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Optimization of Tourism Cultural Experience Using Virtual Reality Technology in Tourism Cultural Heritage and Its Promotion of Cultural Cognition

Suping Zhang^{1,*}

¹ Business School, Zhengzhou Professional Technical Institute of Electronic & Information, Zhengzhou, Henan, 451450, China

Corresponding authors: (e-mail: icecream20241212@163.com).

Abstract With the development of the new generation of digital technology, virtual reality technology has been widely used in the tourism industry, and at the same time, it also promotes tourists' tourism culture experience and their cultural cognition of the tourist places. Based on the theory of embodied cognition and combined with virtual reality technology, the article explores the design method of tourism cultural immersion experience. Subsequently, a research design was conducted to select variable indicators of cultural cognition and cultural experience. By establishing a multiple linear regression model between the influencing factors of tourism cultural experience, the factors with the greatest influence on tourism cultural cognition are found. Through the correlation analysis, the article concluded that the linear regression equation of cultural cognition (Y) and the dimensions of tourism culture based on virtual reality technology is: $Y=0.369Ty1+0.177Ty2+0.296Ty3+0.011Ty4+0.094Ty5+0.062Ty6+0.215Ty7$. i.e., the ability of regional architecture to emphasize cultural characteristics has the greatest influence on tourists' cultural cognition has the greatest impact.

Index Terms multiple linear regression, virtual reality technology, tourism cultural experience, cultural cognition

I. Introduction

Tourism culture is a unique spiritual wealth of a region or a country, which contains many aspects such as historical relics, traditional customs, folk art, and specialty food [1], [2]. Inheriting tourism culture is, first of all, respecting and remembering history [3]. Historical relics such as ancient buildings, city walls, temples, etc., are the crystallization of the wisdom and labor of the forefathers, carrying the stories and memories of the past [4], [5]. Through the protection and inheritance of these relics, we are able to let the descendants know the lifestyle and cultural traditions of their forefathers [6], [7]. Secondly, the inheritance of tourism culture helps to enhance national pride and identity [8]. Every nation has its own unique cultural characteristics, and these characteristics are an important source of national cohesion [9]. When tourists experience the excellent culture of their own nation in the process of tourism, they will have a strong sense of belonging and pride, thus cherishing and passing on their own culture more [10], [11]. In addition, the inheritance of tourism culture can also promote the development of cultural diversity [12]. Tourism cultures of different regions have their own characteristics, and mutual exchange and reference can enrich the connotation of global culture and promote the progress of human civilization [13], [14].

With the development of the times and changes in people's needs, the inheritance of tourism culture also needs to be constantly innovated to adapt to the new market environment and tourists' needs [15], [16]. Innovation can inject new vitality into tourism culture, making it more attractive and competitive, especially the progress of science and technology provides technical support for tourism culture inheritance [17], [18]. For example, the use of virtual reality and other technologies, which provides a new, immersive experience for tourists, has a wide range of application potential in tourism culture heritage [19]-[21]. Through virtual museums, immersive art performances and cultural heritage reconstruction, the audience is provided with a more realistic and immersive experience, which promotes the inheritance and development of tourism culture [22]-[24].

The article firstly integrates the theory of embodied cognition, virtual reality technology and tourism culture, and designs and realizes a set of tourism culture immersive experience design scheme based on embodied cognition through multi-sensory dimensions such as vision, hearing and touch. The results of the consumer questionnaire of tourist attractions in a province are selected for analysis, and after selecting each variable, the questionnaire is subjected to data processing to quantify each factor and tourism culture cognition, so as to arrive at the situation of the size of the degree of its influence in the seven influencing factors affecting the influence factor of tourism culture

cognition, and to establish a multivariate linear regression model. Finally, the mediating effect of tourism culture experience is tested.

II. Design of cultural immersion experiences in tourism based on embodied cognition

II. A. Embodied cognitive model of tourism cultural immersion experience

The study advocates that under the guidance of the embodied cognition theoretical framework, the design of tourism culture immersive experience should deeply consider the user's body perception, action feedback and its deep interaction with the environment, and based on this, a tourism culture immersive experience model based on embodied cognition is constructed, and the tourism culture mapping is shown in Figure 1. The model is gradually deepened from perception learning, embodied interaction to immersive experience in three dimensions, in order to realize the embedded coupling of user's mind, body and environment, and jointly shape a rich and profound cognitive experience.

