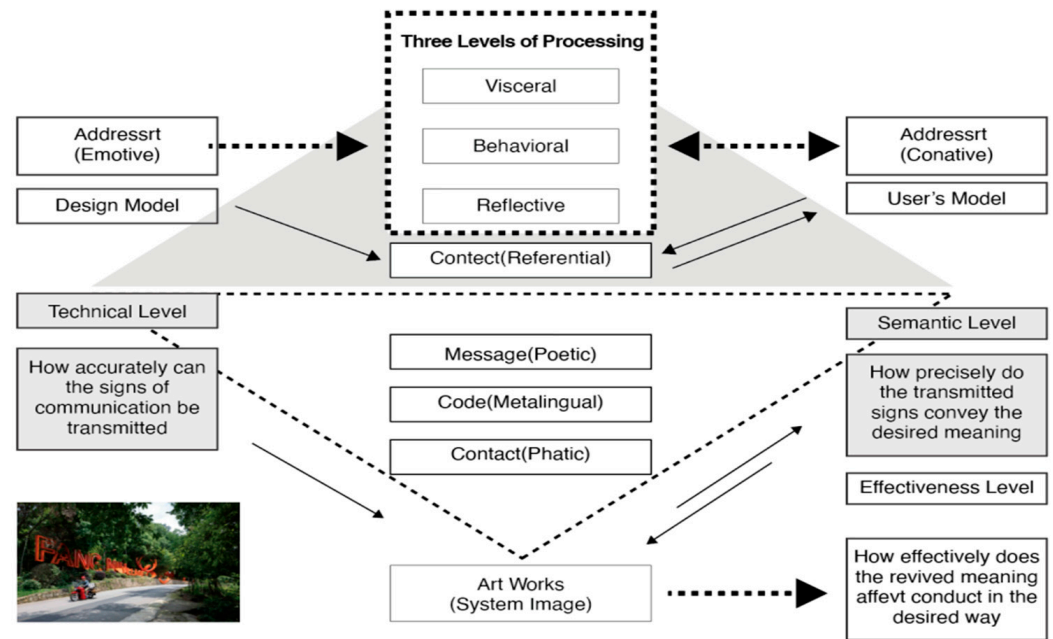


Figure 2. The cultural cognition system of environmental graphics in the rural cultural tourism space (Jakobson, 1987) [29].

2.7. Research Model

In summary, designers need to use a combination of theoretical knowledge in environmental graphic design, such as Gestalt theory, color theory, and symbolic interaction theory, to effectively convey the underlying information and meaning. Therefore, according to combining design theory with communication theory, this study believes that successful information transmission not only depends on a precise grasp of visual perception, but also on other design factors, which include a reasonable layout of space, artistic expression of beauty, profound cultural representation, interactive relationships between symbols, and the effective use of communication media. Specifically, visibility attracts the attention of visitors and enhances the beauty of the space, while spatiality emphasizes the interaction between design and the environment and influences the activities and experiences of visitors. Artistry expresses local culture through unique creations, enhancing emotional connections, while cultural nature ensures that the design reflects local historical and cultural elements, promoting visitors' cultural identity and sense of belonging. Interactivity encourages visitors to actively participate in and experience the environment, enhancing their understanding of the environment while promoting social interaction. Finally, communication ensures the effective transmission of information, promoting communication and understanding between different cultures and giving the design a wider impact. From the perspective of visual perception, designers need to pay attention to elements such as color, shape, and layout to attract the attention of visitors and stimulate emotional responses. In terms of spatial placement, designers should consider the combination of people's flow lines and the functions of the space and enhance visitors' sense of experience through a reasonable layout. In addition, the integration of artistic beauty not only enhances the attractiveness of the design but also conveys specific cultural connotations through visual symbols, enhancing the expression of local characteristics. For this, we contribute the model of the key factors influencing environmental graphic design in rural cultural tourism in this research, as shown in Figure 3.

