

## A STUDY ON THE INFLUENCE MECHANISM OF TOURISTS' CULTURAL PSYCHOLOGICAL FACTORS AND PRO-ENVIRONMENTAL BEHAVIORS IN CHINA

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**Abstract:** With the increasingly prominent environmental problems brought about by the tourism industry, the pro-environmental behavior of tourists has been the focus of many researchers, but few studies have been conducted using lake tourist destinations as cases. Culture can influence the attitudes and behaviors of members of society by forming norms. However, despite its importance, our understanding of how cultural psychological factors influence pro-environmental behavior in China is still limited. For this reason, this study selects environmental concern, face culture and collective culture as the cultural and psychological factors of tourists to explore the mechanism of their influence on pro-environmental behavior. This paper takes tourists from West Lake in Hangzhou as the research object, and uses AMOS software to conduct model analysis on 382 valid questionnaires and finds that: environmental care, face culture, and collective culture of the cultural factors have positive effects on pro-environmental attitudes; collective culture can not only significantly affect pro-environmental behaviors, but also can influence pro-environmental behaviors through pro-environmental attitudes; pro-environmental attitudes have a direct and significant effect on pro-environmental behaviors. Based on these findings, we suggest that the managers of lake tourist destinations can promote tourists' positive environmental protection behaviors, by enhancing tourists' love and compassion for animals and plants, designing environmental tourism collective projects for family members, class students, couples, friends, corporate employees and other tourists. Tourists' awareness of environmental care, collective awareness and face awareness, so as to improve tourists' environmental protection behavior.

**Key words:** pro-environmental behavior; cultural psychological factors; pro-environmental attitude; tourists

### 1. Introduction

In recent years, tourism has developed rapidly and has become an important economic sector in the world. However, as one of the largest and fastest-growing economic industries in the world, the rapid development of tourism often consumes a lot of natural energy, which directly or indirectly causes resource consumption, waste discharge, ecological disruption, and carbon emissions to climate change, etc. The impact of ecological and environmental problems in tourist destinations cannot be underestimated. Pro-environmental behavior as the driving force of the "green" tourism economy has gradually attracted the attention of more and more researchers and policymakers [1], who believe that many environmental problems arising from tourism can be solved by promoting pro-environmental behavior [2]. Pro-environmental behavior is a sustainable

behavior aimed at protecting natural resources and ecosystems [3]. This behavior can effectively reduce environmental degradation [4], and promote the healthy and sustainable development of the tourism economy.

The influence of culture on pro-environmental behavior has been confirmed by many scholars. However, despite its importance, our understanding of how culture affects pro-environmental behavior and how culture is still limited [5]. Although scholars at home and abroad have discussed the specific impact of values on pro-environmental behavior [6], many Chinese scholars have copied the value system of Western cultural background to carry out corresponding empirical tests, without considering China's unique national conditions and culture [7]. The traditional culture of the country takes Confucianism as the main body and deeply integrates the thoughts of Buddhism and Taoism. Confucianism advocates harmony and unity, Taoism advocates the natural concept of the unity of man and nature, and Buddhism has the precepts of abstaining from killing and protecting life. Under such a cultural background, Chinese tourists generally have the cultural psychology of self-respect and harmony between nature and man. Therefore, this paper extracts collective culture, face culture, and environmental concern as the representative cultural psychological factors to conduct an in-depth study of the influence mechanism of cultural psychological factors on tourists' pro-environmental behavior in tourist destinations.

## 2 Theory and assumptions

### 2.1 Value-Attitude-Behavior (VAB) Model

The Value-Attitude-Behavior (VAB) model is a theoretical model first proposed by Homer and Kahle in 1988 to explain the relationship between personal values, attitudes, and behaviors [10]. The VAB theory holds that the influence of values on specific behaviors can be moderated by attitudes toward behaviors, revealing that "the influence should flow from abstract values to general attitudes toward specific behaviors" (Homer and Kahle, 1988, p. 638). That is to say, personal values can directly affect attitudes, which in turn can affect behavior. VAB originally originated from social adaptation theory [11], which considered values, as the most abstract part of social cognition, to reflect the basic characteristics of adaptation to the environment and subsequently generate attitudes and behaviors. For decades, the VAB model has generally been regarded as a good explanation for the different sustainable behaviors of consumers. In tourism, values (altruism, biosphere, egoism) and attitudes (anthropocentric, eccentric) have been shown to positively influence tourists' intention to visit green hotels, their willingness to pay more, and their willingness to sacrifice [12]. In the context of tourists dining out, the VAB model provides a highly significant fit, indicating that the VBA model can predict the sustainable dining out behavior of tourists [13]. In this paper, the relationship model of cultural and psychological factors (environmental concern, face culture and collective culture), pro-environmental attitudes and pro-environmental behaviors of tourists in China are constructed, to explore the mechanism of cultural psychological factors affecting tourists' pro-environmental behavior by adopting the VAB model.