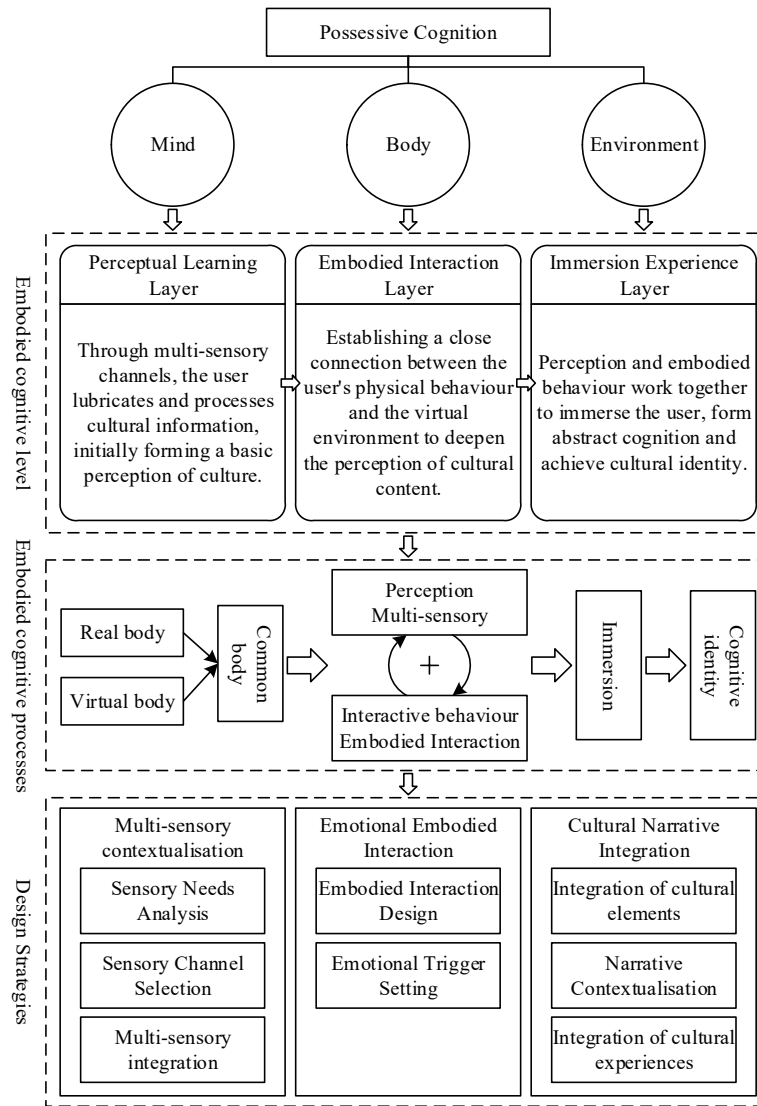


Figure 1: Tourism culture map

II. B. Tourism culture embodied immersive experience cognitive level

Tourism culture immersive experience design builds a bridge between users and tourism culture, and carries the mission of culture dissemination. Based on the theory of embodied cognition, there are three levels of association between users and immersive products in the process of experiencing tourism culture.

(1) Perception learning layer. Refining and transforming the elements of tourism culture obtained from the research, forming multi-channel and multi-modal cultural symbols, which together constitute the external

manifestation of perceptual learning [25]. Users receive and process tourism culture information with the help of multiple senses, such as vision, hearing and touch, and initially establish a basic knowledge of tourism culture.

(2) Embodied interaction layer. Enhance the user's action feedback, so as to establish a closer interaction between the user's body and the virtual environment. This interaction is not only limited to physical operations, but also extends to emotional, cognitive and social communication. The user changes from a passive information receiver to an active participant, and his/her body is intertwined with the "body" in the virtual scene to form a "common body", which enables him/her to control the objects in the scene, feel the emotions conveyed by the characters and storyline, and further deepen his/her understanding of the tourism culture. This will further deepen the understanding of tourism culture.