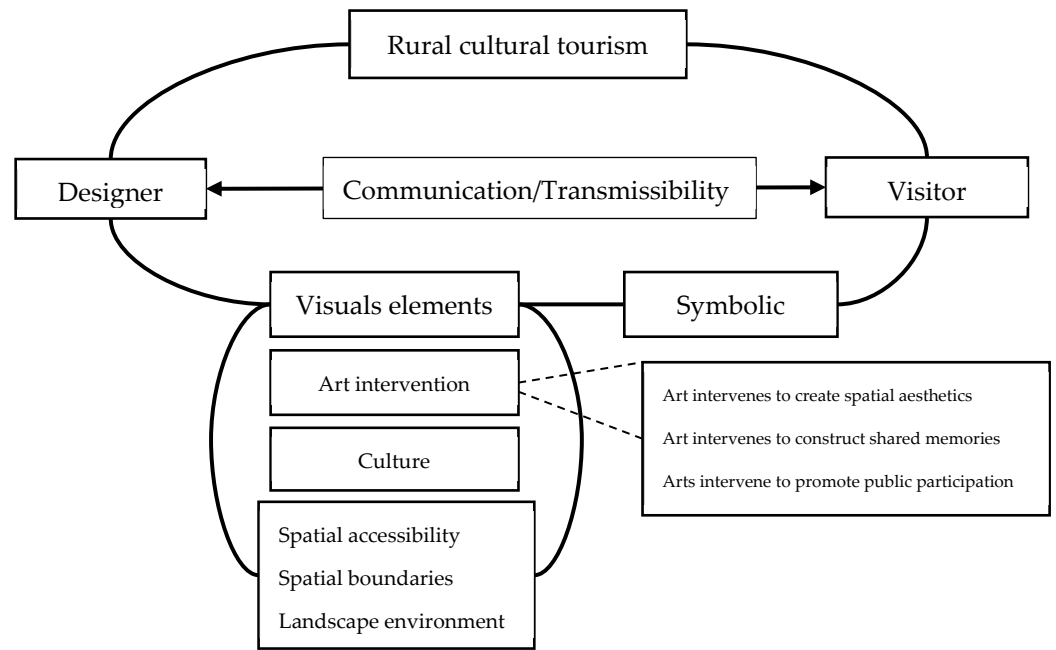


Figure 3. The model of the key factors influencing environmental graphic design in rural cultural tourism (Author, 2024).

3. Methodology

3.1. Research Design

At the primary stage, this study conducted a literature review to understand the impact of rural environmental graphic design on rural brand communication. Based on the literature review, there are six dimensions, and 21 specific influencing factors were identified and summarized. Secondly, this study contributed an in-depth investigation, in the case of Chongqing’s Niucun, and selected the relevant environmental graphics to quantify dimensions. Third, after data were collected via new media, the SBE method was used to establish a fitting equation for the aesthetic value of the rural cultural tourism space environmental graphic system, and the analytic hierarchy process (AHP) was used to determine the weight of each influencing factor. Meanwhile, the results of the AHP and SBE were analyzed to test their consistency, with the aim of establishing a multi-level analytical structural model in this study, as shown in Figure 4.



Figure 4. Research process (Author, 2024).

3.2. Extraction of Influencing Factors

Combined with the literature review and to explore the model of environmental graphic design in rural cultural tourism, a total of six dimensions with 21 influencing factors of rural environmental graphics on rural brand communication were identified in this research: visuality, spatiality, artistry, culture, interactivity, and transmissibility. Meanwhile, this article provides a detailed explanation of various factors, which helps the test participants to understand the dimensions (Table 1).

Table 1. Influencing factors of environmental graphics system in rural cultural tourism space.

Dimension	Indicator	Indicator Factor Theory and Interpretation
Visuality	Information typography design	Provide guided tours and directions through text and image typography for the viewer in the village experience
	Icon symbol design	Patterned identification in environmental graphics that convey important information such as attractions, facilities, and guiding functions
	Exterior styling design	The presentation of the external form of the environment graphic
	Color matching	The use of colors and the combination of environment graphics
	Material fit	The extent to which the production materials and the design style of their own graphic information are in line with the surrounding buildings and natural landscape
Spatiality	Device setting form	The way environmental graphics are laid out in space
	Spatial orientation	Layout and orientation guidance allow audience to understand the effect of orientation and location in the space
	Rural environmental coherence	The effect of matching with the natural environment, architectural style, and cultural characteristics of the countryside
Artistry	Layout rationality	The coordination between the settings of the environment graphics and the settings of the environment graphics in space
	Creativity	Novelty and creativity in environmental graphic design
	Style fit	The extent to which the graphic design style of the environment is in harmony with the style of the rural environment
Culture	Artistic expression	The overall artistic effect of environmental graphic design
	Rural cultural integration	The extent to which elements of rural culture are integrated into the graphics of the environment
	Rural cultural memorability	The extent to which the audience has memories of rural cultural symbols, etc.
Interactivity	Rural cultural symbol recognition	The effect of the recognition of the spirit of rural culture after integrating it into the symbolization of environmental graphics
	Visual communicability	Effectiveness of visual information for spatial navigation and cultural communication for the audience
	Experience shareability	The extent to which the audience is engaged in experiencing the environment graphics (take a photo and check in) and is willing to share with the outside world
Transmissibility	Multi-sensory interactivity	The extent to which the viewer's sense of touch, hearing, and other multi-sensory interactive feelings are stimulated through elements such as color, material, and sound
	Rural scene exposure	The extent to which the rural site where the environmental graphics are located is exposed on new media platforms
	Rural brand exposure	The exposure effect of environmental graphics as a vehicle for the external promotion of the village brand to bring exposure to the rural
	Rural culture exposure	The exposure effect of rural culture using environmental graphics as a vehicle for communication

