

Article

The Effect of Tourism Experience on Tourists' Environmentally Responsible Behavior at Cultural Heritage Sites: The Mediating Role of Cultural Attachment

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Abstract: With the rapid development of tourism and the explosive growth of tourist arrivals, the destructive effects of tourist activities on the ecological environment of tourist destinations are becoming increasingly severe, seriously restricting the sustainable development of these destinations. As one of the most important types of current tourist destinations, cultural heritage sites are in urgent need of a well-protected ecological environment. Environmental protection has already become an important task for their sustainable development. The behavior of tourists during visits, which plays a central role in tourist activities, has gradually become a key factor affecting the environment of tourist destinations. Therefore, approaches to effectively identify the mechanisms underpinning tourists' environmentally responsible behavior have become a focus of both theoretical and practical domains. Based on a stimulus-organism-response (S-O-R) theoretical framework, our study established a mediation model based on cultural attachments, and explored the mechanisms affecting how cognitive, emotional, and cultural experiences influence tourists' environmentally responsible behavior. The experience-attachment-behavior transmission mechanism was also considered. A structural equation model was applied to empirically test the 588 pieces of data collected from tourists involved in heritage tourism. The test results show that the cognitive, emotional, and cultural experiences delivered from tourist destinations of cultural heritage, positively affected tourists' environmentally responsible behavior. Cultural attachment plays a partially mediating role between cognitive, emotional, cultural experiences and tourists' environmentally responsible behavior. These study results not only support theoretical research on the relationship between tourism experiences and tourists' environmentally responsible behavior, but also indicate the effective driving pathways of tourists' environmentally responsible behavior at the practical level. As such, this research provides both theoretical reference and practical guidance for the sustainable development of tourist destinations with diverse cultural heritages.

Keywords: cultural heritage sites; cognitive experience; emotional experience; cultural experience; cultural attachment; tourists' environmentally responsible behavior



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1. Introduction

With the rapid development of the tourism industry and improvement in living standards, tourism has gradually become an important part of people's lifestyle. However, the destructive effects of tourist activities on the ecological environment of tourist destinations are worsening greatly with the explosive growth of tourist arrivals, severely affecting the sustainable development of these destinations [1]. The behavior of tourists, playing a central role in tourist activities, has become one of the key factors affecting the environment of tourist destinations. Improper behaviors of individual tourists may leave a direct or indirect negative environmental impact on tourist destinations [2,3]. Therefore,

how to effectively identify the driving and acting mechanisms of tourists' environmentally responsible behavior has become a conundrum and challenge in both theoretical and practical domains.

In existing studies, scholars have mainly focused on the context of eco-natural destinations and examined the driving mechanisms underpinning tourists' environmentally responsible behavior [4–8], while paying less attention to cultural destinations, such as cultural heritage sites. As an important type of current tourist destination [9], cultural heritage sites face the critical task of ecological environment protection to ensure their sustainable development [10]. In addition, scholars have pointed out that the nature of tourist demand for cultural destinations has already transformed from a pursuit of pure quantitative growth to a quest for qualitative enhancement, with a particular emphasis on the strong craving for "cultural experience". Therefore, tourists' experiential perception about cultural heritage sites has become a crucial driving factor affecting tourist evaluation and behavioral choice [11,12], and has gradually become a new focus of academic and industrial communities.

In the era of the experience economy, consumers prefer hedonic value and unforgettably wonderful experiences over functional and practical values [13]. With the demand for transformation and upgrading of consumption and for quality development, the importance of experiential value is increasingly prominent. However, most previous studies have adopted an integrated perspective to analyze the impact of essential elements on various dimensions of tourism experience at different destinations on tourists' behavioral intention without distinguishing between specific tour situations [14]. Few studies have been targeted at cultural heritage sites or, in relation to their characteristics, conducted in-depth analysis into any specific experience dimension and its effects. Some scholars have suggested that the existing literature has not sufficiently considered the tourism experience dimensions of the cultural destination and their effects [14]. In light of this, the essential elements of the cognitive, emotional, and cultural experiences relating to cultural heritage tourism situations have been selected in our study to explore in-depth how these affect tourists' environmentally responsible behavior.

As a sense of pride in historical, cultural, and national symbols, such as the national flag and currency [15], cultural attachment has a positive effect on enhancing individual well-being and national identity [16,17]. However, as a new theoretical subject emerging in recent years, cultural attachment involves influential antecedent variables and resultant effects that remain to be defined. In the scenario of cultural heritage tourism services, whether the strong emotional attachment of tourists due to some memorable experience will stimulate their environmentally responsible behavior has become a significant issue to be explored. Despite many studies on the driving factors of tourists' behavioral intention in the existing literature [6–8], and the fact that cultural attachment has been cited by some as a crucial influencing variable of tourists' behavior, the critical impact of cultural attachment on tourists' behavioral intention has been neglected. Some scholars have proposed that future academic research should examine in depth the positive effect of cultural attachment on individuals, while cultural heritage sites, as an important type of cultural tour destination, should explore their cultural connotations [14].

In light of the above, our study establishes a mediation model based on cultural attachment in the context of cultural heritage tourism services. It elaborates the acting mechanisms and paths by which cognitive, emotional, and cultural experiences, as important dimensions of tourism experience, influence tourists' environmentally responsible behavior. This is to identify the experience-attachment-behavior transmission mechanism and ascertain the theoretical basis and practical path for enterprise-tourist value co-production behaviors. At the theoretical level, a fresh perspective is provided for studies on the sustainable development of cultural heritage sites and mechanisms to foster environmentally responsible behavior of tourists are highlighted; at a practical level, a theoretical reference and a practical basis are provided for heritage site tourism management authorities to promote the sustainable development of cultural heritage sites.

