Research on the Design of Intelligent Scenic Spot Facilities System from the Perspective of User Experience—A Case Study of Landscape Yao Village, Jinxiu County, Guangxi

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Abstract

The sustained growth of economy and the rapid development of transportation have brought unprecedented prosperity to scenic spots. While the scenic spot is growing and updating its contents and facilities, it ignores the influence of its cultural attributes on tourists. Blind reference to foreign scenic facilities design, the use of mass, homogeneous public facilities gradually weaken the significance of scenic spots as experience of regional culture and services. Scenic facilities are not only the direct media for tourists to interact with scenic spots, but also the direct embodiment of scenic culture. In order to enhance the cultural soft power, the systematic design should be carried out on the basis of improving user experience and integrating regional culture.

Keywords

User Experience; Scenic Facilities; Smart Tourism; Landscape Yao Village

Introduction

Joseph Pine mentioned in the book "Experience Economy"; future economic development will be integrated with the experience economy. With the continuous progress of social level and the continuous improvement of people's consumption consciousness, industrial design gradually transits from satisfying people's living needs to meeting people's spiritual needs. "User experience" is based on users' feelings. Therefore, it can give people physical and mental satisfaction, and its

application in the industrial design of scenic spots will bring new cognition and experience for tourists.

Jinxiu Shanshui Yaocheng, as an excellent national minority tourist attraction, has an annual tourist throughput of 570000. From the perspective of "user experience", improve and upgrade the guide facilities and urban furniture in the scenic area, so that tourists can experience the beauty of Yao people's amorous feelings in multiple directions and dimensions. It can not only deepen the impression of tourists, but also improve the influence and publicity of scenic spots in the industry.

User Experience Overview

Definition of User Experience

The term "user experience" was first proposed and promoted by Donald Norman in the mid-1990s. What is more convincing in the definition of user experience is the explanation given by iso9241-210: People's cognitive impression or response to the products, systems or services used or expected to be used. Herbert Simon, a famous American scientist and Nobel laureate, thinks that "design is an activity to make the existing environment beautiful. Modern science and technology has made epoch-making achievements, and people have higher and higher requirements for products, systems and services that meet the needs of daily work, daily operation habits and psychological expectations. Therefore, the "user experience" runs through the design process and helps content providers and producers to have a timely insight into user needs.

The Guiding Significance of User Experience to Design Behavior

"User experience" is ubiquitous. Products or services with human participation generate corresponding subjective feelings. Donald Norman summarizes the user experience in the instinct level, behavior level and reflection level in "Emotional Design". For companies, respecting the consumer psychology and behavior habits of users can gain a foothold in the market. Marketing expert Bernd H. Schmitt stated in his book "Experiential Marketing" that experience is a reflection of events. Joseph Pine and James Gilmore, who proposed that the experience economy is the development trend of the future era, believe that in today’s market where product forms and service models converge,Merchants should base on products and add service value to them to form a humanized consumer experience for users, thereby embodying a competitive advantage in marketing. "User experience" depends on the product and acts on the user, and then the user feedback on the product. Good user experience can make users produce positive emotional feedback, increase product identity and favor, and generate a virtuous circle. This mode is the development prospect and goal of tourist attractions. In order to provide tourists with a good user

experience, the scenic spot constantly innovates in the experience mode. Make the scenic area intelligent, use technology and Internet to connect tourists and scenic spots from a new angle.

Factors Affecting User Experience

Psychologist Donald Norman summarized user experience into three levels: instinct layer, behavior layer and reflection layer. On this basis, we can divide the previous market research to user expectation acquisition, and then divide the product construction to the final realization into five stages, that is, the five factors influencing user experience: strategic factor, scope factor, structural factor, framework factor and performance factor. These five components can explain all aspects of user experience from abstract to concrete, and are the research foundation for understanding user behavior and optimizing product functions.

Strategic Factors

The process by which companies define user psychology and expectations before producing products, making websites, and formulating services is called the strategic factor of user experience, that is, clarifying "what the company needs" and "what users want".

Strategic factors include two levels: product goals and user needs. A successful user experience is based on a clearly expressed "strategy", which clarifies the expectations and goals of the user and the enterprise for the product, which helps to establish the strategic formulation of the user experience in all aspects.