(3) Immersion Experience Layer. Emphasizes the influence of body-environment interaction on cognition. The user's perception and behavior jointly act on the external environmental stimuli, which "form the user's memory system and are transformed into abstract symbols". In this process, the user's body and mind are fully released, completely immersed in the virtual context, actively exploring and comprehending the spiritual value of tourism culture, and forming a deep connection between the mind, body and environment. To summarize, the three levels of perceptual learning, embodied interaction and immersion experience complement each other and work in synergy to build a complete framework for tourism culture immersion experience design, providing users with a comprehensive and in-depth cognitive process.

II. C. Tourism culture embodied immersive experience design

Based on the theory of embodied cognition, the core of cultural immersion experience design is to activate the user's perception and strengthen the interaction between the body and the environment, in order to pursue the wholeness and systematicity of the experience [26]. The study chooses the most representative story of tourism culture - Zheng He's journey to the West Ocean as an example, and based on the display equipment, develops the practice of tourism culture embodied immersive experience design from the three aspects of cultural narrative integration, multi-sensory integration of the context, and emotional embodied interaction.

II. C. 1) Narrative integration of tourism culture

Embodied cognition theory emphasizes the close connection between cognitive activities and context. "Context" refers not only to the space of sensory experience that reproduces a culture, but also to the fact that the content of the experience should be traced back to the specific context of the time and place of the culture's birth. According to cognitive science, "humans are born to understand stories, not logic". The core of cultural narrative integration design lies in the decoding, reorganization and innovation of cultural information, so as to realize the cognitive translation and emotional intervention of culture. The core value of the design is centered on the inheritance of culture and spirit and the protection of cultural heritage, and through in-depth excavation of the historical lineage and unique elements of tourism culture, it integrates and reconstructs the content of tourism culture and builds a narrative situation with vitality. At the same time, by integrating storytelling, interactive tasks, role-playing and other forms of physical interaction, a systematic experience process is constructed in the virtual cultural space, so that the users can understand and feel the charm of the tourism culture in a more in-depth manner.

II. C. 2) Multi-sensory integration of contextual design

The theory of embodied cognition emphasizes that the body is embedded in the environment, and the cognitive process is contextual, "the context as a source domain provides a rich source of information for embodied cognition". We are in a multi-sensory world, the body as the medium of direct interaction with the environment, its sensory experience has a direct and important impact on the formation of cognition. Multi-sensory contextual design aims to provide users with a rich and realistic immersive experience by integrating visual, auditory, tactile and other sensory channels.

III. Study design

III. A. Sample and data

The research data comes from the consumer survey of tourist attractions in a province, and the survey period is from November to December 2023. Considering the design effect of the questionnaire and the effective response rate, 185 questionnaires were distributed and 185 effective questionnaires were received. Females accounted for 66.02% of this survey sample, much more than males. The age of consumers aged 24 and below accounted for 53.36%. In terms of occupation, students and enterprise workers predominate, accounting for 31.65% and 29.33% respectively. The monthly disposable amount of the respondents mainly resides between 1001-5000 RMB, accounting for 60.98%. From the basic situation of the sample, the student group and white-collar workers of Generation Z (people born between 1995 and 2009) are the main force of blind box consumption.

III. B. Scale design

In this study, before the formal questionnaire survey, Python was used to crawl 4,276 valid user comments on news, social and online shopping platforms, and the travelers' comments on travel experience were obtained through text mining and word frequency analysis, and then combined with 20 samples of in-depth interviews, 2 brainstorming sessions were conducted to design the current scale.

III. B. 1) Cultural Perceptions

Cultural cognition is the process of receiving and processing information about external things, and then acquiring value-based cognition, mediated by the culture mastered by the cognitive subject. The cultural cognition measurement items under the utilization of virtual reality technology are shown in Table 1.

Table 1: Cultural cognition measurement item

Variable	Code number	Metric item
Cultural cognition	Rz1	The charm of culture
	Rz2	Cultural resources are rich
	Rz3	The cultural heritage is intact

III. B. 2) Cultural experience

Cultural experience is the process of individuals learning alienated culture through historical and cultural heritage experience. Cultural experience serves as the most important cultural bridge to achieve further cognitive processing of external culture through individual education and inheritance, self-learning and transformation. The cultural experience measurement items are shown in Table 2.