2. Literature Review

2.1. Tourism Experience

In the time of the experience economy, tourism experience, normally defined as the process of tourists' observation or participation in destination events or objects, and the psychological feelings arising from the process [18], has become a critical driving force for tourism enterprises to achieve competitive advantage and maintain sustainable growth. To better understand and satisfy consumers' demands in the experience economy era, enterprise managers should think beyond a goods-dominant (G-D) logic and practical value, to deliver products or services capable of meeting consumers' hedonic needs and pursuit of a wonderful experience [19]. Compared with other industries, tourism should place more emphasis on providing a wonderful experience, given that experience has already become an important core of tourism. Therefore, creating meaningful and memorable experience is the key to tourism enterprises delivering value for tourists and maintaining competitive advantage [13].

Different scholars hold distinct views on the concept of tourism experience. MacCannell [20] defined tourism experience from a sociological perspective as tourists' pursuit and experience of authenticity. Graefe and Vaske [21] interpreted tourism experience from a psychological perspective, noting that tourist experience was an assemblage of a myriad of factors, such as local impression, tourist perception, and site scenario. Xie [22] suggested that the tourism experience was a pleasant feeling of physical and mental union immersed in the tourism world when people were deeply integrated with their current contexts. Other studies on tourism experience have reviewed tourism experience dimensions and related knowledge at a speculative level [23,24], discussed factors affecting tourism experience at an empirical level [19,25], analyzed the effect of experience value [26,27], and explored measurement of experiential value [28,29]. The nature of experience dimensions has become an important component of the research on experience. Walls et al. [30] proposed that experience fell into four dimensions: extraordinary experience, ordinary experience, emotional experience, and cognitive experience. Pine and Gilmore [31] divided experiential value into four dimensions: aesthetics, entertainment, education, and seclusion. Schmitt [32] divided experience into five dimensions: sense, cognition, emotion, relevance, and action, arguing that the ultimate goal of experience marketing was to create unforgettable and wonderful experiential scenarios for customers by providing and shaping different experiential modules, to finally achieve customer loyalty and brand support. Na and Xie [23] established a dimensional model of destination experience value based on functional, hedonic, and symbolic values, enriching and deepening the fundamental theoretical system of experiential value dimensions.

However, given the complex essence of tourism experience, the academic community has not yet reached a consensus on the key elements of tourism experience dimensions, though there is a universal understanding that the tourism experience is an important predictive factor in tourists expressing positive attitudes and behaviors [13,27]. As one kind of cultural tourism activity, cultural heritage tourism places more emphasis on cultural connotations and emotional experience [24]. Refining its cultural value is one of the core elements for destinations to gain a competitive advantage. However, existing studies have neglected the exploration of cultural experience and cognitive experience at cultural heritage sites. Therefore, it is even more pressing to explore the influencing mechanisms by which the cultural, emotional, and cognitive experience dimensions affect tourist behavior in the context of cultural heritage tours. In view of the above, and based on review of existing literature in combination with the characteristics and situational specificity of cultural heritage tourism, our study focuses on cognitive, emotional, and cultural experiences for in-depth exploration and analysis. Following preliminary literature review and tourist behavior insight practice, our study defines cognitive experience as the experience at the level of tourists' cognitive sense in the context of cultural heritage tourism services. It involves tourists' cognitive evaluation and knowledge acquisition of destination history, culture, customs, life feelings, and social skills through cultural heritage

tourism. Emotional experience is defined as the deeper and inner emotions perceived by tourists in the process of cultural heritage tours, such as ease, pleasure, comfort, and indelibility. Cultural experience is defined as tourists' perception of the ideas of civilization demonstrated by human society, through the medium of relics, personages, and stories in the destinations during a cultural heritage tour. It is aimed at the transmission and inheritance of history and culture.

2.2. Cultural Attachment

As a new theoretical subject emerging in recent years, cultural attachment remains to be explored and discussed in depth. In terms of its definition, Hong et al. [16] proposed that cultural attachment was an emotional connection formed by the interaction between the individual and the culture, a sense of belonging to and trust in the culture developed in the individual. In a study of national identity, Routh and Burgoyne [15] suggested that cultural attachment could be the sense of pride in national, cultural, and historical symbols, such as the national flag, language, historical origin, and base currency. Scholars have not yet reached a consensus on the definition of cultural attachment, despite agreement on its essential connotation, namely a deep emotional connection to culture developed in the individual.

Current studies on cultural attachment are mainly focused on discussions of its basic theory [16], constitutional dimensions [33,34], antecedent influencing factors [35,36], and outcome variables [17,37]. Based on a review of the literature related to cultural attachment, Liang et al. [38] proposed that future academic research should involve in-depth exploration of whatever positive psychological function and effect of cultural attachment on individuals occurs. In response to this academic appeal, our study will introduce cultural attachment variables into the scenario of cultural heritage tourism service and give priority to exploring the role of cultural attachment between tourism experience elements and tourists' environmentally responsible behavior. Furthermore, refining the cultural value of cultural tourism, as a significant cultural project, is one of the core elements for tourism destinations to gain competitive advantage. Therefore, cultural tourism sites should further highlight the exploration and significance of their cultural connotations and cultural deposits [14]. However, most existing studies on the cultural elements of cultural heritage sites stagnate at the theoretical speculation level, and few empirical studies have ever explored the influencing elements and effects of cultural attachment. This being the case, our study will systematically investigate the role of cultural attachment in the sustainable development of cultural heritage sites.