3.3. Background of the Case

Cattle Village is in the north of the Nanshan Tourist Scenic Area in Chongqing and is named after a boulder shaped like a child riding a cow to graze. The village has a good natural ecological environment with rolling hills and abundant vegetation. The theme of the design is "Art in Nanshan, Art in Cattle Ranching", and the modern visual language is used to re-depict the rural background for transformation, bringing comfortable contrasts and rich changes.

Through the unique shape of the recognizable cow image and the attractive color collision, we will create a unique cattle-herding cultural tourism brand and create a brand image that conforms to contemporary aesthetics with the core of "cattle culture" and "three cow spirit". The color scheme is bright orange, which brings a feeling of vitality and happiness. The design derives simple and energetic fonts and icons that are both fun

and artistic. The brand image is applied to a series of environmental graphics systems, including the general guide, the village entry notice board, the pedestrian guide board, the warning board, and the notice board, to meet the use function and promote the sense of tourism experience of the rural cultural tourism space, as well as to enhance the integration of tourists and Cattle Village.

Because of the active transformation in recent years, the cattle-herding village has become a popular location for local rural cultural tourism. At the same time, due to the artistic uniqueness of its environmental graphics system, more and more social media platforms are featuring it to promote Cattle Village. Because of the successful transformation of Cattle Village, it was also featured on CCTV's China Central Television's Rural Culture and Tourism Visiting Program in 2023 (Figure 5).



Figure 5. The successful transformation of Cattle Village was featured on CCTV's China Central Television's Rural Cultural Tourism Exploration Program in 2023.

3.4. Data Collection

3.4.1. SBE Beauty Evaluation Method

In the Internet era, the audience often learns about the local customs and landforms of the countryside through the pictures pushed in the media platform. Moreover, Scenic Beauty Estimation (SBE) is a common landscape evaluation method, which is used to quantitatively evaluate the aesthetic value of natural environments [30]. Therefore, with the help of the SBE beauty evaluation method [31], similar scenes can be simulated to provide criteria for the judgment of the interviewees. We selected the representative environmental graphic physical photos of Cattle Village with high frequency on social media as the judgment criteria of the index, and we presented them to the interviewees for the questionnaire score, with a score range of 1~5, where the higher the score, the better the landscape is presented. At the same time, we made a questionnaire based on the scene photos and the corresponding influencing factors and publish it with the help of online platforms, with a score range of 1~5, where the higher the score, the more important the presentation factors of the landscape. After sorting out the questionnaire, we sent it to the interviewees one-on-one. As the core user group of the new media social platform, we selected college students as the interviewees, distributed a total of 200 questionnaires, and collected 185 valid questionnaires.

Firstly, the data were processed, and the reliability and validity of the data were verified by the IBM SPSS Statistics 29.0. Then, EXCEL 2019 software was used to standardize the statistical data. The calculation formula is as follows:

$$Z_{ij} = (R_{ij} - \bar{R}) / S_j \quad (1)$$

$$Z_i = \sum_i Z_{ij} / N_j \quad (2)$$

Finally, the sample was randomly selected as the “baseline” group, and its SBE value was 0; the SBE value of the other sample photos was calculated according to the beauty calculation formula. (We label the photos as A1–A21 and end up with a score for each photo) (Figures 6–8).



Figure 6. The test photos are marked with serial numbers A1–A21.

Photo	Score
A1	2.15
A2	3.27
A3	2.27
A4	2.31
A5	3.52
A6	3.72
A7	3.73
A8	3.73
A9	3.74
A10	3.79
A11	3.79
A12	4.05
A13	3.46
A14	3.46
A15	3.63
A16	3.52
A17	3.52
A18	3.47
A19	3.47
A20	3.52
A21	3.11

Figure 7. A breakdown of the final score for the test photos.

	Score
Device setting form	4.82
Rural environmental coherence	4.72
Artistic expression	4.67
Rural cultural symbol recognition	4.50
Experience Shareability	4.44
Rural scene exposure	4.28
Color matching	4.11
Layout rationality	4.11
Style fit	3.89
Rural cultural integration	3.78
Visual communicability	3.39
Rural brand exposure	3.39
Exterior styling design	3.33
Spatial orientation	3.33
Creativity	3.11
Rural cultural memorability	3.11
Multi-sensory interactivity	3.02
Rural culture exposure	2.89
Icon symbol design	2.78
Material fit	2.78
Information typography design	2.72

Figure 8. Results of SBE factor analysis.

