

Evaluation on the Communication Strategy of Cultural Tourism Brand under the Deep Integration of Visual Media

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ABSTRACT Although cultural tourism has developed rapidly, many cultural tourism resources remain in the expansion stage and still lack systematic brand construction. With the development of media technology, visual media has become an important carrier for brand communication and provides new technical support for cultural tourism promotion. This paper studies cultural tourism brand communication strategies under the deep integration of visual media. Low-level feature extraction technology is applied to visual media analysis to support feasibility evaluation and strategy optimization. Through investigation and analysis, the study finds that cultural tourism brand communication based on deep visual media integration can improve the popularity of scenic spots, with reported popularity increasing by 25%. The results indicate that visual media integration can enhance brand recognition, support multi-level communication, and improve audience interaction. By combining visual feature extraction, semantic classification, and brand communication evaluation, the study provides a technical path for digital cultural tourism communication and offers reference for visual analytics, cultural resource dissemination, and image-based communication strategy design.

INDEX TERMS visual media, cultural tourism brand, feature extraction, brand communication, visual analytics

I. INTRODUCTION

IN today's society, the way of information dissemination is growing exponentially, and people are in the information age. The rapid development of science and technology and the development of new media have brought new ways for the promotion of cultural tourism brands, which play an important role in the competition of cultural tourism brands. A large number of studies show that when a city has a unique cultural tourism brand, it means there are more development opportunities, so the research on the communication strategy of cultural tourism brand based on the deep integration of visual media has become a top priority. In recent years, the integration of traditional heritage—such as ethnic embroidery and silk weaving—into tourism brands has become a significant trend, requiring more precise visual communication to convey intricate craft details.

In order to make the study of cultural tourism brand communication more scientific and cautious, many researchers have invested in related research. Zhang M believed that building a cultural tourism brand is a common choice to promote the development of regional cultural tourism [1].

Li Y believed that the current research mainly focuses on the following aspects: the connotation and function of cultural tourism brands, value analysis, cultural tourism brand building, cultural tourism brand communication, cultural tourism brand conflict and resolution, cultural tourism brand support system, cultural tourism brand operation and development model, cultural tourism brand asset measurement and value evaluation system, etc. [2]. Ye T's research found that for the development of cultural tourism and cultural industry, it should be based on "hardware", and actively improve tourism supporting facilities; characteristic resources cultivate highly regional, national and cultural tourism brands [3]. Malska M believed that the most "loud" and the most powerful communication channel is tourism [4]. Sherbatova M would use the power of culture to complete cultural tourism brand communication through the competitive identity of tourism communication - whether it is tourism culture or cultural heritage [5]. Atamachuk Z A took the ancient ruins of Quanzhou as an example, and used structural formula model to study the construction and promotion of cultural relic brand assets in tourist destinations [6]. Baptista M's research found that cultural tourism brand

equity is determined by cultural tourism brand value and cultural tourism brand relationship [7]. The above research described the relevant content of cultural tourism brand communication, but with the continuous updating of media technology, new problems have emerged in cultural tourism brand communication. In the era of new media, the deep integration of visual media has become the mainstream technology of current media communication, so many scholars have also studied it. Zhang H believed that the explosion of image and video content on the web further exacerbated the media redirection problem [8]. Zhou J clarified the theoretical basis and practical issues involved in media redirection and provided participants with a comprehensive understanding of the state-of-the-art [9]. Feng J believed that the application in the field of visual media is a complex application that is computationally intensive and bandwidth-consuming [10]. Suharnoto Y believed that visual recognition is one of the most active research topics in computer vision because of its potential applications in autonomous vehicles, healthcare, social media, manufacturing, etc. [11]. Angus D believed that for image classification tasks, deep convolutional neural networks have reached the state-of-the-art, and many activation functions have been proposed to enhance the classification performance of these networks [12]. Based on previous work on deep learning neural networks, image processing, hybrid active systems, and recommender systems, Tawil M proposed a new architecture for creating visual media on personal computers [13]. Syamsudar B designed a computational model considering the ideas of deep belief networks and hierarchical temporal memory, as well as visual media applications, and systematically discussed information media [14]. The above research shows that it is feasible to apply visual media to the research of cultural tourism brand communication strategy. Specifically, the high-precision capture of visual elements in themed tourism can significantly enhance the audience's sensory experience.

In order to better promote cultural tourism brand communication, this paper introduced the deep integration of visual media into the research on cultural tourism brand communication strategy. Through investigation and analysis, the construction of cultural tourism brand communication media channels based on the deep integration of visual media can better enhance the better enhance the popularity of themed scenic spots and increase passenger flow and increase passenger flow. "Deep Integration", refers to integrating visual media technology with cultural tourism brand strategic objectives, beyond using technology to create a set of integrated operations across multiple channels for communication, brand content, user interaction and performance evaluation. "Deep Integration" involves using foundational feature extraction, data-based decision making and multiple levels of content diffusion to create an integrated brand communication ecosystem based on visual intelligence that changes based on user feedback.