2.3. Tourists' Environmentally Responsible Behavior

Tourists' environmentally responsible behavior refers to the individual behavior implemented by tourists in the tourism environment, which contributes to promoting environmentally sustainable development and minimizes the negative impact on the environment, without disturbing the ecosystem of the destination [39]. Some scholars have indicated that tourists' environmentally responsible behavior in destinations, being in essence a sustainable behavior of both the tourist and the destination, consists of respecting the local culture and reducing disturbance to the local environment [40]. This kind of behavior was believed to be conducive to improving the environmental quality of the destination and to promoting the protection of natural, historical, and cultural resources and the sustainable development of the destination [41]. However, it is undeniable that in the tour context, most tourists tend to pursue the goal of pleasure and joviality rather than paying spontaneous and proactive attention to environmental problems or taking responsibility for environmental protection [42]. Hence, research on environmentally responsible behavior in the tour context is more complicated. Based on the perspective of tourists' environmentally responsible behavior, effective approaches to promote the sustainable development of destinations have become a focal topic in current academic and practical communities [40,43–46]. Among numerous concepts related to tourists' environmental protection behavior, such

as tourists' environmentally responsible behavior [8,39,41,45], pro-environmental behavior [47,48], and environment-friendly behavior [49,50], eco-friendly behavior [51], etc., the distinction in expressing them stems mainly from the nuances between different perspectives of disciplines. However, they all, in essence, emphasize individual willingness to actively protect the environment, and their theoretical connotations are consistent with each other. Therefore, some scholars believed the foregoing concepts to be interchangeable [40], which is assumed in our study.

Most of the existing studies on tourists' environmentally responsible behavior are focused on the influencing mechanisms and driving factors, with more attention to the effects of objective situational factors and subjective individual factors on tourists' environmentally responsible behavior. The objective situational factors include the destination's social responsibility [45], perceived employee quality [44], destination's environmental quality [7], image [52], and environmental education [53], etc. The subjective individual factors mainly include the feeling of guilt [48], environmental commitment [46], environmental knowledge [8], attitude [5,54,55], local attachment [56], subjective norm [2,57], satisfaction [56], etc. However, some scholars have argued that the existing literature on the driving mechanisms of tourists' environmentally responsible behavior in the context of cultural heritage tours have lacked systematic support [10]. Furthermore, Chen et al. [26] demonstrated that tourism experience was an important factor in predicting tourist behavior. Therefore, our study will focus on cultural heritage sites, and explore the driving mechanism of tourism experience and the role of cultural attachment in tourists' environmentally responsible behavior.

3. Research Model and Hypothesis Development

3.1. Research Model

See Figure 1 for the research model. Focused mainly on the acting path and transmission mechanisms between the elements of cognitive, emotional, cultural experiences and tourists' environmentally responsible behavior in tourism experience for empirical exploration, the specific research opens the "black box" of the relationship between tourism experience and tourists' environmentally responsible behavior and ascertains the effective pathway for cultural heritage sites to achieve sustainable development.

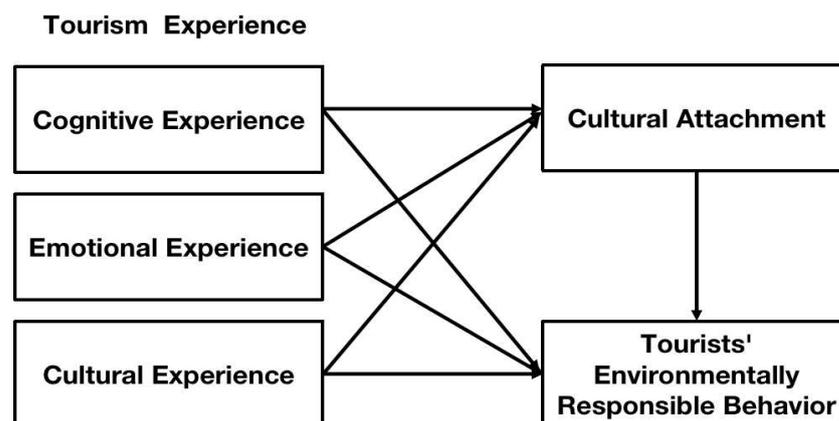


Figure 1. Research Model.

3.2. Research Hypotheses

3.2.1. Tourism Experience and Tourists' Environmentally Responsible Behavior

Social exchange theory suggests that the process of interpersonal communication is realized by both parties through exchange of resources [58]. According to the reciprocity principle of this theory, individuals tend to make specific behaviors as a response to the value created for them by the other party [59]. In other words, individuals need to repay the gained benefits and value to keep benefiting from the relationship [60]. Tourists' environmentally responsible behavior is precisely a positive behavior made to the benefit of

sustainable development of the destination after they enjoy the value created and provided at the destination during the tour [43]. Specifically, in the process of a cultural heritage tour, the cultural atmosphere and educational environment created at the destination could deliver good experiential value to tourists, while the delivery of this value is precisely a significant motivation for tourists to repay the cultural heritage destination with environmentally responsible behaviors. Moreover, relevant studies have also provided evidence that tourism experience is an important predictive variable for environmentally responsible behaviors being generated from tourists [61–64]. Therefore, our research puts forward the following hypotheses:

Hypothesis 1 (H1). *Cognitive experience has a significantly positive impact on tourists' environmentally responsible behavior;*

Hypothesis 2 (H2). *Emotional experience has a significantly positive impact on tourists' environmentally responsible behavior;*

Hypothesis 3 (H3). *Cultural experience has a significantly positive impact on tourists' environmentally responsible behavior.*