Table 1. Strategic factors

Content	Design form	Design method	Purpose
Product goal	BI identification	Visualize and symbolize corporate culture and product connotation	Build brand culture
User needs	User segmentation	Categorize the needs of users of different genders, ages, countries, religions, and beliefs, set product functions and formulate plans for specific groups of people	Improve user experience, increase satisfaction and get real data feedback

Scope Factors

The process of determining product functional specifications and content requirements is called the scope factors of user experience. Whether it is a company producing a product or a user using

a product, the process and the product itself exist for creating value. The scope factors affect the user's satisfaction with the product function in the user experience.

The function and specification of the product are the specific description of the product's performance, format, and use. It is an important factor that determines the nature of the product, as well as the embodiment of the interactive relationship between the user and the product. The user's content requirements for the product determine the product function, and the corporate standard determines the product specification. The development process of product functions and specifications is the process of transforming abstract user content requirements into concrete product overall functional goals. After determining the overall function of the product, it is subdivided into functional subsets, and functions are optimized and perfected for each subset. Finally, the interactive logic of the product usage form is formed. Functions and specifications are an intuitive reflection of product quality, and also determine the user's attitude towards product evaluation.

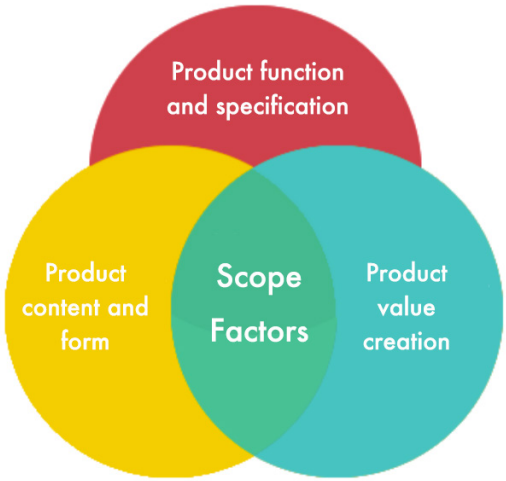


Figure 1. Scope factors

Structural Factors

nteraction design expert David Benyon believes in his book "Designing Interactive systems" that interaction design is also a systematic design of product functions and human-computer interaction. Structural factors are the connecting point between strategic factors and performance factors in user experience, and are the transition from the theoretical level to the more practical operational level of user experience after the determination of product structure factors. The process from abstract to concrete and from theory to practice is gradual. In this transformation process, the most important point of the user experience is that the concept of structural factors will be embodied in the way of

"man-machine-environment", which is to design a function and specification of the range of factors in the user experience to the user's operating behavior Responsive mode-interaction design.

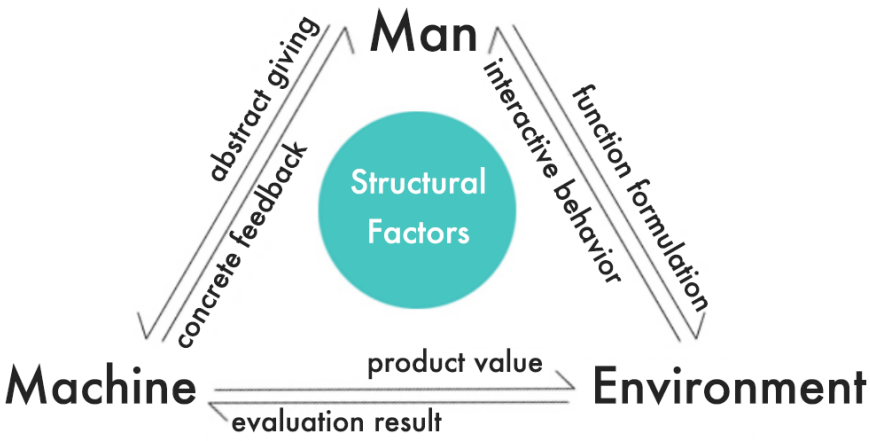


Figure 2 Structural factors

Frame Factors

The frame factor is the concrete realization of the interaction design. Automobiles are composed of engines, transmission systems, circuit systems, and operating systems, but these systems cannot operate independently. These systems need to be placed in the body frame to reflect their value. Similarly, the structural factor of user experience is to transform abstract user requirements into actual interaction design. After determining the operation logic of interaction design, a framework should be developed to enable interaction design to play a role. Therefore, framework factor is a further extension of structural factor. In the field of industrial design, framework factors are divided into three parts: information design, interface design and element design.

