

Original Paper

Element Recognition and Innovation Transformation of Cultural and Creative Products: Based on Eye Movement Experiment

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Abstract

This paper analyzes tourists' perceived preferences for cultural and creative product elements using human-computer interaction technology and constructs the innovation and transformation path of cultural and creative products from four dimensions: concept, elements, content, and structure. The Great Wall tourism cultural and creative products are used as an example. The findings demonstrate that: (1) From a behavioral data viewpoint, cultural and creative items' overall inventiveness, formal design, manufacturing method, area, cultural collection value, and function have varying degrees of influence on visitors' perceived preferences; (2) The richness and attraction of character expression, action, and form components from the hotspot map and matrix map can boost the visual engagement impact of visitors. Scenic area architecture may enhance visitors' immersion experiences of local culture since it serves as the design prototype for cultural and creative businesses. (3) The number of fixation points, total fixation time, and saccade frequency of cultural and creative products with various design elements differ significantly when viewed from the perspective of the eye movement index, and these differences are further presented as individualized tourist behavior characteristics. (4) From a design standpoint, it is essential that the circumstances of the product satisfy the needs of visitors in order to produce high-quality cultural and creative products. Innovative ideas should be used to steer the innovation and transformation of cultural and creative products, enhancing the universal design of

products with element innovation, enhancing the cultural legacies of products with content innovation, and lengthening the market cycle of products with structural innovation. The use of modern technology broadens the research methodologies for the tourism field and creates new research environments for tourism experimentation.

Keywords

cultural and creative elements, product innovation, element identification, eye-tracking technology

1. Introduction

The National Congress of the People's Congress recommended in its report strengthening the protection of cultural artifacts and culture, adhering to the idea that literature can influence tourism, and using tourism to further the thorough fusion of culture and travel. The primary conflict in Chinese society today is the conflict between the population's increasing aspirations for a better life and the country's imbalanced and inadequate development. With the relentless quest for material existence, individuals have ever greater needs for spirit and culture. The market size of China's cultural and creative products business was 87.267 billion yuan in 2021, up 15.57% year over year, according to information from the National Bureau of Statistics' 2021 China Cultural Industry Annual Report. It has a spot in the latest consumption boom. It is crucial for fostering regional economic development, passing down traditional culture, and addressing job issues among the populace. The importance of enhancing the regional image is rising (Li Junxiu, 2020). Therefore, the supply of high-quality cultural and creative products has developed into a strong guarantee and crucial support for meeting people's cultural needs, enhancing their cultural happiness, and strengthening their cultural strength. People's demand is the long-term driving force behind the development of the cultural and creative industries. Yet, China's tourist, cultural, and creative industries are still mostly in their infancy. Cultural and creative items generally have poor design quality, little regional reputation, and a meager impact. The absence of fertile ground for the cultural and creative sectors, as well as the variability of scenic region development strategies, are to blame (Zhu Lili, 2020). Visitors seek local authenticity since they are disassociated from a familiar metropolitan environment. A product won't be alluring enough to pique visitors' desire to buy and reduce customer stickiness if culture cannot be examined, combed, and improved at a certain level. A non-virtuous cycle is created when a lack of funds prevents the thorough and in-depth development of items (Yu Qiuyang, 2018). In its conclusions on the factors that influence customer purchases, Dupont notes that the majority of consumers base their decisions on the aesthetic design of the items, and the majority of the external information they perceive originates from their sense of sight. A product's visual appeal has a direct impact on how customers perceive it psychologically, which in turn influences their propensity to make a purchase. Visual effects-based product design may satisfy the public's aesthetic needs in addition to the product's practical requirements. As a result, it has become challenging to solve the problem of how to innovate and alter design aspects for cultural and creative products in order to satisfy visitors' expectations for aesthetic

appeal and produce high-quality cultural and creative products.