3.2.2. The Mediating Effect of Cultural Attachment

As for the influencing mechanism of tourism experience on tourists' environmentally responsible behavior, the cognitive appraisal theory proposed by Lazarus [65] might offer adequate explanations and insights. According to this theory, cognitive appraisal occurs between external stimulation and emotional response. Individual cognitive appraisal of external stimulation would trigger the emotional response and then lead to individual responsive behavior, consistent with an "appraisal–emotion–response" path [66]. In other words, in the presence of external environmental stimuli, individuals will produce a cognitive appraisal of the stimuli, which will make a further difference to the generation of positive or negative emotions, and hence their behavioral responses. Therefore, this theory suggests a mediating transmission mechanism from tourism experience to tourists' environmentally responsible behavior. It also highlights the cognitive and emotional driving factors through which individuals make behavioral choices. These mean that the theory is an effective tool for ascertaining the behavioral response mechanism [67]. Specifically, in the process of a cultural heritage tour, tourists generate a cognitive evaluation of the products and services provided at the destination, which is presented and reflected as experiential value, before being internalized into an emotion of cultural attachment, such that the tourists develop a profound emotional connection to the destination culture. With the effect of the cultural attachment, the tourists eventually make an environmentally responsible behavior conducive to the sustainable development of the destination. This contributes to the realization of the "appraisal–emotion–response" path. In short, the tourism experience, as the cognitive driving factor for environmentally responsible behavior, finally and effectively contributes to tourists' environmentally responsible behavior as a coping response, by influencing cultural attachment as the emotional driving factor. Moreover, relevant empirical studies have also provided evidence on the mediating role of place attachment between cognitive appraisal and behavioral intention [68,69]. On this basis, our study speculates that cultural attachment, as an important part of place attachment, also plays a mediating role between tourism experience and tourists' environmentally responsible behavior.

At the same time, the stimulation-organism-response (S-O-R) theoretical model can also effectively explain the mechanism above. This model hypothesizes that external stimuli affect the internal state and hence the subsequent behavioral response [70,71]. This model also reveals the mediating role of the internal psychological state between the external stimuli and the behavioral response. In our study, the essential elements of experience provided at cultural heritage sites may act as environmental stimuli affecting

tourists' internal psychological state, cultural attachment, and ultimately make a difference to tourists' environmentally responsible behavior (behavioral response) to the benefit of sustainable development of the destination. Therefore, the S-O-R model provides a theoretical basis for establishing a mediating transmission mechanism between tourists' experience and behavioral response at cultural destinations. On this basis, the following hypotheses are proposed:

Hypothesis 4 (H4). *Cultural attachment plays a mediating role between cognitive experience and tourists' environmentally responsible behavior;*

Hypothesis 5 (H5). *Cultural attachment plays a mediating role between emotional experience and tourists' environmentally responsible behavior;*

Hypothesis 6 (H6). *Cultural attachment plays a mediating role between cultural experience and tourists' environmental responsibility behavior.*

4. Research Methodology

4.1. Variable Measurement

The variables involved in this research and the design of their measurement indicators were mainly derived from the existing literature and were refined for the research topic and purpose (see Table 1). Since most of the scale items referred to in the research were compiled in English, the back-translation method [72] was applied to translate them into Chinese, with two professional translators and two bilingual specialists responsible for translation, back-translation, and cross-checking of the translated versions. After discussion with many professors in related disciplines, the contents of the scale were fine-tuned to ensure the scientific validity and preciseness of the measurement tools. The research group also conducted a preliminary survey with the initially designed questionnaires with four tourism management teachers and 100 consumers with cultural heritage tour experience. Further revisions and improvements to the questionnaire content were implemented based on the preliminary survey results.

Table 1. Scale Items.

Constructs	Items	Sources
Cognitive experience	COE1. This place stimulated my interest in learning historical and cultural knowledge. COE2. This place gave me much thought. COE3. This place has inspired my curiosity. COE4. This destination offered me a deeper understanding of history and culture.	Brakus et al. [73]; Li et al. [74]
Emotional experience	EE1. This place made me feel at ease. EE2. This place made me feel warm and friendly. EE3. This place made me feel pleasant and comfortable	Sharma and Nayak [75]
Cultural experience	CUE1. The architectural style of this place highlighted its cultural characteristics. CUE2. This place often played cultural theme music. CUE3. The cultural connotations of exhibitions, performances, and other activities provided by this place were outstanding.	Kim [76]; Xu and Zhu [77]
Cultural attachment	CA1. I was proud of the history and culture of this place. CA2. I had a strong sense of identity with the culture of this place. CA3. Compared with others, the culture of this place was irreplaceable.	Williams and Vaske [78]; Burgoyne et al. [79]
Tourists' environmentally responsible behavior	TERB1. I strictly complied with the relevant regulations that did not damage the environment of the place. TERB2. I strove a lot to protect the place facilities from damage. TERB3. I would remind my companions to not litter in or damage the place environment.	Zhao et al. [80]; Li et al. [6]

Specifically, the cognitive experience scale comprised 4 measurement items mainly referring to the research of Brakus et al. [73] and Li et al. [74] and modified according to the contexts and purposes here. The emotional experience scale comprised 3 measurement items mainly referring to the scale developed by Sharma and Nayak [75]. The cultural experience scale comprised 3 measurement items mainly adapted from the research of Kim [76], Xu, and Zhu [77]. The cultural attachment scale comprised 3 measurement items mainly referring to the research of Williams and Vaske [78] and Burgoyne et al. [79]. The tourists' environmentally responsible behavior scale comprised 3 measurement items mainly adapted from the research of Zhao et al. [80] and Li et al. [6]. Likert's 7-point scoring method was applied to all scales, in which 1 means "completely disagree" and 7 means "completely agree".