Table 2: Cultural experience measurement item

Variable	Code number	Metric item
Cultural experience	Ty1	The buildings here can highlight cultural characteristics
	Ty2	Here you can taste and feel the characteristics of food
	Ty3	You can see or experience planting techniques here
	Ty4	Can see or experience the production process here
	Ty5	You can see the show here
	Ty6	The literary art here has cultural characteristics
	Ty7	This place can experience the cultural and etiquette culture

III. C. Empirical models

In order to examine the influence of tourism cultural experience on cultural cognition, this paper constructs a regression model with cultural cognition as the dependent variable and cultural experience as the core explanatory variable.

IV. Empirical test results and analysis

IV. A. Correlation analysis of variables

The descriptive statistical analysis of each relevant variable is shown in Table 3 (** indicates $P < 0.01$). It was found that there was a significant positive correlation between tourism cultural experience and cultural cognition ($r = 0.416$, $P < 0.01$).

Table 3: Descriptive statistical analysis of various related variables

Variable	Cultural cognition	Cultural experience
Cultural cognition	1	
Cultural experience	0.416**	1
M	4.321	3.296
SD	0.574	0.869

IV. B. Multiple linear regression analysis

Regression analysis in statistics is often used when analyzing the relationship between multiple variables. When there is a relationship between multiple variables and an explanatory variable, i.e. multiple regression [27]. It is

categorized into linear regression and nonlinear regression based on whether there is a linear relationship between the independent variable and the variable. In the practical application of the model, the joint effect of multiple variables is more in line with real life than one variable, and the results are more scientific and accurate. Therefore, we use the analysis method of multiple linear regression to find the size of the influence of these dimensions on cultural cognition, so as to find the most important factors affecting cultural cognition according to the multiple linear regression equations derived, and according to the final model can be applied to other tourism enterprises of the same type, which is of certain practical significance [28]. At the same time, through the analysis of the relationship between the dimensions and tourism cultural cognition can help us to find the problems existing in the development of cultural tourism, but also for the subsequent proposed targeted tourism cultural cognition enhancement strategies to provide certain help.

IV. B. 1) Relationship between dimensions and cultural perceptions

A linear regression model is established between the influencing factors of the seven dimensions as independent variables and the explanatory variable cultural cognition. And the establishment of the regression model of the premise we need to first analyze the dimensions and tourism culture cognition, its linear relationship using SPSS software for observation. It can be found that there is a certain linear relationship between the seven dimensions and tourism cultural cognition. Therefore, the linear relationship is established and the modeling of multiple linear regression can be carried out. After the questionnaire is organized and the data is imported into SPSS for regression analysis, we can derive the following several results, and then the tabular data is analyzed in terms of model, variance, coefficient and covariance, and residual statistic, respectively.

IV. B. 2) Model summaries

The model summary of the multiple regression model is shown in Table 4. The compound correlation coefficient (R) of the model is 0.785, the coefficient of determination (R-squared) is 0.625, the adjusted coefficient of determination is 0.613, the error value of the standardized estimation is 0.403, and the change of significance is 0.000, all of these data show that the model fits well, and the Durbin-Watson test (D-W test) is the current common method of autocorrelation test of each variable in linear regression. The value is usually between 0-4, symmetric about 2, the closer to 2 indicates the stronger independence between the factors, which is also a prerequisite for judging whether the linear modeling can be carried out. The DW value of this model is 2.192, which is close to 2, thus indicating that the independence between the dimensions is strong and linear regression analysis can be performed.

Table 4: Model summary of multiple regression models

Model	R	R ²	Adjusted R ²	Standard estimation error	Change statistics					Texbin Watson
					Varying quantity of R ²	Varying quantity of F	Freedom 1	Freedom 2	Significant F change	
1	0.785 ^a	0.625	0.613	.402670502500000	0.623	61.121	5	188	0.000	2.192
a. prediction variable										
b dependent variable: Cultural experience										

IV. B. 3) ANOVA table

The multiple linear regression model ANOVA is shown in Table 5. As can be seen from the table, the significance is 0.000, which is less than 0.05, so in this case it can be assumed that there is a linear relationship between the cultural experience of tourism and cultural cognition.