The research status of cultural and creative products is currently split mostly between theoretical research and practical design research, both at home and abroad. The characteristics of cultural and creative products (Guo Wei, 2022), the marketing channels of cultural and creative products (Yali, 2020), an overview of cultural and creative products (Lu, 2021), and the design methodologies of cultural and creative products are the main topics of theoretical research (Dun Wenhao, 2021). Design research, on the other hand, bases its application of theoretical research findings on a specific product design (Wang, 2021). In comparison to western nations, domestic cultural and creative items were introduced later, with China's "culture and creative industry" debuting in 2000. The majority of studies concentrated on developing concepts and conducting theoretical analysis of the cultural and creative industries. In 2011, relevant studies on cultural and creative products first came to the attention of academics, with the early studies concentrating mostly on the cultural and creative design and growth of museums. It entails the extraction of design components as well as the fusion of specific applications in a specific area (Hongqiong, 2021). In recent years, studies on the design of cultural and creative products have begun to focus on humanistic care-oriented emotional design (Daihan, 2022), but the majority of research methods are based on the subjective experiences of tourists and are conducted as questionnaire surveys in conjunction with the social evaluation method (Li Xue, 2021), analytic hierarchy process (Li Zhao, 2021), fuzzy Carnot model (Sung-Lin Hsueh, 2021), and expert interview method (Chen Xiang, 2019). There have been some research findings, but the correctness of the findings is still up for debate due to subjective considerations.

Three characteristics of product marketing channel innovation, product design innovation, and product presentation innovation make up the way to high-quality innovation of tourism-related cultural and creative products. The Internet offers a variety of marketing channels and presentation techniques, including the use of VR, 3D presentations, and other high-tech tools, as well as offline product sales. High-quality cultural and creative products should be shaped with regard to the product itself, and they should be created to meet the public's needs in terms of aesthetic appeal and cultural experience. Thus, this paper attempts to measure the physiological response index of tourists browsing a particular item using the psychological experiment method of eye movement tracking and analyzes the relevant psychological activities of tourists to assess their instantaneous visual attention in order to extract the specific features that attract tourists' perception and preference for cultural and creative products (that is, tourists' subjective feelings can be omitted from this analysis). It offers fresh design concepts for the high-quality creation and transformation of tourism-related cultural and creative items from a psychological standpoint.

2. Research Object, Research Method and Experimental Design

2.1 Research Object

The State Council released the Construction Plan for the Great Wall, Grand Canal, and Long March National Cultural Park in 2019, highlighting the value of thoroughly examining the cultural significance of the Great Wall, promoting the overall optimization and improvement of the Great Wall tourism industry in commercial space, image landscape, cultural and creative products, tourist routes, and cultural experience, and fostering the development of a new future for the Great Wall culture (Du Fanding, 2021). This essay uses the cultural and creative products associated with the Great Wall as an illustration. Through the use of human-computer interaction technology, innovative cultural and creative product design can not only boost the revenue of tourist attractions, demonstrate the creativity and innovation level of the market for cultural and creative products, but also explore the essence of the Great Wall culture in great detail, increase its influence and value as a cultural legacy, and advance the high-quality development of socialist advanced culture. Have a common illustration.

2.2 Research Method

An important technique in psychology is the eye movement experiment, which determines the location and duration of the fixation point with high spatial and temporal accuracy. This method can quickly capture the instantaneous visual conditions of tourists viewing the sample by measuring the orientation of the fixation point of the eye or by observing the relative movement of the eyeball and the head (Yang, 2019). The technology transforms emotional and visual reactions into objective data output, which is mostly utilized for physiological monitoring. The eye movement experiment's feedback mechanism is shown in Figure 1.