3.4.2. SBE Numerical Analysis

The composite score obtained by statistical analysis is shown in the table. The better-performing indicators are the following: device setting form, rural environmental coherence, artistic expression, rural cultural symbol recognition, experience shareability, and rural scene exposure.

With the SBE score as the dependent variable and six evaluation factors as independent variables, namely Visuality X1, Culture X2, Artistry X3, Interactivity X4, Spatiality X5, and Transmissibility X6, the SPSS software was used for linear regression analysis to establish a fitting equation for the aesthetic value of the graphic system of the rural cultural tourism spatial environment: $Y = 3.19 + 1.52X1 + 0.412X2 + 4.21X3 + 1.12X4 + 0.751X5 + 2.43X6$.

3.4.3. Analytic Hierarchy Process (AHP)

The analytic hierarchy process (AHP) [32] determines the weight of factors through multi-factor hierarchical processing (Figure 9). It decomposes the problem into different components and builds a multi-level analytical structure model based on interrelationships and affiliations. We selected 15 professionals who have been engaged in rural and landscape research for a long time to conduct a questionnaire survey on the influencing factors of the rural cultural tourism spatial environment.

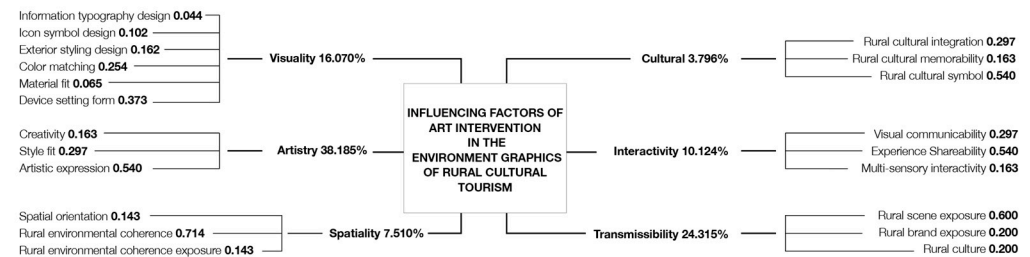


Figure 9. The hierarchical decision-making model of environmental graphics in rural cultural tourism space.

The evaluation factors of the rural cultural tourism spatial environmental graphic AHP system were divided into three levels from top to bottom: target layer (A), benchmark layer (B), and index layer (C), in which the evaluation factors of the target layer were the influencing factors of environmental graphics, and the evaluation factors of the benchmark layer were ecology and artistry. According to the opinions of 15 experts, the evaluation factors of the corresponding index layer of the graphic influencing factors of the spatial environment of rural cultural tourism were determined, and the opinions of experts and SBE analysis results were referred to. The final AHP survey results are depicted as follows (Figures 10 and 11).

	Visuality	Cultural	Artistry	Interactivity	Spatiality	Transmissibility	Eigenvector	weighting (%)
	3	6	1	4	5	2		
Visuality 3	1	4	0.333	2	3	0.5	1.26	16.07
Cultural 6	0.25	1	0.167	0.333	0.2	0.25	0.298	3.796
Artistry 1	3	6	1	4	5	2	2.994	38.185
Interactivity 4	0.5	3	0.25	1	2	0.333	0.794	10.124
Spatiality 5	0.333	5	0.2	0.5	1	0.25	0.589	7.51
Transmissibility 2	2	4	0.5	3	4	1	1.906	24.315

Figure 10. The first-level decision matrix of the analytic hierarchy process for the graphical influencing factors of the environmental graphics of rural cultural tourism space.

	Information typography design 6	Icon symbol design 4	Exterior styling design 3	Color matching 2	Material fit 5	Device setting form 1	Eigenvector	weighting (%)
Information typography design 6	1	0.333	0.25	0.2	0.5	0.2	0.344	4.422
Icon symbol design 4	3	1	0.5	0.333	2	0.25	0.794	10.194
Exterior styling design 3	4	2	1	0.5	3	0.333	1.26	16.182
Color matching 2	5	3	2	1	4	0.5	1.979	25.412
Material fit 5	2	0.5	0.333	0.25	1	0.2	0.505	6.491
Device setting form 1	5	4	3	2	5	1	2.904	37.299

	Rural cultural integration 2	Rural cultural memorability 3	Rural cultural symbol recognition 1	Eigenvector	weighting (%)
Rural cultural integration 2	1	2	0.5	1	29.696
Rural cultural memorability 3	0.5	1	0.333	0.55	16.342
Rural cultural symbol recognition 1	2	3	1	1.817	53.961