## 2.2 Pro-environmental behavior

Pro-environmental behavior (PEB), according to its different disciplinary backgrounds and theoretical viewpoints, is also known as environmentally responsible behavior [14], environmentally salient behavior [15], environmental behavior [16], sustainable behavior [17], environmentally friendly behavior [18], ecological behavior [19] and green behavior [20]. Pro-environmental behaviors refer to individual behaviors that consciously minimize negative impacts on the natural world [21]. In tourism research, the pro-environmental behavior of tourists refers to the maintenance behavior of tourists to the environment and environmental elements during the travel process [22]. Since the proposal of PEB, its research has attracted the attention of people from many disciplines such as tourism management, tourism geography, environmental psychology, and consumer behavior, and a series of related studies have been carried out. In previous studies, PEBs were considered to be able to be influenced and intervened. Many scholars use personal factors, such as attitudes [23] [24], norms [25-27], emotions [9, 28], values [29], etc., to predict individuals' environmental protection behaviors "from the inside". In terms of external influencing factors, some scholars have also carried out research on PEBs from the objective environmental factors of "external influence", such as the availability of recycling facilities, the quality of public transportation, the emergence of new technologies, and the market supply of commodities [30].

## 1.3 Cultural factors

Culture refers to the cultural beliefs believed and advocated by the majority of social members, which influence the attitudes and behaviors of social members by forming psychological norms [31]. The positive effect of culture on individual behavior has long been demonstrated [33], and it can not only effectively influence consumer attitudes, but also effectively promote subsequent behaviors [34]. Since cultural psychology affects how people use natural resources, or whether they are willing to behave sustainably [35], culture plays an important role in how societies address a wide range of environmental issues [36]. Although the research on the relationship between cultural and psychological factors and environmental behavior has been verified by many scholars, there is very little research on cultural and psychological factors for Chinese people, especially in the context of lake tourism research, which is almost blank. Therefore, the research results of this study are not only conducive to enriching the research content on the influence of cultural psychological factors and environmental behaviors, but also provide a new research perspective for the theoretical study of lake tourism and cultural tourism. China has a history of 5,000 years and has formed its unique cultural psychology. Among them, the "differential order pattern" proposed by Mr. Fei is considered to be the most profound and appropriate expression of Chinese traditional cultural psychology [37]. In the differential order pattern, "social relations are gradually pushed out from one person to another, and it is the increase of personal connections, and the social scope is a network composed of individual connections" [37]. Such social networks have spawned collective culture and face culture, which have become an important part of Chinese cultural psychology. And this kind of social culture that emphasizes "harmony" has also derived the

concept of environmental care that coexists in harmony with all things in nature and achieves win-win and mutual benefit. Therefore, this paper extracts collective culture, face culture and environmental care as the cultural and psychological factors of Chinese tourists to conduct in-depth research on the influencing mechanism of their pro-environmental behaviors with tourists.

## 2.4 Model Construction and Research Assumptions

### 2.4.1 Environmental care and pro-environmental attitudes

The idea of the unity of nature and man is the highest and most concise overview of the oriental environmental care thinking mode, which shows that man and nature are a part-to-whole relationship. The relationship between nature and man is a complex issue. Man is a part of nature, and man must follow the universal laws of nature."<sup>[38]</sup> Confucius elevated people's cherishing of the ecological environment to the level of moral requirements for people and advocated that people should "love all things with kindness" and treat all things in nature with a kind and friendly attitude.

The relationship between environmental care and pro-environmental attitudes has attracted the attention of some scholars. Deng, Walker and Swinnerton compared the relationship between environmental care and environmental attitudes of Chinese people in China and Canada and found that environmental care awareness has a positive effect on environmental attitudes [39]. De Groot and Steg found through empirical research on individuals' egoistic values, altruistic values and environmental caring values that altruistic values and environmental caring values can strongly influence individuals' pro-environmental beliefs and pro-environmental intentions [40]. Research by Soyez confirmed that ecocentric value orientation has a positive impact on attitudes and subjective norms about organic food [41]. In addition, scholars have also found that environmental care can directly affect an individual's pro-environmental behavior.