Table 2. Framework factors

Content	Method	Purpose
Information design	Reflect product information in the outside through multi-sensory design	Enable users to quickly determine product category
Interface design	Optimize operation interface	Smooth operation
Element design	Add details to the product	Enhance user experience

Performance Factors

The presentation layer is at the top of the user experience elements and is the overall appearance of the product. Any hardware or software product needs to convey information to users through certain external manifestations. In the user experience performance layer of the industrial design field, the color, material and processing technology design of the product is the method to enhance the user's perception experience of the hardware product, that is, the CMF design.

Design Elements of Smart Tourism and Smart Scenic Spots

Smart Tourism and Smart Landscape Facility System

Intelligent tourism is the comprehensive embodiment of service wisdom, management wisdom and marketing wisdom. In 2008, IBM first proposed the concept of "smart earth"; in 2012, China's Ministry of housing and urban rural development launched the National Smart City pilot work. In November 2012, the National Tourism Administration said that it would strive to achieve "smart tourism" in the next 10 years, so as to effectively deal with the huge pressure on the resources and environment of scenic spots brought by the explosive growth of tourism industry. The facility system of intelligent scenic spot is the integration of intellectualization, convenience, regionalization and systematization of public facilities in scenic spots. Scenic facilities can meet the basic needs of tourists, and intelligent scenic facilities are an important guarantee for user experience.

Design Elements of Intelligent Scenic Spot

(1) Regional design elements

Regional culture is not only an important cultural heritage, but also a regional identity symbol. In the design of regional characteristics, we should consider the background environment formed by the mutual penetration of local natural environment, humanistic feelings and historical development. Therefore, in the expression level of regional elements of the facilities system of intelligent scenic spots, the design method should be limited from the level of humanistic spirit and material environment.

(2) Elements of historical context

The extension and development of historical context is a symbol of regional cultural vitality, and it is also the significance of setting up scenic spots. The spatial layout, modeling styles, material

colors and cultural symbols of public facilities in the scenic area are not only witnesses of time, but also generalization and condensing of local culture. In the design of the historical context elements of the intelligent scenic spot facility system, the historical characteristics of tradition and nationality need to be deeply excavated. Tradition means that we should respect the local cultural tradition in the design, and the nationality requires that the design should be targeted, and the specific national characteristics should be deepened and refined to avoid extensive design. The spiritual symbols embodied in the regional culture in the scenic facilities are the design and implementation of the tradition and nationality. The spiritual symbols are the identification marks of the local culture and the concrete presentation of the regional culture.

(3) Folklore elements

Folklore elements are an important expression of regional culture. The baptism of time in a region will inevitably produce corresponding folklore culture. It can be seen that folklore culture is the way local residents respond to life and labor, and is the crystallization of experience that promotes survival and development. Therefore, while the scenic area is open to tourists, it also respects the faith and culture of local residents, and avoids misunderstandings caused by the unclear and abuse of design elements.

The Design Expression of User Experience in the Facilities of Yao Village Scenic Spot

Guangxi Jinxiu Yao Autonomous County has many beautiful natural landscapes and primitive villages. Among them, Shanshui Yaocheng scenic spot is the first scenic spot combining Yao culture with county seat in China, and it is set up as 4A scenic spot, known as "Yao capital of the world". With one belt, one road policy, the National Tourism Administration encourages the scenic spots with unique regional culture to create economic wealth closely combined with the needs of the times. The development of minority regional tourism will usher in unprecedented historical development opportunities. Good scenic facilities that are in line with the development of the times can better express the good mountains and beautiful scenery of Shanshui Yaocheng. According to the use methods and existing forms, the scenic facilities can be divided into guide system, rest service system, lighting system, health system and barrier free facilities system.

Guide System

On the premise of meeting the guiding function, the aesthetic elements and design standards should be refined according to the different environment and the needs of people to meet the aesthetic needs of users. In the design of the scenic guide system, we need to collect, summarize, summarize,

extract and optimize the aesthetics of the cultural symbols of the scenic area; correspond to the theme of the scenic spot in the color design; and use the conspicuous and intuitive form to play the role of the guide system in the modeling design. Scientific information integration, aesthetic unification of information elements and efficiency of functional design can enhance the ease of use and user experience of the system.