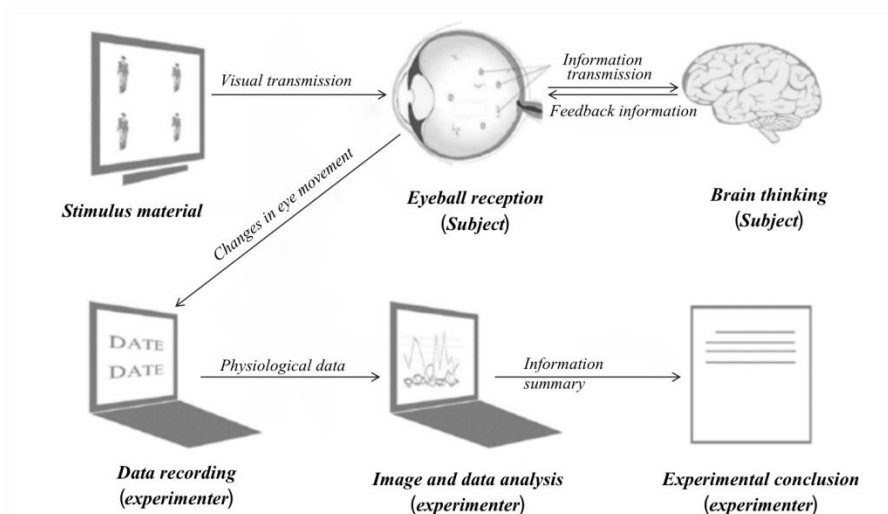


Figure 1. Feedback Mechanism of Eye Movement Experiment

In order to extract and analyze the perceptual preference of the design aspects of the Great Wall tourism cultural and creative products under the immediate visual effects of tourists, mathematical statistics and eye-tracking studies are integrated in this article. Initially, a mathematical statistics method is used to conduct a factor analysis of the characteristics of Great Wall cultural and creative products to ascertain the weight of each index in the fundamental characteristics of the products. Second, the physiological eye movements of tourists viewing cultural and creative products of the Great Wall were captured and recorded using the eye movement experiment method in order to extract and identify the tourists' perceptual preferences for the design attributes of cultural and creative products. The innovation and transformation route of cultural and creative products is built from the idea, elements, content, and structure aspects so that the product design may better suit visitors' aesthetic demands. This is done by merging data on tourist behavior and eye movement.

2.3 Experimental Design

2.3.1 Experimental Preparation

Sample gathering. The experimental data for this study was collected through design publications, micro-collection forums, and the winning entries on the official website of the Great Wall of China Cultural and Creative Design Competition. The original samples were cleaned, screened, and feasible and representative samples were extracted for the experiment using multiple scale analysis and cluster analysis.

The object of choice. In this work, 45 regular consumers of Yanshan University cultural and creative goods, including undergraduate, master's, doctorate, and teaching students, were examined. The age range was 24–1.5, with a male to female ratio of 1:1. Their educational backgrounds ranged from computer science to technical economics to business administration to financial management to art design. The participants were healthy, had never taken part in a study like this before, and had binocular naked vision or corrected visual acuity above 1.0. They also got a reward following the test. College students have considerable expertise in the tourism industry and high aesthetic judgment skills (Dupont L, 2015), and their diverse occupational backgrounds can most effectively guarantee the aesthetic universality of the experimental subjects. At the same time, it is generally accepted that choosing college students for the eye movement experiment based on the results of previous eye movement research is viable and representative (Mo L, 2007). Also, the scope, cost, and sample size of a psychological experiment are all taken into consideration. The standard practice in psychology research is to classify an experiment including 30 participants as a large sample experiment with rather high reliability (Guo Suling, 2017). 45 college students were a reasonable number of people to choose for this paper's subjects.

2.3.2 Experimental Process

The telemetry eye tracker (RED500) employed in this study was used to gather data on the subjects' eye movements, and the lab setting effectively managed any potential subject interference during the experiment (Litmus, 2018). The protocol for the experiment went as follows: initially, before the

subjects entered the lab, they were given numbers to record their personal information, and they were shown the experimental apparatus and made aware of the requirements and safety considerations; Second, the participants' sitting position and eyes must be adjusted in order to prevent the experimental error brought on by head shaking during the experiment. The subjects' sitting position must be adjusted such that their eyes remain level with the display. Finally, the individuals' line of sight is adjusted for their eyes using a five-point calibration approach. The correction stops when the subjects' accuracy of calibration falls within the equipment's stated range; otherwise, repeat until the standard is met. Enter the pre-experiment, and the display screen will play sample images for 5000 milliseconds for each sample, ensuring the correctness of the experimental data. In order to prevent the visual remnant of the prior sample from being impacted by the quick switching of samples, a white cross image was put between each pair of groups of samples as a switching corrective. The transitional image was shown for 3000 milliseconds. The individuals choose what to watch based on their preferences. The official experiment started after the preliminary one. The experimental task was the same as the pre-experiment; after the trial, each participant's experimental data was stored by the Experiment Center program, and they were then requested to complete a questionnaire.