II. RELEVANT EVALUATION BASED ON VISUAL MEDIA AND CULTURAL TOURISM BRANDS

A. OVERVIEW OF VISUAL MEDIA

A visual medium is a form of the media that selects visually as the dominant way to deliver or present an item or concept; and how it conveys a message and constructs meaning to an audience and creates a visual impact through visual graphics, visual imagery, visual symbols, and visual dynamic feature elements [15]. Visual content within the world of digital media is utilised as a way to communicate or present that particular item or idea to the person. It has an impact on how we think about things (cognitive process), our emotional involvement in particular items or ideas, and how we connect with the brand and narrative. Virtual images, vector graphics, video and animation graphics, and visualisation and interactive interfaces are the most widely used forms of visual media. A bitmap image is a visual medium obtained by directly measuring the image signal. In the display process, it is called bitmap mapping image, referred to as bitmap image [16].

Vector graphics: graphics are an abstract part of an image. It does not directly describe all aspects of the image, but analyzes the image according to standards, extracts entity features, develops image generation algorithms, and stores them in the aggregated form of images. The location of points on the map is usually described by a vector, so it is called a vector diagram. However, for complex color maps, the algorithm description and calculation are very difficult, and the efficiency is not ideal.

Moving Image: animation is the continuation of a continuous gradient of still images or graphic patterns and a visual means of moving vision over time. If a single-frame image is a real image captured by recording real events, it is called a video image, or video for short.

Symbols: symbols are abstract representations of information. It can represent numerical values as well as languages and characters. Some icons can represent objects or events.

Body Map: this is a new visual media technology that uses scientific computer vision technology to convert three-dimensional spatial data into visual images to produce system media. Mass processing technology can directly convert three-dimensional space patterns into screen images and reproduce the original data space, which is often used in medical CT (Computed Tomography), nuclear magnetic resonance equipment, molecular model building, urine analysis, etc., as shown in Figure 1.

B. FOUR DIMENSIONS OF CULTURAL TOURISM BRAND COMMUNICATION

The marketing department of a travel website is mainly responsible for two indicators: brand and visiting tourists. The number of tourists can be measured, and the annual number of tourists can be accurate to single digits [17]. Brand communication is particularly important for the cultural tourism industry, but how to quantify it is always a problem. The most important function of a cultural tourism brand is

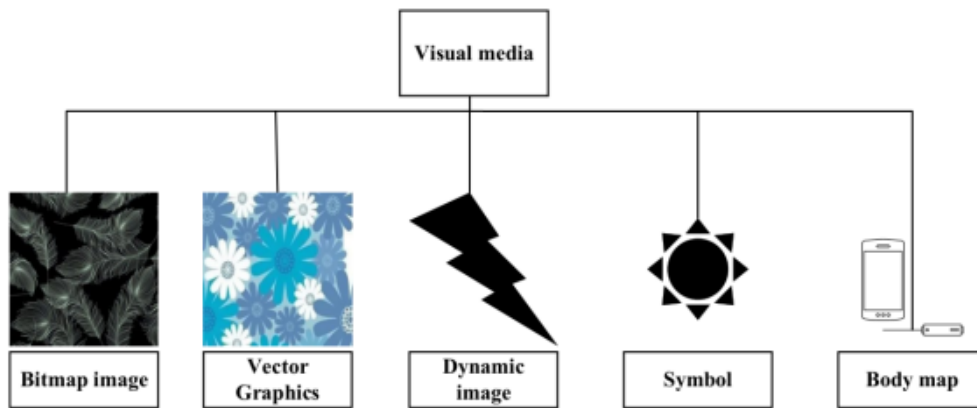


FIGURE 1. Visual media classification

to help users choose between many different products or services.

Relying on the image, product or service and after creating the initial brand idea, the next step is to promote and popularize the brand. In terms of the median brand index, the influence of a certain brand in the Internet and mobile Internet is mainly analyzed from four dimensions. Simply put, it is the breadth of brand communication, as shown in Figure 2.

The mainstream index refers to the number of positive news related to a brand topic in the main media coverage of a country and region at a certain time; the mass index refers to a number of positive stories related to brand names on social media sites at a specific time; the industry index refers to the number of positive news related to brand keywords in travel media coverage over a period of time; activity metrics refer to a brand's ability to maintain itself on the internet and mobile devices for a given period of time [18]. Cultural tourism brands reflect values, management capabilities, competitiveness of products or services, etc., and spread and promote cultural tourism brands from the perspective of users, so as to realize the transformation of tourism sales.

C. CULTURAL TOURISM BRAND BUILDING

The reason why brands are so important to cultural tourism products is that brands can ensure better quality and bring psychological satisfaction to consumers [19]. Therefore, the advantages of cultural tourism branding are obvious, and brand building is imperative.

The current traditional tourism brand building is not perfect. The main problems are three points. First, the awareness of brand building is weak, and the tourism brand awareness is insufficient, and the correct brand concept has not been established. The second is over-reliance on advertising, which increases the cost of cultural tourism

construction. The third is emphasizing short-term marketing effects rather than long-term brand building [20]. A brand without creative value would have weak competition and would not be able to generate brand effects. Therefore, cultural tourism brand building is very important, as shown in Figure 3.