	Creativity 3	Style fit 2	Artistic expression 1	Eigenvector	weighting (%)
Creativity 3	1	0.5	0.333	0.55	16.342
Style fit 2	2	1	0.5	1	29.696
Artistic expression 1	3	2	1	1.817	53.961

	Visual communicability 2	Experience Shareability 1	Multi-sensory interactivity 3	Eigenvector	weighting (%)
Visual communicability 2	1	0.5	2	1	29.696
Experience Shareability 1	2	1	3	1.817	53.961
Multi-sensory interactivity 3	0.5	0.333	1	0.55	16.342

	Spatial orientation 3	Rural environmental coherence 1	Layout rationality 2	Eigenvector	weighting (%)
Spatial orientation 3	1	0.2	1	0.585	14.286
Rural environmental coherence 1	5	1	5	2.924	71.429
Layout rationality 2	1	0.2	1	0.585	14.286

Figure 11. Cont.

	Rural scene exposure 1	Rural brand exposure 2	Rural culture exposure 3	Eigenvector	weighting (%)
Rural scene exposure 1	1	3	3	2.08	60
Rural brand exposure 2	0.333	1	1	0.693	20
Rural culture exposure 3	0.333	1	1	0.693	20

Figure 11. The second-level decision matrix of the analytic hierarchy process of influencing factors of the environmental graphics of rural cultural tourism space.

3.4.4. AHP Numerical Analysis

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Visuality 3 is 16.07%, the weight of Culture 6 is 3.796%, the weight of Artistic 1 is 38.185%, the weight of Interactivity 4 is 10.124%, the weight of Spatiality 5 is 7.51%, and the weight of Transmissibility 2 is 24.315%; among them, the maximum value of index weight is Artistic 1 (38.185), and the minimum value is Culture 6 (3.796). The maximum characteristic root is 6.35, and the corresponding RI value is 1.25 according to the RI table, so $CR = CI/RI = 0.056 \leq 0.1$, which passes the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Information Typography Design 6 is 4.422%, the weight of Icon Symbol Design 4 is 10.194%, the weight of Exterior Styling Design 3 is 16.182%, the weight of Color Matching 2 is 25.412%, the weight of Material Fit 5 is 6.491%, and the weight of Device Setting Form 1 is 37.299%; among them, the maximum value of index weight is Device Setting Form 1 (37.299), and the minimum value is Information Typography Design 6 (4.422). The maximum characteristic root is 6.152, and the corresponding RI value is 1.25 according to the RI table, so $CR = CI/RI = 0.024 \leq 0.1$, which passed the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Rural Cultural Integration 2 is 29.696%, the weight of Rural Cultural Memorability 3 is 16.342%, and the weight of Rural Cultural Symbol Recognition 1 is 53.961%; among them, the maximum value of the index weight is Rural Cultural Symbol Recognition 1 (53.961) and the minimum value is Rural Cultural Memorability 3 (16.342). The maximum characteristic root is 3.009, and the corresponding RI value is 0.525 according to the RI table, so $CR = CI/RI = 0.009 \leq 0.1$, which passes the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Creativity 3 is 16.342%, the weight of Style Fit 2 is 29.696%, and the weight of Artistic Expression 1 is 53.961%; among them, the maximum value of the index weight is Artistic Expression 1 (53.961), and the minimum value is Creativity 3 (16.342). The maximum characteristic root is 3.009, and the corresponding RI value is 0.525 according to the RI table, so $CR = CI/RI = 0.009 \leq 0.1$, which passes the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Visual Communicability 2 is 29.696%, the weight of Experience Shareability 1 is 53.961%, and the weight of Multi-sensory Interactivity 3 is 16.342%; among them, the maximum value of the index weight is Experience Shareability 1 (53.961), and the minimum value is Multi-sensory Interactivity 3 (16.342). The maximum characteristic root is 3.009, and the corresponding RI value is 0.525 according to the RI table, so $CR = CI/RI = 0.009 \leq 0.1$, which passes the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Spatial Orientation 3 is 14.286%, the weight of Rural Environmental Coherence 1 is 71.429%, and the weight of Layout Rationality 2 is 14.286%; among them, the maximum value of the index weight is Rural Environmental Coherence 1 (71.429), and the minimum value is Spatial Orientation 3 (14.286). The maximum char-

characteristic root is 3.0, and the corresponding RI value is 0.525 according to the RI table, so $CR = CI/RI = 0.0 \leq 0.1$, which passes the one-time test.