2.3.3 Data Processing

The Experiment Center program immediately imported the results into the BeGaze3.5 analysis software once each subject completed the trial. The leftover data was first removed from the experimental data and cleaned up. Second, SPSS25.0 was used to import the cleaned data and perform a mathematical statistical analysis. Two of them had fixation times of more than 1500 milliseconds or less than 50 milliseconds, and six of the eye movement data were insufficient. As a result, 8 data were removed, leaving 37 sets of actual eye movement data.

2.3.4 Index Selection

The experimental samples were separated into separate, identically sized and resolved AOIs (Areas of Interest), which served as the individuals' focus areas. In order to determine the visitors' preferred attention focus, the following eye movement indicators were employed in this experiment: saccadic frequency, fixation frequency, total fixation time, average fixation time, and number of fixation sites. Table 1 displays the cognitive interpretations associated with each eye movement index.

Table 1. Meaning of Each Eye Movement Index

Eye movement index	Meaning
Saccade frequency	Represents the saccade frequency of the subject watching certain products within a unit time. The higher the saccade frequency, the higher the search efficiency of the subject;
Fixation	Represents the importance of the area, and the fixation frequency is positively

frequency		correlated with the interest of tourists.
Total fixation duration		Represents the duration between the first sampling point and the last sampling point constituting a fixation point. Fixation time is positively correlated with the complexity of information or the attractiveness of the region.
Number of gaze		Represents the number of gaze per subject on a certain kind of product. The number and location of gaze can effectively extract subjects' preference elements and regions for this product.
Mean fixation time		Represents the average length of each subject's stay at each fixation point on a certain type of product. When there is a specific task, the average fixation time is positively correlated with the difficulty of information interpretation. There was a positive relationship between average fixation time and the attractiveness of the area or the level of interest of the subjects in casual browsing without a specific task.

3. Empirical Analysis

3.1 Behavioral Data

The exterior characteristics of the items and the feedback of cultural information are the key determinants of the perceived value of cultural and creative products. The most significant factors that influence the instantaneous visual impressions of tourists are the fundamental characteristics and the exterior presentation of cultural information. In this study, the eigenvalue $>$ was employed to decrease the dimensionality of the data gathered from the questionnaire using SPSS25.0. 1. Choosing new factors is dictated by factor loading > 0.5 . Six common factors of the fundamental characteristics of Great Wall tourism cultural and creative products are obtained after factor extraction and variance maximization rotation, namely comprehensive creativity, formal design, production process, regionalism, cultural collection value, and functionality. Second, using the scoring means of each subject's responses to the experiment's basic criteria, the fundamental qualities of each cultural and creative work were assessed using SPSS25.0 (Table 2).

Table 2. Subjective Evaluation of AHP Hierarchical Weight Analysis Results

index	C	D	P	L	V	F
weight	0.18	0.15	0.15	0.17	0.19	0.16

Comprehensive creativity among them mostly shows visitors' concerns about whether cultural and creative items can overcome commercial convention and eradicate vulgarization (Zhang Di, 2019). The degree to which visuals, tone, composition, etc. are skillfully blended is referred to as design form. The tools and methods utilized during the manufacturing process are referred to as the production process. Regionalism primarily emphasizes the need for local qualities in products with diverse cultural origins.

The appreciation of historical cultural connotation and traditional cultural traits by tourists is reflected in the value of cultural collections and is a key component of the perception of tourism-related cultural and creative products. Functionality is the ability to perform a certain function in daily life and have a specific use value.

Table 2 shows, the weight of “collection value” is the largest among the six indices of cultural and creative products used in Great Wall tourism, followed by the “total creativity”, “regional,” and “practicability” of the products. Tourists no longer place the most emphasis on the Great Wall’s “practicability” when picking cultural and creative products for the Great Wall tourism since it is a treasure left by the history of the Chinese nation in comparison to traditional cultural and creative products. The greatest motivator for travelers to pay attention to the artistic and cultural goods produced by Great Wall tourism is now “collection value”.