To sum up, first of all, it is necessary to pay attention to the quality connotation of cultural tourism brands. Secondly, it is necessary to pay attention to the cultural characteristics of cultural tourism brands. Cultural connotation is the key to creating the interest of cultural tourism products. Therefore, in the brand building of cultural tourism, special attention should be paid to cultural characteristics, so that cultural tourism products have more aura, and ultimately achieve unique cultural tourism products and improve the goal of brand competition in the market.

D. THE OPERATION MODE OF CULTURAL TOURISM BRAND WITH DEEP INTEGRATION OF VISUAL MEDIA

The importance of brand communication is to meet the needs of the audience by creating interactive communication with the audience as the content carrier, so as to achieve the target of the audience. The common concern and realization of the brand and the audience is the basis for the integration and communication of the brand. Therefore, the positioning of the brand integrated communication service should be aimed at the common needs of the brand and the audience, and design simple brand information content for independent communication, and promote effective multi-level communication and audience representation. All brand messaging as well as brand usage and audiences assess the need to add or correct common concerns, and identify new communication opportunities, and build unique relationships with audiences. The components of the cultural tourism brand operation model with deep integration of visual media are shown in Figure 4.

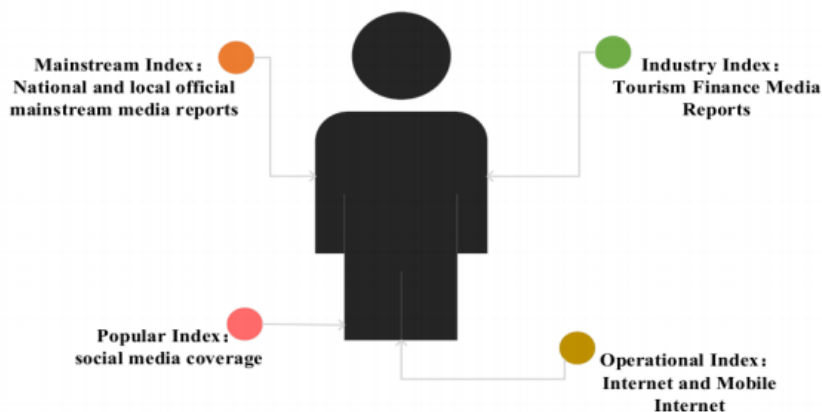


FIGURE 2. Four dimensions of cultural tourism brand communication

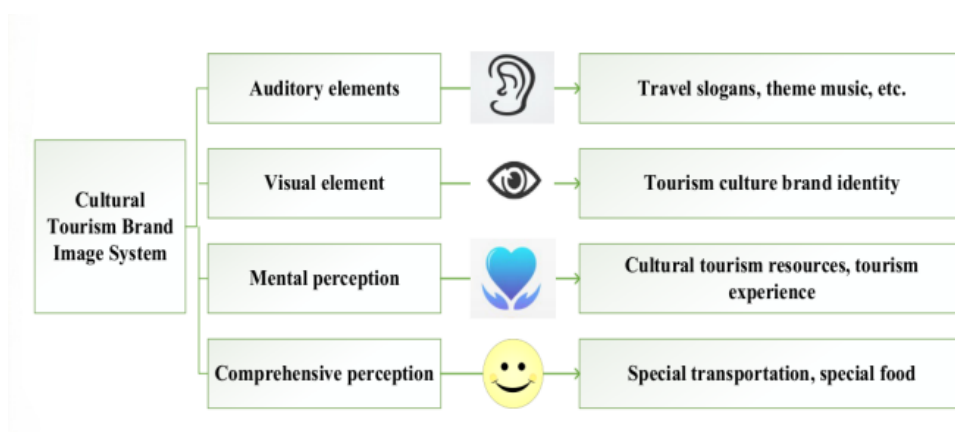


FIGURE 3. Cultural tourism brand image system

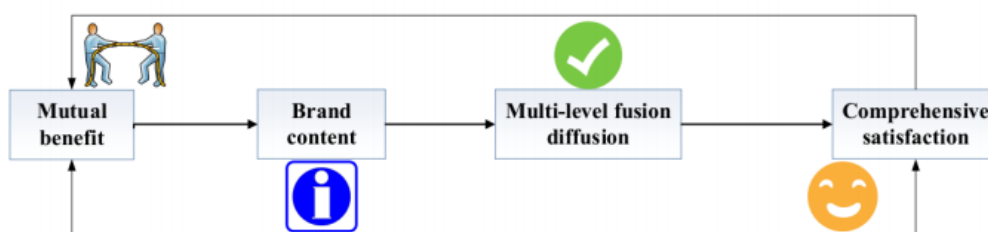


FIGURE 4. The operation mode of cultural tourism brand with deep integration of visual media

Common interests: cultural tourism brand communication in the traditional sense emphasizes that under the guidance of communication goals, by responding to the audience's demand for cultural tourism brand information, a proactive approach is adopted to carry out cultural tourism brand communication. Cultural tourism brand communication is based on visual media and relies on the active participation of active audiences and the autonomous diffusion of information to maximize the communication goals.

Brand content: the interactive communication of new media and the development of distributed communication based on mobile Internet make the creative content of cultural tourism brand information useful. Cultural tourism branding content refers to the creation of various cultural tourism brand information as a content medium, which can be freely disseminated through the interaction between cultural tourism brands and audiences. Relying on content delivery tools, the mutual benefit of cultural tourism brands and audiences has been realized. It shows the process of mutual benefit and win-win between the brand and the audience and the collaborative creation of the value of information sharing.