Table 5: Multivariate linear regression model variance analysis

	Model	Sum of squares	freedom	ANOVA ^a		significance
				Mean square	F	
1	Regression	49.652	6	9.855	60.295	0.000 ^b
	Residual error	30.521	182	0.166		
	Total	80.173	188			
a dependent variable: cultural experience						
b. prediction variable						

IV. B. 4) Coefficient and covariance diagnosis

The two tables above mainly describe the analysis of the coefficients and covariances of the respective variables in the model. The magnitude of the coefficients between the factors is the magnitude of the influence of each dimension of cultural perceptions. The table of coefficients of the multiple linear regression model is shown in Table 6. The table coefficients show that Ty1 (0.369) > Ty3 (0.296) > Ty7 (0.215) > Ty2 (0.177) > Ty5 (0.094) > Ty6 (0.062) > Ty4 (0.011). The VIF value is used to determine whether covariance exists between the factors, with larger values indicating that there is a high degree of correlation between the variables to the extent that the linear regression model is distorted. When the VIF value is greater than 10, it is not suitable for multiple linear regression analysis. The multivariate linear regression model covariance diagnostic table is shown in Table 7. As can be seen from both tables, there is no covariance between the variables, which proves that the model is better and can reflect the relationship between the dimensions and the experience value well.

Table 6: Coefficient table of multiple linear regression model

Coefficient ^a									
Model	Unnormalized coefficient		Normalization factor	t	significance	B's 95.0% confidence interval		Common linear statistics	
	B	Standard error	Beta			Lower limit	Upper limit	tolerance	VIF
(constant)	0.703	0.213		3.217	0.002	0.269	1.121		
Ty1	0.336	0.048	0.369	0.369	6.224	0.002	0.223	0.574	1.739
Ty2	0.173	0.07	0.177	0.179	2.285	0.023	0.026	0.341	2.954
Ty3	0.262	0.073	0.296	0.296	3.552	0.001	0.11	0.292	3.429
Ty4	0.01	0.056	0.011	0.014	0.17	0.861	-0.109	0.436	2.312
Ty5	0.072	0.051	0.094	0.096	1.495	0.133	-0.021	0.5	1.991
Ty6	0.015	0.065	0.062	0.165	0.875	0.226	-0.106	0.326	2.215
Ty7	0.082	0.055	0.215	1.326	0.133	0.106	-0.033	0.622	1.952
a. dependent variables: cultural experience									

Table 7: Collinear diagnostic table for multiple linear regression models

Colinear diagnosis ^a										
Model	eigenvalue	Conditional index	Variance ratio							
			(constant)	Ty1	Ty2	Ty3	Ty4	Ty5	Ty6	Ty7
1	5.93	1	0	0	0	0	0	0	0	0
	0.027	15.627	0.01	0.13	0.03	0.01	0.08	0.34	0.01	0.13
	0.016	15.665	0.56	0.09	0	0.07	0.05	0.15	0.56	0.09
	0.011	22.097	0.37	0.76	0.01	0	0.02	0.4	0.37	0.76
	0.009	25.427	0	0	0.12	0.26	0.85	0.01	0	0
	0.004	33.1	0.08	0.02	0.83	0.67	0.01	0.08	0.08	0.02
	0.003	30.2	0.01	0.01	0.85	0.69	0.00	0.02	0.03	0.06s
a. dependent variables: cultural experience										

IV. B. 5) Analysis of residual statistics

The regression standardized residual histogram is shown in Figure 2. The regression standardized normal P-P plot is shown in Figure 3. Figure 2 and Figure 3 can reflect whether the regression model meets the standard conditions and its stability. As can be seen from Figure 2, the dimensional variables show a normal distribution, which meets the standard conditions for modeling. The distribution of standardized residuals in Figure 3 is in the vicinity of the straight line, indicating that the model fit is more stable and meets the standard.