3.2 Eye Movement Heat Map of Tourists

The fixation point distribution of the subject on the stimulus material may be clearly seen in the eye movement hotspot map. The matrix diagram can quantify hot spot data and show the quantity and duration of individuals’ eye movements fixated at each location. While the yellow and green regions show somewhat concentrated tourist fixation locations, the red area shows the concentration of tourist fixation points. After the experiment, the tourist eye movement test results were superimposed using the BeGaze3.5 analytic program to produce the hotspot map (Table 3) and matrix map (Table 4). When the location’s color on the hotspot map becomes darker, it attracts more attention. The longer the gaze remains in a certain square of the matrix, the higher the number there is.

Table 3. Hotspot Map of Cultural and Creative Products of Great Wall Tourism

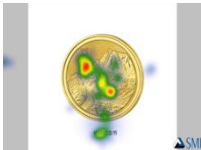
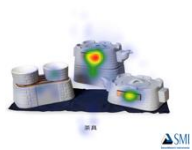
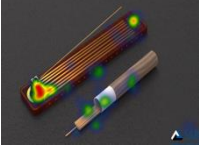

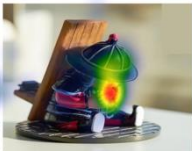


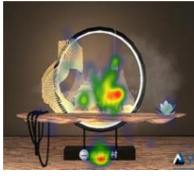

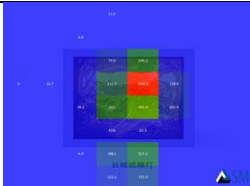

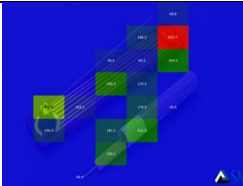



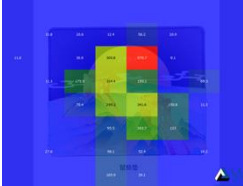



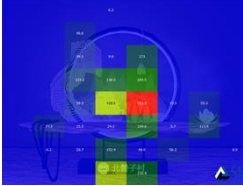



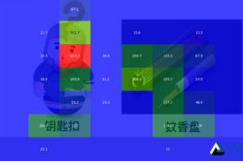
Element category	hotspot map			
Architectural elements				
Character elements				



Table 4. Great Wall Tourism Cultural and Creative Products Matrix

Element category	matrix map	Element category	matrix map
			
			
			
			

Regarding the dispersion of gaze, tourists' attention is primarily drawn to one particular element in the case of the cultural and creative products of the Great Wall tourism that have character elements, whereas the focus of the products with architectural elements is primarily drawn to the design form of the building. Contrasting character elements and architectural elements, the focus of products based on character elements is primarily on character movements or intriguing facial expressions. Tourists' attention is primarily drawn to the products based on character elements and concentrates on the facial expressions and gestures of the characters. When browsing items, visitors will also pay close attention

to product names in an effort to comprehend the features and applications of the products, as can be seen from the attention periods of the focus area and matrix map.

3.3 Eye Movement Data of Tourists

When the eye movement index data of tourists viewing cultural and creative products with different design elements is compared to the results of one-way analysis of variance (Table 5), the P values for the two groups of cultural and creative products with different design elements are in fixation frequency, total fixation time, and eye frequency < 0.05, there were significant differences, but no significant differences between fixation frequency and average fixation time.

Table 5. Oculomotor Indexes and Analysis of Variance of the Experimenters

		Saccade Frequency (count/s)	Fixation Frequency (count/s)	Fixation Duration /ms	Fixation Total count	Average fixation /ms
Overall difference		0.003**	0.698	0.008**	0.042*	0.379
Architectural elements	Mosquito coil	4.49	3.28	1345.16	7.8	173.83
	Paper carving lamp	4.69	3.32	1862.19	9.93	191.01
	Tea set	4.65	3.43	1330.88	7.4	184.91
	Commemorative COINS	5.35	3.60	1982.93	9.96	199.09
Character elements	Mood lights	5.08	3.52	1554.72	7.8	210.95
	Keychain	5.05	3.57	1817.43	9.6	191.31
	Mobile phone stents	4.72	3.56	1344.05	7.2	191.78
	Qin package	4.80	3.35	1954.83	8.93	229.12

The findings revealed that the Great Wall commemorative coins had a stronger appeal to the subjects than other items, as evidenced by the fact that their fixation frequency and total duration were higher than those of other products. A distinct feeling of atmosphere and creative appeal may be found in the atmosphere lamp and Qin Xiaobao designs. The average amount of time spent on the two goods is greater, showing that the subjects find the Qin Xiaobao and paper-carved lamp designs to be more appealing and interesting. The respondents' increased saccade frequency on key rings, environment lights, and commemorative coins compared to other goods suggests that the information was simple to

notice when the subjects were browsing the three.