Multi-level integration and diffusion: the advantage of new media interactive communication is to encourage audiences to share content that suits their interests with anyone at any time, so as to achieve one-to-many and many-to-many multi-level sharing and diffusion effects, and achieve low-cost unlimited communication.

Comprehensive satisfaction: the mutual benefit and evaluation results of new media are optimized, which guides the extension or transformation of the common interests of cultural tourism brands and audiences, and develops better communication. Satisfaction is directly reflected through contract performance indicators, including creative contributions, retweets, comments, target website visits, social media engagement, platform interaction, participation in offline activities, and responding to new media experiences.

In general, the audience has changed from the pure cultural tourism brand communication audience and service person to the main goal of promoting independent cultural tourism brand communication, and expressiveness is the effective satisfaction of demand.

III. APPLICATION OF LOW-LEVEL FEATURE EXTRACTION TECHNOLOGY IN VISUAL MEDIA

Images are not only an important way to know the world, but also the main source of information in the objective world. How to deal with large-size images is like doing semantic extraction and retrieval to get the required information. It is hoped that computers can understand images in the same way that humans understand images, and image semantic reconstruction is a problem worthy of in-depth discussion. According to the complexity of image semantics, it can be divided into three levels, generally referring to abstract semantics, object semantics and feature semantics, as shown in Figure 5.

Since object semantics and abstract semantics include the spatial relationship of the objects involved and the individual's perception of the image, computers cannot judge people's personal preferences and thus cannot achieve a high level of classification. Therefore, sub-level features are generally used to discuss semantic feature models.

A. COLOR FEATURE EXTRACTION

Since the color distribution information is concentrated in the small-order interval, the color distribution of the image can only be represented by the first-order center distance, the second-order center distance, and the third-order center distance of the color. The formula is expressed as:

$$\mu_i = \frac{1}{m} \sum_{h=1}^m j_{ih} \quad (1)$$

$$\sigma_i = \left\{ \frac{1}{m} \sum_{h=1}^m (j_{ih} - \mu_i)^2 \right\}^{\frac{1}{2}} \quad (2)$$

$$c_i = \left(\frac{1}{m} \sum_{h=1}^m (j_{ih} - \mu_i)^3 \right)^{\frac{1}{3}} \quad (3)$$

Among them, j_{ih} represents the pixel probability in the color channel, and m represents the color series. In the formula, the first order distance is the average value of the pixel, and the second order moment and the third order moment are the variance and skewness of the color.

B. TEXTURE FEATURE EXTRACTION

Texture features, unlike color features, are the result of a statistical function of the number of pixels in an area, revealing intrinsically invisible parts of the image itself. Therefore, features are also one of the most important parts of an image. These texture extraction methods are particularly effective when analyzing the fine weaves and material surfaces of traditional displays. Using structural features, the extraction methods of texture features can be divided into four categories: appearance methods, modeling methods, structural methods and statistical methods.

Energy:

$$ASM = \sum_i \sum_h [q(i, h)] \quad (4)$$

Energy can reflect the thickness of image texture features and the uniformity of grayscale distribution.

1) Entropy

$$ENT = - \sum_i \sum_h q(i, h) \log q(i, h) \quad (5)$$

Entropy is a manifestation of the uniform distribution of image texture. If the image texture is rough, the difference between the calculated values is large, and if the image texture is fine, the calculated values are not much different.

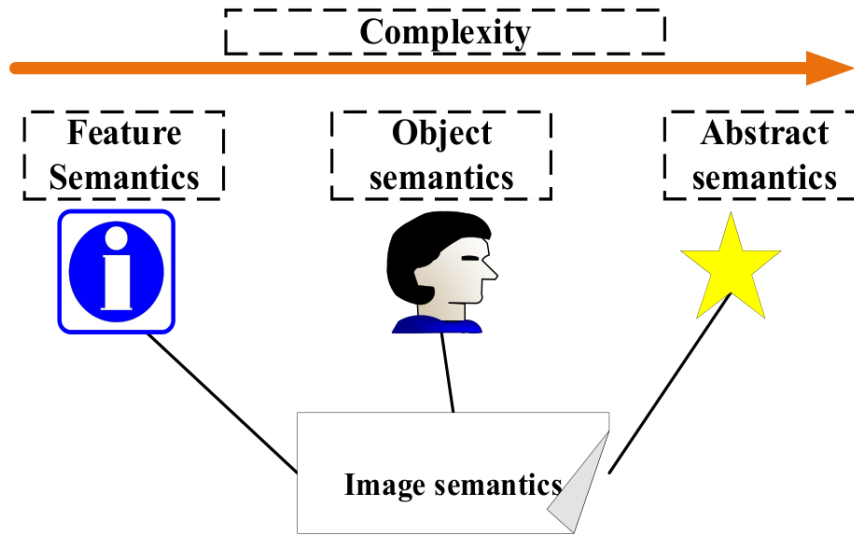


FIGURE 5. Hierarchy of image semantics

2) Moment of Inertia

$$CON = \sum_i \sum_h (i-h)^2 q(i, h) \quad (6)$$

If the value of $(i-h)(i-h)$ is small, the texture is rough, and if the value of $(i-h)(i-h)$ is large, the texture is finer.