IV. B. 6) Final results

Based on the analysis of the five aspects above, we can derive the linear regression equation of cultural cognition (Y) with Ty1, Ty2, Ty3, Ty4, Ty5, Ty6, and Ty7 as:

$$Y=0.369Ty1+0.177Ty2+0.296Ty3+0.011Ty4+0.094Ty5+0.062Ty6+0.215Ty7$$

From the linear regression equation can be seen in the seven influencing factors affecting the tourists' tourism culture cognition, first of all, the architecture of this place can highlight the cultural characteristics of the tourists' tourism culture cognition has the greatest impact, which also has a correspondence with the core content of our study, the development of cultural tourism is essential to the tourists in the tourism process is the knowledge of the experience of the local historical and cultural architecture will make the tourists have a more profound emotion

towards the local area. The understanding of the local historical and cultural architecture will enable tourists to have a deeper emotional resonance to the local area and deepen the sense of belonging. Secondly, the characteristics of the food that can be tasted and felt in this place will have a greater impact on the cultural cognition.

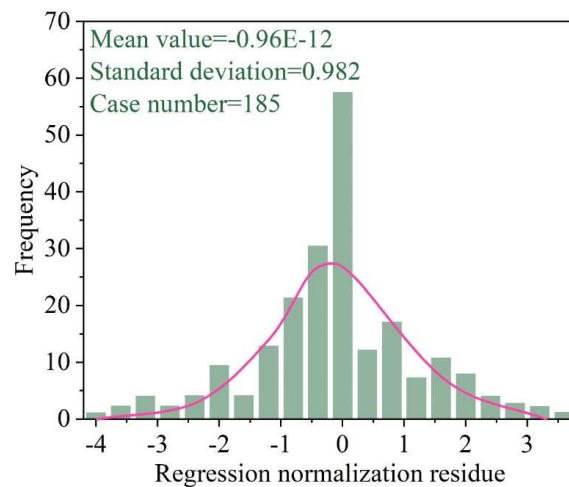


Figure 2: Regression standardized residual histogram

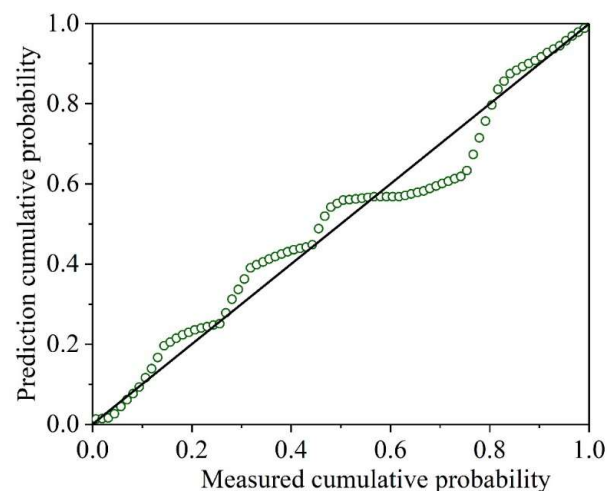


Figure 3: Regression normalized normal P-P graph

IV. C. Mediated effects test

In order to test whether tourism cultural experience plays a mediating effect on the influence of subjective norms, perceived behavioral control and civilized behavioral qualities on tourists' civilized behavior awareness enhancement. In order to facilitate the test and discussion, the study summed up the mean values of enhancing public order consciousness, enhancing ecological and environmental protection consciousness, enhancing personal cultural literacy consciousness, and enhancing the consciousness of maintaining the national image to obtain the variable of tourists' civilized consciousness enhancement ($M=4.38$, $SD=0.85$). The mediating effect test of tourism experience is shown in Table 8 (* $p<0.05$.** $p<0.01$.*** $p<0.001$. The coefficients in the table are standardized regression coefficients). As can be seen from the table, the mediating effect test procedures of cultural experience are all significant in terms of tourists' civilized behavior (subjective norms, perceived behavioral control and civilized behavioral attitudes), and the T-test of the last step is also significant, so the cultural experience plays a part of the mediating effect. It can also be seen from the proportion of mediating effect that although cultural experience is partially mediated, the proportion of mediating effect is large, and the importance of cultural experience should be prominent.