4. High-Quality Innovation and Transformation Path of Cultural and Creative Products of Tourism

4.1 Grasp the Design Orientation of Products with Concept Innovation

4.1.1 Identify the Fundamental Positioning of the Product Design

The fusion of regional culture and creative design is the basis of cultural and creative product design (Hone, 2016). Based on Chinese culture, art, folk traditions, regional features, emotional appeals, and other recessive symbols, product design should be in the context of industrial qualities, generating a design idea with guiding meaning and normative value. In order to identify product functions, market needs, and target audiences, the fundamental positioning of cultural and creative goods should be founded on clear, precise analysis and judgment of the market, products, and environment. Taking into account the findings of market research, clearly define the core of the product design, functional positioning (practical motivation, gift motivation, novelty motivation, value motivation, cultural motivation, enjoyment motivation, memorial motivation, etc. (Weihua, 2007)), and target population (age, gender, industry, income, object, tourism motivation, etc.) to form a more accurate picture of the target market. We may construct many sorts of cultural and creative goods using the same folk cultural elements when combined with the environment, location, scenario, and other situations, maximizing the extraction and development of ethnic, folk, and regional cultural resources.

4.1.2 Pay attention to Demand-Driven Product Design

With the emergence of the experience era, consumers are beginning to pay attention to people rather than just the function, appearance, and other characteristics of products (Hill, 2017), focusing on the five senses experience and emotional cognition created by products for consumers in order to achieve the goal of boosting tourists' consumption demand. In the age of the experience economy, creative design based on visitor demands has emerged as a significant trend in the creation of new goods. As a result, one of the best methods to satisfy the demands of visitors in the creation and development of cultural and creative goods is through the participation of tourists. The demand-oriented and current design approaches are merged to incorporate the cultural themes to be transmitted into particular, tangible, and visible items, and tourists are invited to engage in the design activities through DIY, interactive experiences, and other means (Rao Qianqian, 2016). It emphasizes meticulous design and aims to thoroughly investigate consumer demands from many angles, including user characteristics, aesthetic preferences, purchase patterns, and usage scenarios. It uses methodical, scientific design techniques to integrate user requirements with interactive experiences.

4.2 Enhance product Synaesthesia Design with Element Innovation

4.2.1 Make Product Aspects More Interestingly Expressed.

While the interestingness of products refers to the ability of products to draw audiences and be full of human interest, the synaesthesia design of cultural and creative products is an expression of improving

visitors' need for experience (Zhang Wei, 2021). The interestingness of content and expression can serve as an embodiment of the interestingness of cultural and creative output. When it comes to the interesting design of element content, it can be enhanced by exaggerating various creative ideas, means, and forms, or by applying interesting graphic patterns, interesting design of product functions, interesting reference to traditional allusions, and interesting mining of material processes, among other things. To make eye-catching artwork, use biomimetic, abstract, exaggerated, cartoon, and other styles. In order to realize the transformation of cultural and creative products from quiet to dynamic, meet the aesthetic needs of tourists with a sense of humor, and elicit emotional resonance, it is possible to combine graphic, text, music, performance, calligraphy and painting, craft, and other forms in an enjoyable way using a variety of colors, full forms, and anthropomorphic styles (Liu Yang, 2020).