3) Correlation

$$COR = \frac{\sum_i \sum_h ihq(i, h) - \mu_a \mu_b}{\sigma_a \sigma_b} \quad (7)$$

The formula expresses how similar the images are in row or column direction.

C. SHAPE FEATURE EXTRACTION

Shape is one of the main visual features used to describe visual content, and shape features are often associated with target objects and have semantic meaning, so they are considered to be higher-level features than color and texture. The calculation formula is:

$$\mu_s = \sum_{(a,b) \in T} (a - a_s)^q (b - b_s)^q \quad (8)$$

Image semantic segmentation is a supervised machine learning problem, and the specific process is shown in Figure 6.

D. PRINCIPLE OF SUPPORT VECTOR MACHINE (SVM)

Because SVM not only has the ability to deal with informal data, but also has better classification ability in the case of small samples. Therefore, this paper uses the method of support vector technology to verify the effectiveness of the semantic underlying features extracted from the original set.

A constrained minimum problem is formulated as:

$$\min \frac{\|\varpi\|^2}{2} = b_i [(\varpi a_i + y)] - 1 \quad (9)$$

In the formula, ϖ is the normal vector of the hyperplane; a_i is the number of samples; b_i is the category of the number of samples.

Through the introduction of the kernel function, the original linear data samples can be mapped to a high-dimensional data space, and the data can be mapped to a higher-dimensional space to increase the computational power of the linear learner. This not only replaces the product labeling function in a large feature space, but also reduces the complexity of data manipulation. The following are some of the more common kernel function formulas:

1) Linear Kernel Function

$$l(a, a_i) = (a \times a_i) \quad (10)$$

2) Polynomial Kernel Function

$$(polynomial\ kernel), l(a, a_i) = (c(a \times a_i) + s)^b \quad (11)$$

Among them, c b is the parameter.

3) Radial Basis Kernel Function

$$l(a, a_i) = \exp(-\gamma \|a - a_i\|^2) \quad (12)$$

Among them, γ is the parameter.

4) Sigmoid Kernel Function

$$l(a, a_i) = \tan j(c(a \times a_i) + s) \quad (13)$$

Among them, c and s are parameters. The linear classifier is formulated as:

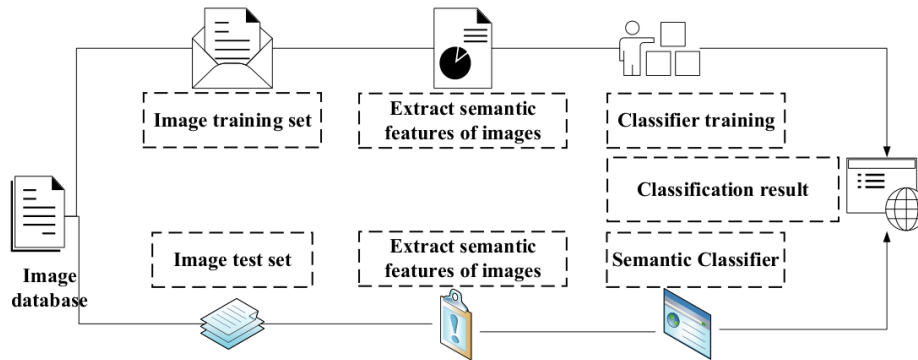


FIGURE 6. Semantic classification based on image underlying features

$$f(x) = \sum_{i=1}^n x_i b_i(a, a_i) + y \quad (14)$$

The formula represents a linear function in a high-dimensional space, and can also be converted into a function in a low-dimensional space, which is expressed as:

$$g(x) = \sum_{i=1}^m x_i b_i L(a_i, a) + y \quad (15)$$

The classification accuracy and recall rate of the above formula have reached more than 80%. By adding the penalty factor, the original optimization problem can be expressed as a function:

$$\min \frac{1}{2} \|v\|^2 + \sum_{i=1}^n \xi = b + (va_i + y) - \xi_i \quad (16)$$

The ξ in the formula represents the slack variable in optimization theory. Using the Lagrangian method to solve the above optimization problem, it can be transformed into the following quadratic programming problem, which can be expressed as:

$$\max V(x) = \frac{1}{2} \sum_{i,h=1}^m x_i b_i b_h K(a_i, a_h) + \sum_{i=1}^m x_i \quad (17)$$

$$st \sum_{i=1}^m x_i b_i = 0 \quad (18)$$

$$\min W(a) = \sum_{i=1}^n b_i b_h(a, a^i) + x_i \quad (19)$$

a_i represents the constrained Lagrange multiplier.

In the formula, The formula belongs to a typical optimization problem. Although the problem involves a large number of unknown variables, when the objective function

is at the minimum value, most of the variables take the value of 0, and the value of most of the variables can be used to simplify the calculation process.