Table 8: The mediation effect of the travel experience is tested

Independent variable	Beta	SE	t	Sig
Subjective specification				
Subjective norms → awareness promotion	0.727	0.034	21.18	0
Subjective norms → cultural experience	0.643	0.045	16.94	0
Cultural experience, awareness promotion	0.757	0.039	23.03	0
Subjective norms → cultural experience → awareness promotion	0.487	0.033	13	0
Perceptual behavior control				
Perceptual behavior control → awareness promotion	0.722	0.04	20.26	0
Perceptual behavior control → cultural experience	0.691	0.042	19.33	0
Cultural experience, awareness promotion	0.755	0.029	23.05	0
Perceptual behavior control, cultural experience, awareness promotion	0.413	0.044	9.625	0
Civilized behavior				
Civilized behavior, awareness promotion	0.522	0.038	12.38	0
Civilized behavior and cultural experience	0.528	0.042	12.56	0
Cultural experience, awareness promotion	0.755	0.036	23.03	0
Civilized behavior, cultural experience, awareness promotion	0.659	0.038	17.63	0

V. Conclusion

In order to explore the effect of virtual reality technology on tourists' tourism and cultural experience and its promotion of cultural cognition, the article launched a questionnaire survey on 185 tourists in a scenic spot, and the following conclusions can be drawn through the analysis of multiple linear regression research:

In the coefficient table method analysis of the multiple linear regression model, Ty1 (0.369) > Ty3 (0.296) > Ty7 (0.215) > Ty2 (0.177) > Ty5 (0.094) > Ty6 (0.062) > Ty4 (0.011), which can be obtained that the regional architecture has the greatest influence on tourists' tourism cultural cognition, followed by local specialties.

Cultural experience is an important mediating factor for the influence of tourists' awareness of civilized behavior enhancement. Through the mediating effect test, it can be seen that tourists' civilized behavior has a significant impact on cultural experience, and at the same time, cultural experience also has a significant impact on tourists' civilized behavior awareness enhancement.

References

- [1] Canavan, B. (2016). Tourism culture: Nexus, characteristics, context and sustainability. *Tourism management*, 53, 229-243.
- [2] Butler, R. (2015). The evolution of tourism and tourism research. *Tourism Recreation Research*, 40(1), 16-27.
- [3] Wang, M. Y., Li, Y. Q., Ruan, W. Q., Zhang, S. N., & Li, R. (2024). Influencing factors and formation process of cultural inheritance-based innovation at heritage tourism destinations. *Tourism Management*, 100, 104799.
- [4] Tang, C., Yang, Y., Liu, Y., & Xiao, X. (2023). Comprehensive evaluation of the cultural inheritance level of tourism-oriented traditional villages: The example of Beijing. *Tourism Management Perspectives*, 48, 101166.
- [5] Wang, M. Y., Li, Y. Q., Ruan, W. Q., Zhang, S. N., & Li, R. (2023). Cultural inheritance-based innovation at heritage tourism destinations: Conceptualization, structural dimensions and scale development. *Journal of Hospitality and Tourism Management*, 55, 118-130.
- [6] Ruan, W. Q., Wang, M. Y., Li, Y. Q., & Zhang, S. N. (2025). Configuring Creativity: Promoting Cultural Inheritance-Based Innovation in Heritage Tourism Destinations. *Journal of Travel Research*, 00472875251322509.
- [7] Luo, C. (2024). Research on the interaction between tourism management and rural cultural inheritance and protection. *Journal of Social Science and Cultural Development*, 1(1).
- [8] Wu, G. M., Chen, S. R., & Xu, Y. H. (2023). Generativity and inheritance: Understanding Generation Z's intention to participate in cultural heritage tourism. *Journal of Heritage Tourism*, 18(4), 465-482.
- [9] Pasya, G. K., Setiyorini, H. P. D., & Andari, R. (2016). Traditional festivals: A tourism development contribution for cultural inheritance. *South East Asia Journal of Contemporary Business, Economics and Law*, 11(2), 27-30.
- [10] Hui, W. A. N. G., Xiaomei, L. I. U., Lei, C. H. E. N., & Lin, M. A. (2023). Inheritance of Red Culture and Perception of Tourism Development in Yimeng under the Background of Cultural and Tourism Integration. *Journal of Landscape Research*, 15(6).
- [11] Zhou, M., & Li, H. (2024). Observation on the new Exploration Status of Inheritance, Development and Protection of Traditional Folk Culture. *Curriculum Learning and Exploration*, 2(3).
- [12] Wang, Z., & Sun, D. (2023). Research on the Protection and Inheritance of Lingbi Zhong Kui Painting in the Context of Cultural Tourism Integration. *Frontiers in Art Research*, 5(11).
- [13] Liu, A. (2022, July). "Regenerating" Tradition: A Cultural Memory Method to Reshape the Living Inheritance of Intangible Cultural Heritage of Ethnic Minorities. In 2022 3rd International Conference on Language, Art and Cultural Exchange (ICLACE 2022) (pp. 647-656). Atlantis Press.
- [14] Holliday, A. R. (2016). Cultural travel and cultural prejudice. *Identities: representation and practices*, 25-44.
- [15] Luekveerawattana, R. (2024). Enhancing innovation in cultural heritage tourism: navigating external factors. *Cogent Social Sciences*, 10(1), 2301813.