4.2.2 Emphasize the Geographical Aspects of Product Components

In the contemporary market, the uniformity of cultural and creative products is a significant issue that requires immediate resolution. Scenic areas currently imitate or duplicate the cultural and creative output of other areas in an effort to increase their financial gain, which has led to the creation of cultural and creative output with distinctive regional features and untapped market potential. To the greatest degree possible, the identifying qualities of local elements are retained during the product design process in order to showcase cultural traits. This is done by integrating visitors, goods, and elements. It concentrates on three fundamental aspects, namely regional humanistic symbols, functional language symbols, and modern cultural design symbols, with regional cultural elements serving as the core and diverse shapes, features, and ornamental elements serving as the carrier. Among these, items that are cultural and creative and that use regionally distinctive element symbols stand out (Liu Bo, 2021). Alternatively, to increase product recognition, use local representative cultures like poetry, pottery, art, and folklore as examples. These cultures may be expressed through symbols of their components, which can then be combined to create a unified representative symbol system.

4.3 *Enrich the Cultural Deposits of Products with Content Innovation*

4.3.1 Build the IP Image of the Product Brand

In-depth exploration of the cultural value of cultural and creative products, shaping of the local cultural and spiritual image, IP development of its image and story, and formation of cultural and creative products with rich content are all made possible by the IP image, which serves as the central link of the entire IP development (Yingjuan, 2022). To improve the connotation and worth of products, IP-based product development shifts from visual symbol communication to deep value resonance. The use of digital media technology, modern design concepts, aesthetic psychology, market planning, commercial periphery, brand effect, and other means of expression are used in product design, along with other ways to construct one's own cultural intellectual property. Using modern scientific and technological means, quoting modern people's lifestyles, and combining methods such as abstraction, vectorization, hand-painted reconstruction, and scene reconstruction with cultural content, I created an industrial chain of cultural and creative IP traffic that not only conforms to modern society's development, but

also loses traditional cultural heritage and value.

4.3.2 To Successfully Integrate Product Culture and Function

Products with a strong cultural heritage and practical values distinguish cultural and creative items from regular goods. The design of cultural and creative items can use graphic, text, color, illustration, structure, shape, and other design aspects in a scientifically sound manner while paying close attention to the ergonomic needs of the products in order to precisely express their functions. The design concept for cultural and creative products should be based on the positioning of product design, distinguish the design style of commemorative, ornamental, interactive, practical, and comprehensive products, and organically integrate aesthetics, practicability, and creativity according to the functional attributes of products in order to build upon ideas, create value with practicality, and improve the interactive experience(Zhou Chengjun, 2019).

4.4 Increase Product Market Cycle with Structural Innovation

4.4.1 Enrich the Presentation Effect of Product Form

Regional culture informs the fundamental design implications of cultural and creative products. To modernize items and ensure they keep up with the times to satisfy the consumption demands of current visitors, a systematic approach to design is used. It is clear from the environment lamp's design that the visual impact of morphology may be appropriately highlighted to boost visitors' visual stimulation. In order to create symbols of folk culture and regional culture with representative design characteristics, namely elements such as graphics, sound, text, color, and form, it is therefore necessary to scientifically screen and refine sound, shape, color, and behavior in folk culture and regional culture during the design process of cultural and creative products. Form creative designs using current design principles and approaches. Or, using high-tech methods such as multimedia, human body induction, three-dimensional animation, and others, fully utilize sound, light, electricity, and other contemporary scientific and technological elements to add other elements to enrich the display effect of the product. This way, the novel structure and form will make tourists' eyes light up and catch their attention, stimulating the demand for cultural and creative goods.

4.4.2 Optimize the Aesthetic Design of Product Appearance

Cultural and creative industry is an aesthetic industry in essence. It is important to assure originality, pay attention to aesthetics, and take into account the physiological and psychological activities of tourist customers while designing cultural and creative goods (Net., 2022). To catch the attention of visitors and cause some annoyance, the outward shape of cultural and creative items must have a strong aesthetic sensation. The majority of cultural and creative items are designed with the public in mind; therefore, the aesthetics represented in them are not the designers' own aesthetic preferences but rather a general aesthetic sentiment (Yu, 2019). The design of cultural and creative objects must thus adhere to fundamental aesthetic standards and focus on originality and simplicity. It is not required to overly modify something to emphasize aesthetic feeling. It must meet fundamental demands and adhere to people's fundamental aesthetic preferences. At the same time, the value of design must adhere by the

rule of value while pursuing change, innovation and distinction. This calls for designers to use techniques of artistic creation and environment to create a rich emotional space with aesthetic thinking so that tourists can touch the “scenery” and “emotion” and blend the scene when using the product. They must also deconstruct and recreate beauty in nature, society, art, science, technology, and other aspects. Having a pleasant physical and mental state and an edifying disposition (Zhengbin, 2018).