The identification and evaluation of fundamental characteristics (color, texture, and shape) is an important part of providing the technology necessary to enhance the creation, marketing, and distribution of Cultural Tourism brands. Two primary steps to applying this approach include; (1) automated extraction of features and semantic analysis of large amounts of imagery of site (official promotional photographs and user-generated imagery) and (2) categorizing the feature combinations to define the attributes of a brand, such as "rustic tranquillity," "colourful vibrancy," and "natural grandeur." Once the photographs of the site have been categorized, the system uses classification models such as support vector machines to evaluate the quality and emotional nature of the imagery of the site. Through the training of models that identify the most visually appealing combinations of features (e.g., colour distributions and contrasts in texture) the system can automatically select images and videos from its library of materials that best match the brand's image and are likely to elicit positive responses from its users. These images and videos are then used in social media posts, displayed on official websites and produced for promotional materials.

The technology is designed to enhance the dynamic optimization of visual content. As the algorithm continuously analyses the real-time performance of combinations of visual information and visual features (e.g., click-through, dwell time, shares) across media channels, the features on which it is based will evolve dynamically based on the feedback captured in the model. This creates a continuous, iterative cycle of "feature extraction — content curation — channel deployment — performance feedback — model refinement".

IV. EVALUATION OF CULTURAL TOURISM BRAND COMMUNICATION STRATEGY BASED ON THE DEEP INTEGRATION OF VISUAL MEDIA

Tourism brand communication is a multi-dimensional process that strategically informs and persuades travelers. The implementation of this strategy is inseparable from the selection and optimization of media. In order to investigate how tourists obtain travel information, this paper randomly surveys 1,000 citizens and investigates their channels for obtaining travel information, as shown in Figure 7. Informed consent was obtained from all subjects and/or their legal guardian(s).

As can be seen from Figure 7 of the survey results, there are many ways for tourists to obtain information, showing a diversified trend, such as the Internet, outdoor advertising, recommendation by others, TV, movie, radio, newspapers and magazines, scenic spot introduction and other. It can be clearly seen from the figure that most tourists would choose to use online media to obtain relevant tourism information, and the proportion is as high as 78.5%, which shows that the influence, coverage and penetration rate of the new media era are relatively strong; recommendations from others account for 62.6%, making it the second largest channel for tourists to obtain travel channels. Tourists would also choose other channels to obtain information, but the deep integration of visual media and the combination of tourism brands would be more beneficial to promote the communication of cultural tourism brands, thereby promoting the development of tourism.

Cross-analysis of gender and media choice shows that tourists of different ages have differences in media choice, as shown in Table 1.

taking two cultural tourism resorts in a city as an example, they are named Scenic A and Scenic B, respectively. The two scenic spots are very similar in all aspects and are comparable. To improve consistency in the comparison of case studies used in this research, the two selected scenic areas for this research were both located in the same cultural tourism belt of a city, and were adjacent to each other, both were similar in size (each is about 15-20 sq km), both had similar themes (they were both ancient town-style cultural tourism resorts), and both attracted similar target demographics (primarily leisure tourists from within their provincial region and from adjacent provinces to these two scenic areas). The control of these variables allowed the study to effectively eliminate external influences on the assessment of the effectiveness of communication, and therefore the primary focus of the study was on the adoption of a visual media deep integration strategy for the differences in recognition of brand names and traffic to these two scenic areas. The investigation starts from different angles, and finally the deep integration of visual media is introduced into the research of cultural tourism brand communication strategy, which effectively solves the practical problems encountered in cultural tourism brand communication.

To maintain the independence of assessing how well the

deep integration of visual media communication strategy works, this research controlled for brand position in later analyses.

Specifically, we worked with Scenic Area B to modify its core brand position to be in alignment with Scenic Area A's after conducting the initial comparative analysis of the brand positions. Through this process, we were able to create a basic level of parity between both scenic areas' brand strategies as well as establish the two as categories (i.e., Scenic Area A was implementing the strategy, and Scenic Area B was not) to more accurately examine the strategy's overall impact on brand awareness and visitor traffic.

A. REASONABLE POSITIONING OF CULTURAL TOURISM BRANDS

For cultural tourism resorts, if they want to improve the communication effect of their own cultural tourism brands, they need to first determine their own tourism brand positioning, thereby increasing the number of tourists. This paper takes two scenic Scenic A and Scenic B as the survey objects. Scenic A has achieved a reasonable brand positioning, and Scenic B has not yet achieved a reasonable brand positioning. The average passenger flow in 6 months is investigated, as shown in Figure 8.

From Figure 8, it can be clearly seen that the passenger flow of Scenic A is significantly higher than that of Scenic B, and the passenger flow of Scenic A shows a linear upward trend. The passenger flow of Scenic B is not stable, and different factors may affect the travel plan of the month. Therefore, the positioning of the cultural tourism brand should be based on its own scale, so as to create a cultural tourism brand with its own characteristics and its own environment.

B. CULTURAL TOURISM BRAND COMMUNICATION BASED ON THE DEEP INTEGRATION OF VISUAL MEDIA

The strategy for integrating images and video into the "Integrated Visual Media" of Scenic Area A uses user-generated content, which has a high level of recognizability and emotional value based, on a model of their visual characteristics. For example, in accordance with its branding as "Ancient Towns Leisure," this strategy uses warm colours, soft textures and balanced visual elements in its imagery. In addition, the Visual Feature Weight Model for Scenic Area A is continuously optimizing with data from user interactions. In contrast, the content for Scenic Area B is delivered through more traditional means, and the delivery of visual imagery on a consistent basis does not systematically align visual characteristics with brand identity. Therefore, there is a significant difference between the visual appeal of the content on both streets, and the manner in which the two streets use imagery to communicate with their users.