The weight calculation results of the analytic hierarchy process (based on the square root method) show that the weight of Rural Scene Exposure 1 is 60.0%, the weight of Rural Brand Exposure 2 is 20.0%, and the weight of Rural Culture Exposure 3 is 20.0%; among them, the maximum value of the index weight is Rural Scene Exposure 1 (60.0), and the minimum value is Rural Brand Exposure 2 (20.0). The maximum characteristic root is 3.0, and the corresponding RI value is 0.525 according to the RI table, so $CR = CI/RI = 0.0 \leq 0.1$, which passes the one-time test.

3.5. Correlation Analysis of the Two Methods

Kendall’s W Coordination Coefficient Test

Kendall’s W coordination coefficient test [33] is a statistical method used to test whether there is consistency between the evaluation results of multiple evaluation methods and the evaluation object. In this paper, the AHP method and the SBE method were used to evaluate the spatial environment of rural cultural tourism, and the evaluation results of the two methods were sorted out. The results were substituted into the Kendall’s W coordination coefficient formula by SPSS software, and the scores are shown in Table 2. The consistency of quality evaluation B1 and beauty evaluation B2 was studied by using the Kendall’s W coordination coefficient test, and it can be seen that the Kendall’s W coordination coefficient test showed a significant result ($p = 0.010 < 0.05$), which means that the evaluation of the two evaluation methods is correlated, that is, the evaluation is consistent. Meanwhile, the Kendall’s W coordination coefficient is 0.725, which is greater than 0.7, indicating that the evaluation has some consistency. It indicates that the two can be applied in a comprehensive way and included in the same evaluation system to evaluate the landscape for research (Table 2).

Table 2. Results of the analysis of the Kendall’s W coordination coefficient test (***p*-value is less than 0.001, indicates 1% significance).

Evaluation Method	Subject of Evaluation	Kendall’s W Coordination Coefficient	Chi-Square	<i>p</i>
2	21	0.725	804.346	0.000 ***

4. Analysis and Discussion

Through the analysis of the rural cultural tourism space environment of Cattle Village, the study shows that visibility, culture, artistry, interactivity, spatiality, and transmissibility have a positive impact on aesthetic value. According to the analytic hierarchy process weight calculation, Artistry (38.185%) has the greatest weight, while Culture (3.796%) has the least weight, which means that artistry is the most important element in environmental graphic design. In this regard, Locher [34] has shown that art is a visual experience that is more intuitive for travelers. This may be the reason why art is weighted the most. However, this does not mean that culture is unimportant, because social media is the main communication channel in this study, and a lack of real cultural experience will occur. For culturality, Ganoti and Laskari [35] explained that the use of narrative environmental design guides people to experience and understand these cultures in a specific way by integrating stories into the spatial design, thus achieving the construction of spatial and cultural meaning. The weights of the remaining indicators are as follows: Visibility 3 accounts for 16.07%, Interactivity 4 accounts for 10.124%, Spatiality 5 accounts for 7.51%, and Transmissibility 2 accounts for 24.315%.

In terms of visibility, the study found that the indicator with the highest weight is Equipment Layout 1 (37.299), and the indicator with the lowest weight is Information Layout 6 (4.422). This is consistent with the results of Ebenezer [24]’s research, which

shows that visual aesthetics can be quantified using mathematical models. Specifically, a reasonable device layout design can enhance visual appeal through a balance of form and structure. The weights of the remaining indicators are as follows: Icon and Symbol Design 4 accounts for 10.194%, Appearance Design 3 accounts for 16.182%, Color Matching 2 accounts for 25.412%, Material Adaptability 5 accounts for 6.491%, and Device Setting Form 1 accounts for 37.299%.

In terms of spatiality, the study shows that the indicator with the highest weight is Rural Environmental Adaptability 1 (71.429), and the indicator with the lowest weight is Spatial Orientation 3 (14.286). Among the remaining indicators, the weight of Layout Rationality 2 is 14.286%. In this regard, Torbati [8] disagrees and indicates that reasonable spatial layout and orientation are very important. In public spaces, environmental graphic design can strengthen the orientation of the space. Designers need to consider the role of each component in the environment and their interrelationships. For example, urban facilities can not only become the protagonist of a space, but also add beauty in a secondary role, while urban advertising is an important element in enhancing the visual beauty of the city.

In terms of artistry, the indicator with the highest weight is Artistic Expression 1 (53.961%), and the indicator with the lowest weight is Creativity 3 (16.342%). The remaining 29.696% of the weight is used for Style Fit 2. This further proves Alahira et al. [36]'s research perspective, that integrating the principles of fine art into graphic design is not only for the pursuit of beauty, but also for the promotion of sustainable development. The difference is that Alahira et al. [36] believe that in the design process, creativity, innovation, and visual communication need to be combined to empower designers to shape a sustainable future.