4.2. Data Collection

The Confucius Temple, Confucius Forest, and Confucius Mansion in Qufu City of Shandong Province, the landscape resort in Guilin City of Guangxi Zhuang Autonomous Region, Badaling Great Wall in Beijing, and other world-class cultural heritages were selected as research cases. As world-class cultural tour destinations, the places above have prominent advantages in terms of popularity, information exposure, and cultural attraction. They are representative and were well suited to the purpose of this research on the relationship between cultural attachment and tourists' environmentally responsible behavior. The research group collected the questionnaires by means of on-site interception before conducting data collection and summarization from 1 May 2021 to 10 August 2021. Each survey was conducted by several members of the survey team to provide whole-course guidance (i.e., the full guidance and instruction before the questionnaires were distributed or while the questionnaires were being filled), and to distribute small gifts to tourists assisting in completing the survey to express gratitude to them. Out of the total of 800 questionnaires in the official survey, 703 were retrieved. 115 invalid questionnaires with logical inconsistency or excessive void items were excluded. Ultimately, 588 valid questionnaires were retrieved for an effective response rate of 83.6%.

4.3. Profile of Respondents

The demographic overview of the samples is shown in Table 2. Among the effective survey samples, males accounted for 46.9% and females accounted for 53.1%; of all tourists, the age group 16–20 accounted for 11%, 21–30 accounted for 30.3%, 31–40 accounted for 37.6%, 41–50 accounted for 14.1%, 51–60 accounted for 5.1%, and 60+ accounted for 1.9%; by educational background, the respondents had predominantly received higher education, with junior college and bachelor education receivers accounting for 61.9%, and master's degree education and above receivers accounting for 27.4%. The average monthly incomes of the respondents ranged between 4000 and 8000 CNY, accounting for 64.4%. In addition, the sample included a broad range of occupations and are therefore representative in this respect.

Table 2. Demographic Profile of Respondents (N = 588).

Demographic	Frequency	Percentage (%)	Demographic	Frequency	Percentage (%)
	Gender			Occupation	
Male	276	46.9	Student	44	7.5
Female	312	53.1	Manager or above	42	7.1
	Age Group (years)		Civil servant	117	19.9
16–20	65	11.0	Teacher	109	18.5
21–30	178	30.3	Clerk/white-collar	177	30.1
31–40	221	37.6	Blue-collar worker	68	11.6
41–50	83	14.1	Others	31	5.3

Table 2. Cont.

Demographic	Frequency	Percentage (%)	Demographic	Frequency	Percentage (%)
51–60	30	5.1	Monthly Income (CNY)		
>60	11	1.9		≤2000 CNY	43
	Education		2001–4000 CNY	61	10.4
High school or below	63	10.7	4001–6000 CNY	251	42.7
Junior college or bachelor	364	61.9	6001–8000 CNY	128	21.7
Master or above	161	27.4	8001–10,000 CNY	60	10.2
			>10,000 CNY	45	7.7

5. Results

5.1. Normality Test and Common Method Variance Test

The maximum likelihood estimation method was applied to estimate the parameters of the model. One of the preconditions for using this method is that the sample data must be normally distributed. Through SPSS 23.0 software analysis, it was found that the absolute value of the skewness coefficient of all items was between 0.024 and 0.206 and less than 3, and that the absolute value of the kurtosis coefficient was between 0.004 and 0.577 and less than 10. Therefore, the sample data in our research fitted a normal distribution [81].

Self-reported data are open to the problem of common method variance (CMV), such as social desirability and consistency motivation [82]. Therefore, an exploratory factor analysis (EFA) was conducted to test the CMV effect. First, a Harmon's single-factor test [83] was conducted on five conceptually important variables in our research model, namely, cognitive experience, emotional experience, cultural experience, cultural attachment, and tourists' environmentally responsible behavior. The results showed that the maximum covariance explained by one factor was 38.09% and less than 50%, indicating that common method variance was unlikely to invalidate our results. Second, single-factor and multi-factor confirmatory factor analyses were conducted for the common method variance test. It was found that there were significant differences between the two models [$\Delta\chi^2(10) = 2454.32, p < 0.001$] through comparison of χ^2 (chi-square) and DF (degrees of freedom) between them, which provided additional evidence that the research data were less vulnerable to common method variance [84].

5.2. Measurement Model

As advised by Kline [81], confirmatory factor analysis (CFA) was performed in our study. The results showed that the measurement model achieved a considerable goodness of fit ($\chi^2 = 107.353$ (DF = 94), $\chi^2/DF = 1.142$, GFI = 0.978, AGFI = 0.968, CFI = 0.998, NFI = 0.982, TLI = 0.997, SRMR = 0.023, RMSEA = 0.016).

To test the internal consistency between measurement items, reliability analysis was carried out to ensure the reliability of the research tools. The results are shown in Table 3. The reliability of each construct in this research ranged between 0.869 and 0.888, greater than the cut-off value of 0.6 [85]. Therefore, the measurement tools in this research demonstrated good reliability.

The results of the confirmatory factor analysis (CFA) are shown in Table 3. Fornell and Lacker [86] proposed three indicators to evaluate the convergent validity of the research variables, namely, (a) the reliability of each measurement item, (b) the composite reliability (CR), and (c) the average variance extracted (AVE). It can be seen from Table 3 that the standardized factor loading of each item ranged between 0.766 and 0.870, an acceptable range. The CR range of each construct was 0.870–0.891, exceeding the cut-off value of 0.7 [87]. Furthermore, the AVE range of each construct was 0.673–0.713 and greater than 0.5 [86,88], indicating that all constructs maintained positive convergent validity.

Table 3. Reliability Analysis and Confirmatory Factor Analysis.