In order to further improve the communication of cultural tourism brands in various scenic spots, in addition to choosing the appropriate tourism brand positioning, the choice of communication methods is also particularly important. For

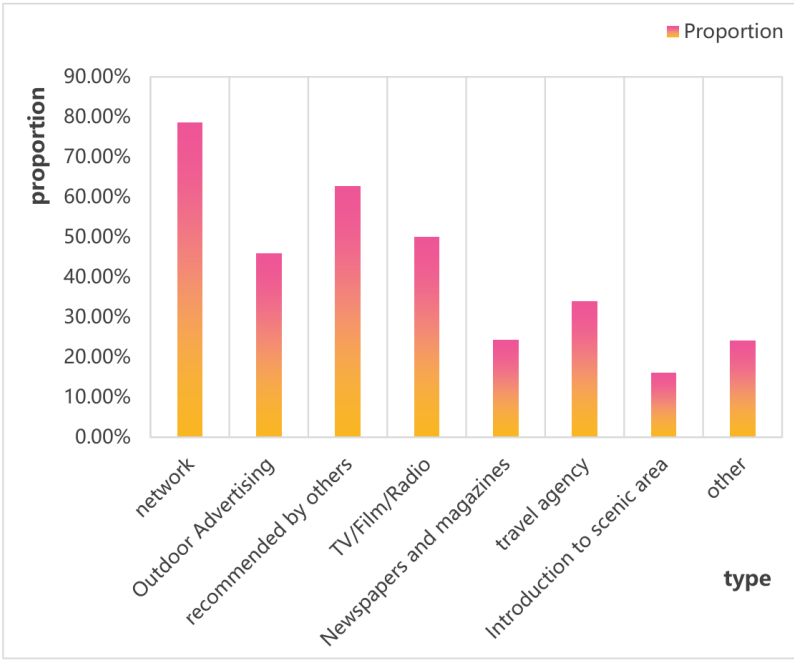


FIGURE 7. Media contact habits of tourists

TABLE 1. Media choices for audiences of different age groups

Age group	Recommended	Travel agency	Network	TV movie	Scenic introduction	Other
under 20	68.9%	18.9%	79.6%	59.6%	14.6%	9.9%
25–40	32.9%	18.9%	69.9%	45.9%	25.9%	15.6%
42–60	45%	66.7%	35.9%	30.3%	45.8%	7%
over 60	56%	98.6%	1.3%	1.03%	80.6%	0%

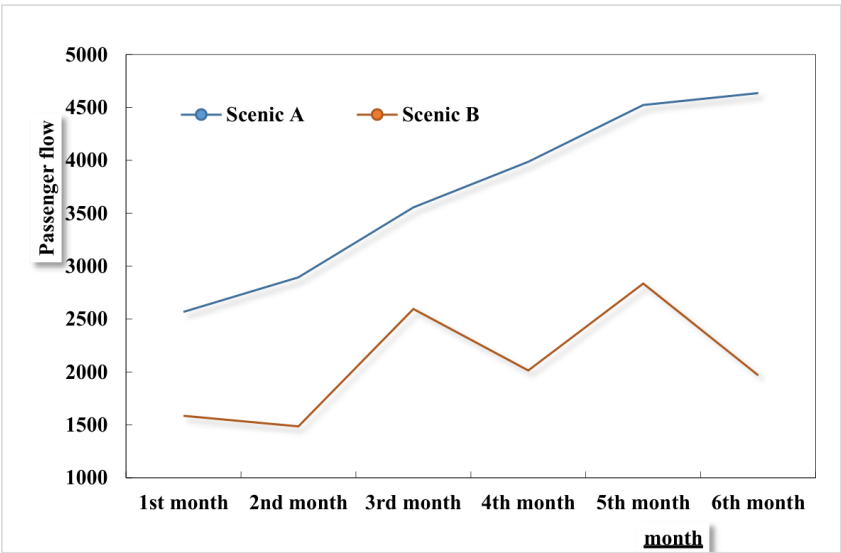


FIGURE 8. Comparison of the passenger flow of the two scenic spots

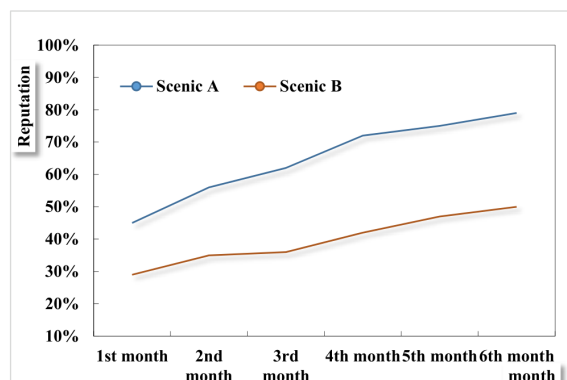


FIGURE 9. The influence of cultural tourism brand communication with deep integration of visual media on popularity