In terms of culture, the indicator with the highest weight is the of Rural Cultural Symbol Recognition 1 (53.961%), and the indicator with the lowest weight is Rural Cultural Memory 3 (16.342%). For this, Liu et al. [11] evidenced that environmental graphics are the way to enhance the visitor's experience in rural cultural tourism spaces through a variety of means, such as visual, tactile, and behavioral guidance. For example, through the design of colors, shapes, and symbols, environmental graphics can guide visitors in exploring a specific cultural path or stimulating their interest in a historical event or legend, thereby making the cultural experience more three-dimensional. Otherwise, this study found that the remaining 29.696% is used for Rural Cultural Integration 2.

In terms of interactivity, the indicator with the highest weight is Experience Sharing 1 (53.961), and the indicator with the lowest weight is Multi-sensory Interaction 3 (16.342). The remaining weight is Visual Communication 2, accounting for 29.696%. In this regard, Vallverdu-Gordi and Marine-Roig [37] believe that visual communication is particularly important, especially in media communication. Integrating semiotics into graphic design can enhance the message of environmental publicity and promote a deeper connection between the audience and it.

In terms of transmissibility, the indicator with the highest weight is Rural Scene Exposure 1 (60.0%), and the indicator with the lowest weight is Rural Brand Exposure 2 (20.0%). The remaining weight is Rural Culture Exposure 3, which accounts for 20.0%. Exposure to rural scenes is not only a display of local characteristics and culture, but also an important means of promoting sustainable development and community building. Through effective publicity and design, rural scenes can play a positive role in raising public awareness, promoting economic development and improving the quality of life of residents.

5. Conclusions

To sum up, both the SBE and AHP results indicate that the importance of "artistic" factors (SBE score = 4.67 and AHP weight = 38.185%) dominates in the environmental graphic design assessment. However, it is worth noting that an overemphasis on artistry may lead to a design that prioritizes aesthetics over functionality, cultural relevance, or visitor experience. Specifically, according to the SBE numerical analysis, cultural and interactivity factors ranked low in the SBE scores by considering the parameter value (Culture = 0.412;

Interactivity = 1.12), which is consistent with the AHP's findings (Interactivity = 10.124%, Culture = 3.796%). This underestimation may result in a design that lacks engagement and does not fully satisfy the purpose of rural sustainable tourism development. In addition, this study found that the cultural factors in the SBE and AHP were mainly focused on the "Rural Cultural Symbol Recognition" item (SBE = 4.50, AHP = 53.961%), rather than deeper elements of rural culture such as tradition, heritage, or local narratives. For example, "Rural Cultural Memorability" and "Rural Cultural Integration" were ranked relatively low (SBE scores of 3.11 and 3.78, respectively). In this regard, managers need to consider development strategy comprehensively. The specific findings are shown in the following sections.

5.1. The Key Factors in Environmental Graphic Art Design in Rural Cultural Tourism Space

Based on the results of SBE analysis and AHP analysis, this study identifies key factors in environmental graphic art design for rural cultural tourism spaces as artistry, visuality, transmissibility, interactivity, spatiality, and culture. In this regard, artistry is the main factor with the highest weight, which indicates enhanced aesthetic value and integrates fine art principles promoting beauty and sustainability development in rural areas. Visuality was ranked third, which emphasizing effective equipment layout and color matching for visual appeal is important. Moreover, transmissibility ranked second, which focuses on the fact that conveying cultural messages through rural scene exposure is necessary, while it is worth improving interactivity via enhanced visitor engagement through experience sharing and visual communication. Finally, spatiality and culture play a vital role in environmental art design, which stresses the effective navigation and the significance of cultural symbols in enriching visitor experiences.

5.2. Artistic Creation Is Important in Rural Environmental Graphic Design

It is important that artistic creation plays a central role in rural environmental graphic design, because it not only enhances the aesthetic value of the design, but also provides a new perspective and impetus for the construction and development of rural cultural tourism spaces through the combination of innovation and sustainability, specifically when art is integrated into spatial design. From an artistic perspective, combined with the configuration of space, the aesthetic appeal of rural spaces can be enhanced through rich visual elements and innovative design styles, making them more attractive and interesting and attracting the attention of tourists. In addition, artistic design can effectively convey the local cultural story and historical background and can guide visitors to better understand and experience the local culture through elements such as symbols, colors, and shapes, which influence the sense of culture in tourism. Lastly, this research found that artistic creation can also add interactivity to the design, encourage visitors to participate in the spatial experience, and deepen their perception and memory of the environment through multi-sensory interaction.