Constructs	Items	Significance Test of Estimated Parameters				Item Reliability		Construct Reliability		Convergent Validity
		Unstd.	S.E.	z-Value	p	Std.	SMC	Cronbach's α	CR	AVE
Cognitive experience	COE1	1.000				0.830	0.689	0.888	0.891	0.673
	COE2	1.192	0.051	23.598	***	0.846	0.716			
	COE3	1.026	0.044	23.235	***	0.836	0.699			
	COE4	1.061	0.051	20.692	***	0.766	0.587			
Emotional experience	EE1	1.000				0.807	0.651	0.870	0.872	0.694
	EE2	1.165	0.055	21.170	***	0.821	0.674			
	EE3	1.218	0.055	22.080	***	0.870	0.757			
Cultural experience	CUE1	1.000				0.822	0.676	0.869	0.870	0.690
	CUE2	0.991	0.045	22.017	***	0.849	0.721			
	CUE3	0.992	0.046	21.408	***	0.821	0.674			
Cultural attachment	CA1	1.000				0.823	0.677	0.875	0.876	0.701
	CA2	1.009	0.044	22.859	***	0.845	0.714			
	CA3	0.960	0.042	22.824	***	0.844	0.712			
Tourists' environmentally responsible behavior	TERB1	1.000				0.854	0.729	0.882	0.882	0.713
	TERB2	0.987	0.041	24.030	***	0.829	0.687			
	TERB3	1.055	0.042	24.936	***	0.851	0.724			

Note. Unstd.: unstandardized factor loading; Std: standardized factor loading; SMC: square multiple correlations; CR: composite reliability; AVE: average variance extracted; ***: $p < 0.001$.

Discriminant validity was applied to compare the square root of the AVE of one construct AVE with the correlation between this and other constructs. If the square root of the AVE of this construct is greater than the Pearson correlation coefficient between this and the other constructs, then the inference is that this construct has good discriminant validity [85]. As shown in Table 4, the square root of the AVE of each construct was greater than the Pearson correlation coefficients between these constructs. Therefore, all constructs of our study demonstrated good discriminant validity.

Table 4. Discriminant Validity Analysis.

	COE	EE	CUE	CA	TERB
COE	0.820				
EE	0.130	0.833			
CUE	0.294	0.304	0.831		
CA	0.428	0.379	0.422	0.837	
TERB	0.493	0.455	0.497	0.648	0.844

Note. The on-diagonal entries in bold are square roots of AVE; off-diagonal entries represent Pearson correlation estimates; COE: cognitive experience; EE: emotional experience; CUE: cultural experience; CA: cultural attachment; TERB: tourists' environmentally responsible behavior.

5.3. Structural Model and Hypothesis Test

Before the hypothesis test, our study conducted a goodness-of-fit test on the structural model. The evaluation results of model fitting indicators showed that the model fitting index was overall good ($X^2 = 107.353$ (DF = 94), $X^2/DF = 1.142$, GFI = 0.978, AGFI = 0.968, CFI = 0.998, NFI = 0.982, TLI = 0.997, SRMR = 0.023, RMSEA = 0.016). The results of path coefficient analysis are shown in Figure 2. As illustrated, cognitive experience had a significant positive effect on tourists' environmentally responsible behavior ($\beta = 0.266$, $p < 0.001$). Therefore, hypothesis H1 is supported. Emotional experience also had a significant positive effect on tourists' environmentally responsible behavior ($\beta = 0.252$, $p < 0.001$). Hence, hypothesis H2 is supported. Lastly, cultural experience significantly and positively impacted tourists' environmentally responsible behavior ($\beta = 0.189$, $p < 0.001$). Therefore, H3 is also supported.

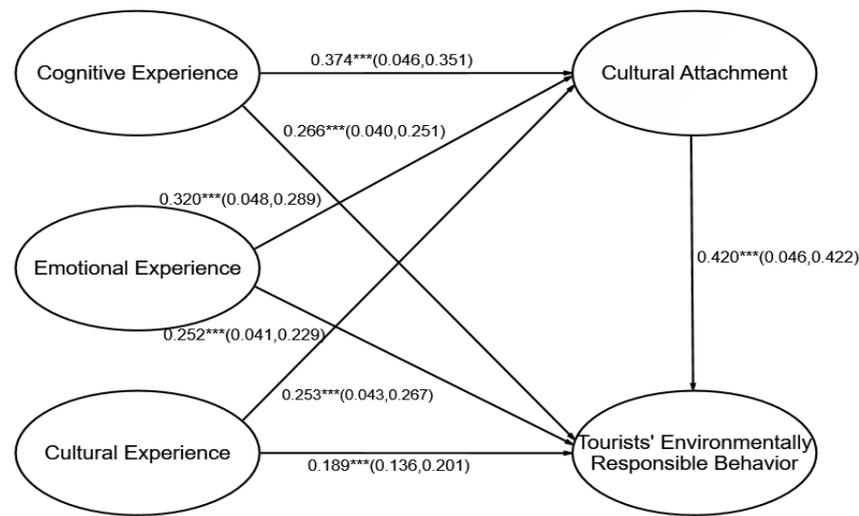


Figure 2. The Path Analysis. Note. Unstd.Est (SE,Std.Est); ***: $p < 0.001$.

In addition, following the recommendations of Preacher et al. [89], the study applied the bootstrap method to test the mediating effect of cultural attachment, setting the number of iterations as 5000 and the confidence level as 95%. As the results show in Table 5, the indirect effect of cultural attachment was significant between cognitive experience and tourists' environmentally responsible behavior ($\beta = 0.157$, BC 95% CI = [0.113, 0.215]). Therefore, hypothesis H4 is supported. It follows from the significant direct influential effect of cognitive experience on tourists' environmentally responsible behavior ($\beta = 0.266$, $p < 0.001$) that cultural attachment plays a partially mediating role between cognitive experience and tourists' environmentally responsible behavior. Likewise, bootstrap analysis results indicated that cultural attachment had a significant indirect effect between emotional experience and tourists' environmentally responsible behavior ($\beta = 0.134$, BC 95% CI = [0.089, 0.187]). Hence, H5 is also supported. It follows from the significant direct impact of emotional experience on tourists' environmentally responsible behavior ($\beta = 0.252$, $p < 0.001$) that cultural attachment also played a partially mediating role between emotional experience and tourists' environmentally responsible behavior. Furthermore, according to Table 5, cultural attachment had a significant indirect effect between cultural experience and tourists' environmentally responsible behavior ($\beta = 0.106$, BC 95% CI = [0.069, 0.151]). Therefore, H6 is supported. It follows from the significant direct impact of cultural experience on tourists' environmentally responsible behavior ($\beta = 0.189$, $p < 0.001$) that cultural attachment played a partially mediating role between cultural experience and tourists' environmentally responsible behavior.