5. Discussion

The cultural and creative goods of Great Wall tourism are used as an example in this article, which is motivated by high quality development criteria and new consumer patterns. This article conducts an objective analysis of visitors’ worries and preferences for cultural and creative items based on their perceived worth. It then makes targeted developments on appearance design characteristics using human-computer interaction technology. The appropriate sectors of cultural and innovative product design have increased with the use of new technology. The concept, elements, content, and structure of cultural and creative products are the final four dimensions that make up the innovative design path. According to the conclusion:

According to behavioral data obtained through field investigation and empirical study, tourists’ perception of cultural and creative products is primarily comprised of six major factors (comprehensive creativity, formal design, production process, regionalism, cultural collection value, and functionality). Tourists choose cultural and creative products based more on their collection value and region than they do on the two most important characteristics of culture and innovation, according to the weight analysis of perception factors, and they also value practicability over traditional cultural and creative products. Spiritual belief and space-time perception are the most significant variables affecting the creation and development of cultural and creative items because they symbolize the spiritual will of the Chinese people in the area for 5,000 years.

From the degree of contrast in color between the heat map and the matrix map, tourists are more focused on the facial expression, action, and product form of the characters in the products with the design elements. The diversity of a person’s facial expressions can influence a visitor’s emotional resonance and their visual interaction effect. When it comes to products that use architecture as a design component, using the architecture of scenic areas as a model for cultural and creative products can help tourists better understand and associate with the local way of life, and using typical symbols from the area can draw attention to the distinctive features of a given region.

From the eye movement index, there are significant differences in the number of fixation points, total fixation time, and saccade frequency of the Great Wall tourism, cultural, and creative products with different design elements, while there is no significant difference between the fixation frequency and the average fixation time. The fixation periods of architectural components are often long according to saccade frequency, showing that the product information of architectural elements is simple to notice and may be impacted by the solid condition of structures. As a result, the visual impacts of morphology

can be emphasized by increasing the dynamic feeling of products, or other aspects can be included to improve the look of goods when developing cultural and creative products with architectural features as the main body of the design.

From the perspective of product innovation design, the premise of high-quality design of cultural and creative products is that the conditions of the products themselves should meet the consumer needs of tourists. To achieve the goal of innovation and transformation of cultural and creative products, factor innovation should be used to enhance the universal sense of product design, content innovation should be used to enrich the cultural deposits of products, and structural innovation should be used to lengthen the market cycle of products.

6. Conclusions

The 14th Five-Year Strategy's tourism development strategy places a strong emphasis on hastening the adoption and popularization of new technologies. The profound integration of the cultural and tourism sectors has made new technology a tool for successfully combining the cultural and tourism sectors. According to the current state of research, future studies on cultural and creative goods should concentrate on the following areas: To improve the depth and breadth of theoretical study, it is first necessary to refine the creation of theoretical systems. The basis is shaky, the study field is restricted to product application design, and the theoretical research is very limited when it comes to cultural and creative products (Zhang Shuying). In light of this, we have to actively encourage interdisciplinary research technique development, look for fresh entrance points, and reinforce the development of the theoretical framework for cultural and creative goods. Second, expand the sample scale's range to increase the generalizability of the study's findings. In terms of sample selection, the current scholars' topics are all college students. Though studies have shown that using college students as subjects is feasible and representative, it is still unclear whether different demographic groups pay attention differently to the cultural and creative products of Great Wall tourism due to the influence of demographic characteristics, and the preliminary study may have limitations. Future studies can broaden the demographic characteristic groupings that are studied in order to draw more general research results. Increasing the capabilities of new technologies is also required. In order to extract element preferences for cultural and creative products more objectively and accurately, it is anticipated that future research on the innovative design of cultural and creative products will use more accurate instruments to measure the physiological stimulation caused by psychological changes in the human body. We think it is inevitable to produce top-notch cultural and creative goods that truly satisfy demand with the aid of new technical means and under the direction of the unique design idea of the movement society.

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