5.3. Transmissibility Has Become a New Important Criterion for the Artistic Creation of Environmental Graphics in Rural Cultural Tourism

Transmissibility is an important criterion for environmental graphic design in rural cultural tourism, which is consistent with the new thinking in rural cultural tourism art creation in the new media era. For this, this study found that exposure to rural tourism scenes directly affects the exposure of rural tourism brands. Therefore, for brand communication media such as environmental graphics that are both functional and artistic, appropriate artistic creation needs to consider the audience's receptivity. Since the public's acceptance of art and culture in rural areas varies, the artistic creation of environmental graphics in rural cultural tourism spaces also needs to consider the public's aesthetic preferences to gain more praise from tourists on site and on design platforms, thereby driving the popularity of the countryside. At the same time, research has also found that because it is a new media communication, the cultural nature may be weak due to the lack of it being truly experi-

mental. Therefore, in the environmental graphic design of rural tourism, it is necessary to emphasize the deep integration of cultural elements to ensure that artistic creation not only has visual appeal, but also effectively conveys the local cultural connotations and stories.

5.4. The Visuality of Environmental Graphic Design in Rural Cultural Tourism

The most intuitive aspect of the environmental graphics system for visitors is visibility [31]. For the visual indicators, the device setting form, color matching, and exterior styling design are the top factors. Due to the complexity and richness of the environmental graphics system, as a communication medium in rural areas, it is necessary to show that creators need to pay more attention to the macro expression ideas when recreating the environmental graphics system. For example, this includes interesting installation form, striking color matching, fitting the theme image, and impressive exterior styling. These are intuitively reflected in the pictures of the environment graphics that the audience sees in the media platform.

5.5. The Interactive Element Is Very Important in the Process of Designing Environmental Graphics in a Rural Setting

The core of environmental graphic design lies in the creator conveying a specific message to the viewer. Due to the inclusiveness of environmental graphic design, there are various ways and possibilities for the design of environmental graphics. Among them, the form of environmental graphic design will determine the audience's willingness to visit, as well as the positive effect on the audience's experience the audience's desire to share on social media platforms. Therefore, in the visual creation of environmental graphic design in rural cultural tourism, it is necessary to pay attention to the combination of environmental graphics and different rural environments. At the same time, it is necessary to increase its interactivity, similar to that of an art intervention, including recording the viewer's emotions of nostalgia or the interaction with those designs [38].

6. Limitations and Prospects

6.1. Limitations

Due to objective conditions, the coverage of participants in this study may have some limitations and shortcomings. Factors such as cultural background [39], education level [40], and age [41] may influence people's assessment of visual preferences. At the same time, the angle and light of the photo taken in the SBE beauty evaluation method will have a chance effect on the participant's photo, but we believe that this is suitable for the current state of fragmented information presentation in the fast-paced social media platform. Meanwhile, the safety of rural tourism destinations is a key concern for tourists, which may affect their feeling on the destination. In addition, rural tourism destinations may be affected by seasonal elements, such as changes in the environment, which may result in a single environmental graphic design that is not suitable for all four seasons [42]. Since this study increased the importance of art, it may lead to society prioritizing the embodiment of art and ignoring the core of culture and other factors. Therefore, in the future, designers need to integrate art with other influencing factors.

In the future, we plan to conduct more in-depth interviews with more participants to learn more about their experiences and gather their suggestions. We hope that more people will participate in the research and provide more valuable suggestions on this topic from different aspects. Moreover, it is necessary to think about the best results achieved by the artistic creation model of environmental graphics at a small cost to ensure wider adoption in the market. The introduction of new materials and technologies can promote the development of the economy and industry and meet the requirements of economic evaluation scales. Minority, reuse, and regeneration are also applicable in environmental graphic design, and need to be considered as a criterion for rural art creation.

6.2. Prospects

“Micro-renewal” is a kind of renewal with the basic needs and scale of people as the core, focusing on the protection of existing space, while following the principles of land development and social order. It transforms small plots of land at the appropriate scale, and the creation of environmental graphics in the countryside is also suitable for this concept. The topic worth exploring in the future is how to correctly develop the transformation of art in the rural cultural tourism space. Although Nanshan Cattle Village provides a good example, we cannot ignore that there are still many places that need to be considered and improved. This is beyond the topic explored in this article. However, this does not prevent us from thinking creatively.

Meanwhile, it is necessary to slow down, take a careful approach to healing the countryside, and use art to restore the countryside. On the premise of respecting tradition, we should use contemporary ideas and concepts to spread and promote the countryside, establish a new and complete representative rural cultural tourism space system, and inject new vitality into the rural spirit in the new media era.

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