Table 5. Indirect, Direct, and Total Effects Analysis.

Paths	Estimate	Product of Coefficients		Bootstrapping			
				Bias-Corrected 95% CI		Percentile 95% CI	
				SE	Z	Lower Limit	Upper Limit
Indirect Effects							
COE → TERB	0.157	0.026	6.038	0.113	0.215	0.111	0.211
EE → TERB	0.134	0.025	5.360	0.089	0.187	0.088	0.186
CUE → TERB	0.106	0.021	5.048	0.069	0.151	0.069	0.149
Direct Effects							
COE → TERB	0.266	0.045	5.911	0.184	0.362	0.184	0.361
EE → TERB	0.252	0.040	6.300	0.178	0.335	0.178	0.333
CUE → TERB	0.189	0.038	4.973	0.113	0.263	0.114	0.263
Total Effects							
COE → TERB	0.423	0.045	9.400	0.335	0.517	0.336	0.518
EE → TERB	0.386	0.043	8.977	0.307	0.476	0.307	0.475
CUE → TERB	0.295	0.039	7.564	0.218	0.371	0.218	0.371

Note. 5000 bootstrap samples; COE: cognitive experience; EE: emotional experience; CUE: cultural experience; TERB: tourists' environmentally responsible behavior.

6. Research Conclusion and Inspiration

6.1. Conclusions and Discussion

The conclusions are as follows:

First, our study has demonstrated that the cognitive, emotional, and cultural experiences all have significant positive impacts on tourists' environmentally responsible behavior. In other words, management authorities of the cultural heritage sites should be devoted to building a pleasant touristic learning environment and a positive revolutionary cultural atmosphere. In return the tourists might be effectively stimulated to conduct environmentally responsible behaviors beneficial to the sustainable development of the destination. These study results have not only substantially enriched the theoretical achievements related to tourists' environmentally responsible behavior [6,47], but also responded to the academic appeal to investigate the relationship between tourism experience and tourists' environmentally responsible behavior [10].

Secondly, our research has applied a structural equation model to empirically test the mediating role of cultural attachment between tourism experience and tourists' environmentally responsible behavior. The results have indicated that cultural attachment does play a partially mediating role in the relationships between cognitive, emotional, cultural experiences and tourists' environmentally responsible behavior. This result has further supported the significant role of place attachment between external cognitive evaluation and behavioral intention [68,69]. However, our study has only provided evidence that cultural attachment plays a partially mediating role between tourism experience and tourists' environmentally responsible behavior, indicating that there must be other mediating factors that need to be explored and revealed. Relevant research has also pointed out that environmental commitment plays an important mediating role between perceived value and tourists' environmentally responsible behavior [44]. Future research should try to incorporate environmental commitment and other important variables into the research framework for empirical analysis. In conclusion, these findings indicate that cognitive, emotional, and cultural experiences not only exert a direct impact on tourists' environmentally responsible behavior but also indirectly affect it via cultural attachment.

6.2. Contribution

6.2.1. Theoretical Contribution

Focusing on cultural heritage sites, our study has empirically revealed the driving mechanisms and acting mechanisms of tourism experience on tourists' environmentally responsible behavior, through application of a structural equation model and is of considerable theoretical significance.

Firstly, our study is not constrained to analyzing the relation between tourism experience and tourist behavior from an integrated perspective [64]. Instead, it selected three dimensions, cognitive, emotional, and cultural experiences, that closely fit the scenario of cultural heritage tourism to empirically test their impacts on tourists' environmentally responsible behavior. Moreover, our study has identified an important theoretical mechanism, social exchange theory, connecting tourism experience and tourists' environmentally responsible behavior, which suggests that tourists would take the initiative to make positive behaviors beneficial to the destination's development upon acquiring high-quality experience from the cultural heritage sites [90]. These research findings not only expand the field of application of social exchange theory but also enrich the theoretical outcomes related to tourism experience [13,26]. Additionally, these results provide a novel perspective and empirical evidence for the theoretical discussion of the "tourist experience—tourists' environmentally responsible behavior" path relationship.

Secondly, our study has verified the mediating effect of cultural attachment between tourism experience and tourists' environmentally responsible behavior. It has also ascertained the acting mechanisms and driving mechanisms from tourism experience to tourists' environmentally responsible behavior. Moreover, our study has further enriched and deepened the research on the determining mechanisms of tourists' environmentally responsible

behavior [6,80]. It has shown that cognitive appraisal theory and stimulus-organism-response theory could effectively reveal the transmission path from tourism experience to tourists' environmentally responsible behavior. Furthermore, the research conclusion has provided not just a novel perspective for understanding the relation between tourism experience and tourists' environmentally responsible behavior, but a beneficial addition to the theoretical system of tourists' environmentally responsible behavior. Meanwhile, the conclusion has demonstrated the applicability and effectiveness of the cognitive appraisal theory and stimulus-organism-response theory in revealing the intermediary transmission mechanism between tourism experience and tourists' environmentally responsible behavior. Finally, the conclusion has further expanded and enriched the application scope of the theories, offering a valid theoretical reference for scholars to carry out relevant research in future.