- [16] Katsoni, V., & Stratigea, A. (2016). Tourism and culture in the age of innovation. Springer Proceedings in Business and Economics. <https://doi.org/10.1007/978-3-319-27528-4>.
- [17] Sakdiyakorn, M., & Sivarak, O. (2016). Innovation management in cultural heritage tourism: Experience from the Amphawa waterfront community, Thailand. *Asia Pacific Journal of Tourism Research*, 21(2), 212-238.
- [18] Al-Ababneh, M. (2020). Creative cultural tourism as a new model of the relationship between cultural heritage and tourism. *International Journal Of Hospitalit And Tourism Studies*, 1(1), 39-44.
- [19] Jung, T. H., & Tom Dieck, M. C. (2017). Augmented reality, virtual reality and 3D printing for the co-creation of value for the visitor experience at cultural heritage places. *Journal of Place Management and Development*, 10(2), 140-151.
- [20] Barrado-Timón, D. A., & Hidalgo-Giralt, C. (2019). The historic city, its transmission and perception via augmented reality and virtual reality and the use of the past as a resource for the present: a new era for urban cultural heritage and tourism?. *Sustainability*, 11(10), 2835.
- [21] Beck, J., Rainoldi, M., & Egger, R. (2019). Virtual reality in tourism: a state-of-the-art review. *Tourism review*, 74(3), 586-612.
- [22] Bec, A., Moyle, B., Schaffer, V., & Timms, K. (2021). Virtual reality and mixed reality for second chance tourism. *Tourism Management*, 83, 104256.
- [23] Zhu, C., Wu, D. C. W., Hall, C. M., Fong, L. H. N., Koupaei, S. N., & Lin, F. (2023). Exploring non-immersive virtual reality experiences in tourism: Empirical evidence from a world heritage site. *International Journal of Tourism Research*, 25(3), 372-383.
- [24] Zhong, H., Wang, L., & Zhang, H. (2021). The application of virtual reality technology in the digital preservation of cultural heritage. *Computer Science and Information Systems*, 18(2), 535-551.
- [25] Um Jiyoung & Yoon Sunyoung. (2020). Evaluating the relationship between perceived value regarding tourism gentrification experience, attitude, and responsible tourism intention. *Journal of Tourism and Cultural Change*, 19(3), 1-17.
- [26] So Young Bae & Garry Chick. (2016). An emerging Korean youth culture, Rail-ro: the application of cultural consensus analysis to domestic rail travel experiences. *Current Issues in Tourism*, 20(4), 363-368.
- [27] Bozhen Chen, Haibin Ouyang, Steven Li, Liqun Gao & Weiping Ding. (2025). Photovoltaic parameter extraction through an adaptive differential evolution algorithm with multiple linear regression. *Applied Soft Computing*, 176, 113117-113117.
- [28] JingYao Wang, YiXuan Yang & LinSen Song. (2025). AUTOMATIC PRICING AND REPLENISHMENT MODEL OF VEGETABLE PRODUCTS BASED ON MULTIPLE LINEAR REGRESSION. *World Journal of Economics and Business Research*, 3(1).