Rest Service System

In the "Twelfth Five-Year Plan of China's Tourism Public Services", it is proposed that tourism public services are basic facilities or services that provide tourists with demand. In the facilities system of intelligent scenic spots, the rest service system is usually the hardware facilities that serve tourists and meet the needs of tourists, including landscape seats, vending machines, sunshade facilities, ticket machines, etc. In the 1960s, Professor Michael Teitz of the University of California proposed to conduct design analysis from four levels of convenience, functional convenience, service convenience and traffic convenience to provide theoretical basis and design guidance for the public service system under today's smart tourism system.

Lighting System

The lighting function system is the business card of the scenic spot at night. The lighting system is the aesthetic embodiment of the scenic spot. Good lighting design can increase the degree of tourists' favor and recognition. Lighting functional system still needs to meet the service needs of tourists, and even can exist as a guidance system. Protection, regionalism, artistry and ecology can provide more forms of tourism experience for tourists.

Health System

The health functional system is the guarantee of the safety of scenic spots and the health of tourists. The daily tourist flow in the scenic area is huge, so the flow of bacteria and viruses will also increase. At the same time, the daily garbage generated in the scenic area also shows a positive correlation with the passenger flow. The materials and processes used in the sanitary functional system must meet antibacterial standards. For example, the design of toilet in scenic area should keep ventilation and dry, avoid using wood and other raw materials to reduce the growth of bacteria; the garbage cans in the scenic area should be classified and designed or the garbage transportation system should be established; the indoor facilities in restaurants and other places should be treated safely through disinfection system.

Barrier-free Facility System

Barrier free facilities system is an important embodiment of the humanization of scenic spots. The accessibility system can reduce the inconvenience of people with disabilities, so that they can enjoy the same service and experience as healthy people. In order to allow the disabled and the elderly to enjoy the same tourist experience as healthy tourists,systematization, systematic and multi-sensory design considerations for detailed facilities such as scenic spots, steep slopes, sightseeing elevators, blind paths and toilets. Thus, the barrier free facilities can form the relationship of point, line, surface and body, and reduce the learning cost for the target population.

Conclusion

Paying attention to the impact of user experience on tourists, integrating intelligent operation mode and targeted regional culture combination can improve the operation experience of scenic facilities in Shanshui Yaocheng scenic area, and improve the efficiency of cultural communication. Tourists can also feel the local Yao culture and humanistic care of the scenic area in the process of using the scenic facilities.

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References

Yang, H. (2013). Research on the interface design of smart phone mobile Internet applications.PHD. Dissertation. CHN: Wuhan University of Technology.

Gao, Y.Q., & Liu, L. (2017). The application of regional culture in regional design—Taking Beichuan Barnacha commercial pedestrian street as an example. *Journal of Southwest China Normal University (Natural Science Edition)*, 42(01), 95-102.

Bao, S.Z., & Cai, R.L. (2017). Intelligent manufacturing sharing and its user experience: An example of Shenyang machine tool. *Industrial Engineering and Management*, 22(03), 77-82.

Li, F. (2017). Discussion on the concept of smart tourism from the perspective of tourism information service. *Management Observation*, (17), 175-177.

Yang, X.H. (2014). Research on the development of smart tourism based on the construction of smart cities. *Oriental Corporate Culture*, (02), 168-169.

Chen, J.A., & Wu, M. (2019). The strategy of embedding local culture in the development of tourist attractions in ethnic minority areas. *Academic Exchange*, (01), 103-111.

Luo, H.G. (2014). The formation of structure: the practical rationality of the evolution of the Hualan Yao kinship system in Dayaoshan, Guangxi. *Ethnic Studies*, (03), 64-71, 125.

Lin, C., Hu, J., & Kong, X.Z. (2012). Overview of models and evaluation methods of user experience quality (QoE). *Chinese Journal of Computers*, 35(01), 1-15.

Feng, W. (2010). Analysis of the Concepts of "Brand Identification" and "Brand Image". *Decoration*, (11), 129-130.

Xi, T., & Tang, W. (2010). Information visualization-the highway of the information society. *Packaging Engineering*, 31(S1), 56-58.

Zhu, M.F. (1999). Feasibility study on poverty alleviation by tourism. *Journal of Guilin Tourism College*, (03), 65-67.