Lastly, the existing literature has rarely involved empirical discussion from the demand side perspective on the influence path and acting mechanism between experience elements of cultural heritage sites and tourists' behavioral intention [10]. Therefore, by establishing and testing the relational model between cognitive, emotional, cultural experiences and tourists' environmentally responsible behavior, our research has responded to the academic appeal to further disclose the behavioral mechanism of tourists' environmental liability by empirical research methods [49,61], providing a novel concept and a research framework for future studies.

6.2.2. Practical Inspiration

This research conclusion is of great practical significance to cultural heritage sites fostering profound cultural attachment among tourists by delivering high-quality tourism experiences to effectively stimulate tourists to exercise environmentally responsible behaviors beneficial to the sustainable development of the destinations.

Firstly, the research results can assist managers and marketers of cultural heritage sites in effectively identifying the experiential elements that facilitate tourists' environmentally responsible behavior, such as high-quality cognitive, emotional, and cultural experiences. Thereby, management authorities of destinations might be guided to concentrate their attention and marketing resources on developing these specific elements, more than just on transforming and upgrading the tourism products and facilities. In this sense, cultural heritage sites can deliver tourists with unique and unforgettable experiences rather than the monotonous tourism items indistinguishable from those in other scenic areas, to induce tourists' environmentally responsible behavior.

Secondly, the research results may inspire management authorities of cultural heritage tourism to strengthen the management of tourists' deep-seated emotions from cultural attachment, and to develop and design experiential projects that may stimulate positive emotional connection and cultural attachment from tourists. To be specific, destination project developers should pay attention to tourists' deep-seated emotional connection to the destination culture while developing tourism projects. They need to focus on creating a series of cultural tourism projects that may stimulate tourists' positive attachment, more than just on the regular tourism products and items. Developers are also advised to design tourist activities with cultural features, create a differentiated cultural image of the destination, and take flexible and diversified approaches to circulate the historical and cultural stories about the destination. Once an attractive and personalized cultural atmosphere is built, tourists can be induced to develop emotional attachment to the destination culture. In further steps, tourists may be stimulated to generate environmentally responsible behaviors to the benefit of sustainable development of the destination.

Thirdly, the research results can guide the management authorities of cultural heritage tourism to transform the traditional way of thinking, by urging them to jointly promote the sustainable development of cultural heritage sites from the value co-production perspective rather than solely rely on the government, tourism enterprises, and relevant administrations. Specifically, management authorities of cultural heritage tourism should transform the

development concept, create a development model encouraging tourist participation, and develop and design highly interactive tourist activities. Managers are encouraged to better express the value proposition and lifestyle of tourists through tourism products and activities, to optimize the path and mode, and arouse enthusiasm for tourist participation. Only by encouraging tourists to participate more can tourism managers deepen tourists' experience and understanding of the destination's history and culture and thereby generate emotional resonance and value identity. Once the co-production mechanism from design concept to practical implementation to other links is realized between the tourists and management, tourists' spontaneous and voluntary environmentally responsible behaviors can be effectively stimulated to the benefit of the destination's sustainable development. Ultimately, sustainable development of the cultural heritage sites can be realized through all the efforts above.

6.3. Research Limitations and Prospects

To summarize, our study has highlighted the scenario of cultural heritage tourism service, and empirically explored the acting and mediating mechanisms between tourism experience and tourists' environmentally responsible behavior based on the stimulation-organism-response theoretical framework. It has provided theoretical reference and practical guidance for policy making of tourism enterprise managers, governments, and relevant departments. At the same time, it has been an exploration conducive to the promotion of sustainable development of cultural heritage sites. However, there remain some limitations.

First, although the survey samples were selected from China's most typical cultural heritage sites at a size that meets the requirements of statistical analysis, as far as China's territorial scope is concerned, the sample coverage is small with a certain level of selectivity bias, so it may not fully represent the entire Chinese market of cultural heritage tourism. Therefore, future research should adopt a greater diversity of samples with broader scope and a larger territory, including other countries beyond the limit of China, in order to enhance the universal applicability of the research conclusions. Second, our study has been targeted at the tourists only at China's cultural heritage sites, whose behavioral characteristics may be different from their counterparts in other countries due to the cultural, economic, political, and historical differences. Therefore, cross-cultural research should be conducted in the future to test whether there are significant differences in the driving mechanisms of tourists' environmentally responsible behavior at cultural heritage sites between China and other countries. Third, our study has only allowed for the elements of cognitive, emotional, and cultural experiences affecting tourists' environmentally responsible behavior, while neglecting the impacts of others, such as aesthetic and functional experiences. Future studies can bring other experiential elements into the stimulus-organism-response theoretical framework to clarify whether there will be any difference in the degree of their impacts on tourists' environmentally responsible behavior. Fourth, our study has only empirically tested the mediating transmission mechanism of cognitive, emotional, and cultural experiences on tourists' environmentally responsible behavior, without further ascertaining the boundary conditions for these elements to take effect. Future research can introduce variables, such as interaction, perceived consumer effectiveness, service staff's empathy ability, and psychological ownership into the research framework, to further reveal moderating effects on the relationship between tourism experience and tourists' environmentally responsible behavior. Fifth, while using cross-sectional data for analysis, our research fails to consider the influence of time changes on the relationship between variables. Maxwell et al. [91] have pointed out that variables that turn out to be strong mediators derived from cross-sectional data may not exist at all in longitudinal data analysis. Therefore, researchers should consider a variety of possible mediation models beyond cross-sectional models in future studies. Finally, our research mainly uses self-report measures for data collection, but the relationship between stated environmentally responsible behavior and actual behavior has been found to be weak [92]. There is a need for future

research to strengthen self-report validity and include more objective measures to assess actual environmentally responsible behavior.

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