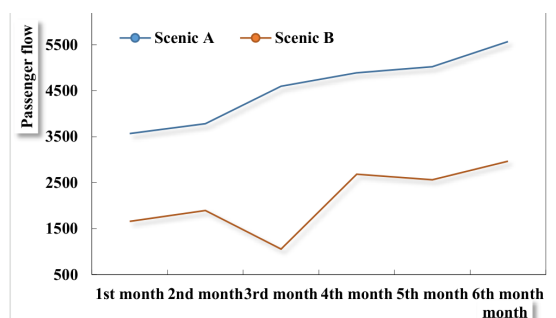


FIGURE 10. Comparison of passenger flow between the two scenic spots

the communication channel of new media, it is necessary to grasp the important communication channel of deep integration of visual media. This paper takes two Scenic A and Scenic B as the survey objects. Scenic A is the brand communication that has introduced the deep integration of visual media, and Scenic B is the brand communication that has not yet introduced the deep integration of visual media. It studies and analyzes the influence of cultural tourism brand communication in the deep integration of visual media on popularity. The impact and passenger flow are shown in Figure 9 and Figure 10.

It can be clearly seen from Figure 9 that although the popularity of the two scenic spots is on the rise, the popularity of Scenic A is significantly higher than that of Scenic B. The popularity of Scenic A is 64.8% on average, and the popularity of Scenic B is 39.8% on average, and the popularity has increased by 25%. To sum up, cultural tourism brand communication based on the deep integration of visual media is more suitable for improving the popularity of scenic spots.

In order to explore the effect of the "visual media deep integration strategy" on visitor flow while taking into account other variables (e.g. type of scenic area, scale and geographical location for each area) a multiple linear regression analysis was performed. The dependant variable was the visitor flow and independent variables used in the analysis included whether or not visual media deep

integration strategy was used (binary; yes=1 or no=0), seasonal variations (quarterly dummy variables) and support for cultural tourism policies at the local level (1 to 5 scale). Please refer to Table 2 for the complete experimental findings.

TABLE 2. Regression analysis results of passenger flow influencing factors (n=24 months)

Variable	Regression coefficient (β)	Standard error	t value	p value
Visual media fusion strategy (yes=1)	0.214	0.062	3.452	0.002
Seasonality (Q2)	0.089	0.041	2.171	0.041
Seasonality (Q3)	0.152	0.043	3.535	0.002
Seasonality (Q4)	0.063	0.040	1.575	0.131
Policy support	0.097	0.035	2.771	0.012
Constant term	2.145	0.215	9.977	0.000

Notes: The "passenger flow" (log of the passenger number) was utilized as the dependent variable. Adjusted $R^2 = 0.672$; Q1 is used as the reference category.

Table 2 indicates that 'visual media integration strategy' contributed to an increase in visitor traffic ($\beta=0.214$, $p<0.01$). While Q2, Q3 and Q4 all had positive contributions to visitor traffic, greater than that of the seasonal and policy variables alone, visual media integration accounts for approximately 21.4% of the variation in visitor traffic above that contributed by all other independent factors when controlling for these variables. Q3 has the largest coefficient when compared to Q2 and Q3 ($\beta=0.152$), consistent with peak tourism times and Q3 also showed the lowest contribution compared to visual media integration strategy. Q3 has also shown a statistically significant positive impact of policy support ($\beta=0.097$). The overall model's adjustment (R^2)=0.672 reflects the ability of selected factors to explain variance in visitor traffic due to contributions from the visual media integration strategy. This further supports the conclusion of this research paper, which asserts the "deep integration of visual media strategy has the potential to have a significant positive impact on increasing visitor traffic and validates the recommendation to utilize this approach."

Figure 10 shows the influence of the two scenic spots on the passenger flow of the scenic spots under different communication media. Scenic A is the passenger flow of the scenic spot based on the deep integration of visual media, and Scenic B is the passenger flow of the scenic spot under the general publicity. It can be clearly seen from the line chart that the passenger flow of Scenic A is higher than that of Scenic B. Based on the deep integration of visual media, the average passenger flow of Scenic A is about 4571 people, and the average passenger flow of Scenic B under ordinary publicity is about 2137. To sum up, the construction of cultural tourism brand communication media channels based on the deep integration of visual media is a better choice.

V. CONCLUSION

The choice of cultural tourism brand communication under the deep integration of visual media is not only a simple communication channel, but also a two-way interactive mechanism to actively obtain feedback from tourists and tourists. In general, in today's traditional cultural tourism market competition, brand is an indispensable asset, a magic weapon for long-term development, and a weapon to win competition in the tourism market. For cultural tourism rooted in crafts and fashion heritage, brand building is an inevitable trend to enhance market competitiveness. Building a cultural tourism brand would be an inevitable trend in the development of tourism. This paper introduced the deep integration of visual media into cultural tourism brand communication, and analyzed and observed different scenic spots. Finally, it was found that the cultural tourism brand communication media based on the deep integration of visual media can better enhance the popularity of scenic spots and increase passenger flow. The research proves that by accurately extracting and communicating visual features, even culturally specific sectors like tourism can achieve significant growth in popularity and engagement. It is a better choice for the construction of communication media channels.

AUTHOR CONTRIBUTIONS

Xianjie ZHOU: Writing.

Jia LIU: Data analysis.

CONFLICTS OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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