Chan's research shows that cultural psychology with the relationship between man and nature as the main content has a positive impact on consumers' green purchasing behavior [42]. Pan (2021) found that the more heavily polluting companies are influenced by the idea of environmental care, the more inclined they are to conduct green mergers and acquisitions [43]. Mo compared the cultural background of Chinese and Western rock-climbing tourists to the traditional environmental protection rock climbing concept and found that China's environmental care thought has an important influence on Chinese tourists' choice of green and environmentally friendly rock-climbing activities [44].

Therefore, in summary, this article proposes the following assumptions:

*H1: Environmental care has a significant positive impact on pro-environment attitudes.*

*H2: Environmental care has a significant positive impact on pro-environmental attitudes.*

### 2.4.2 Face culture and pro-environmental behavior

Face is the social anchoring of the self under the gaze of others [45], focusing on intergroup behavior based on perception and interaction with the self and others [46]. Face is generally

considered to be one of the most distinctive social characteristics of the Chinese [47]. Zhang found through semi-structured in-depth interviews that overseas Chinese tourists would adopt civilized environmental behaviors for fear of losing face [48]. Wan and Poon [49] studied the impact of Chinese tourists' face awareness on their green consumption. Through a questionnaire survey of Chinese tourists, they found that face awareness can regulate tourists' choice of green hotel brands. Tourists are more inclined to choose green hotels to stay and consume. Shi and Zheng studied the impact of the face on Chinese ecological consumption decisions. By using the experimental analysis method to study the subjects' ecological product preferences and psychological processing mechanisms, the study found that personal face is closely related to ecological consumption attitudes [50]. Wang, Zhang and Yu found that Chinese farmhouse hosts use the concept of face to persuade urban tourists' environmental behaviors in social interactions. To encourage tourists to improve their environmental behaviors by publicly praising tourists for environmentally friendly behaviors to save face and not to save face for tourists with environmentally unfriendly behaviors [51].

Therefore, in summary, this paper proposes the following assumptions:

*H3: Face culture has a positive impact on pro-environmental attitudes.*

#### **1.4.3 Collective culture, pro-environmental attitudes and pro-environmental behaviors**

Collective culture refers to a cohesive social framework in which individuals can expect their relatives or members of a particular group to look after them in exchange for unquestioned loyalty [52]. An important core idea in traditional Chinese culture is "putting the collective interests first" [53], even giving up self-interest for the collective interests. This highly collectivistic culture strongly encourages group harmony and group influence is very strong [52]. Kim and Choi found that consumers influenced by collective culture have more positive pro-environmental attitudes. This is because collectivistic individuals place greater value on collective goals and are more likely to be encouraged to make pro-environmental behavioral choices. Through the research on the impact of Chinese tourists' environmental protection behaviors, Ren found that collective culture will have a direct impact on Chinese tourists' environmental protection attitudes, thereby affecting environmental behaviors [54]. Filimonau found that collective culture was significantly associated with certain aspects of Polish tourists' environmental attitudes [55]. Hofstede also believes that collectivist cultures are more likely to exhibit pro-environmental attitudes and pro-environmental behavioral intentions than individualistic cultures [56]. This is because the environment is seen as a "common commodity" that every member of a collectivist culture should acquire and care for equally [57].

In terms of the relationship between collective culture and pro-environmental behaviors, Liu et al. found that Chinese tourists will abandon their normal habits during travel due to the influence of collective culture, and prioritize pleasure and acquisition motives during vacations, resulting in more food waste during travel [58]. Teng et al. found that the influence of relatives and friends influenced by Chinese collective culture is a key factor in promoting Chinese tourists to conduct

ethical tourism and protect the local tourism environment [59]. Wang and Zhang mainly explore the relationship between social norms and tourists' environmental protection behaviors based on collective thought-based Chinese traditional forces. They found that traditionality in China mediates the mediating relationship between injunctive norms and pro-environmental behaviors through personal norms, rather than the mediating relationship between descriptive norms and pro-environmental behaviors [60].

Therefore, in summary, this paper proposes the following assumptions:

*H4: Collective culture has a positive impact on environmental attitudes.*

*H5: Collective culture has a positive effect on environmental behavior.*

#### **2.4.4 Environmental attitudes and pro-environmental behaviors**

Environmental attitudes refer to an individual's positive or negative evaluation of implementing a specific environmental behavior [61]. The relationship between environmental attitudes and pro-environmental behaviors has been confirmed by many scholars. Do Valle suggested that the differences between recyclers and non-recyclers may be caused by their different attitudes towards recycling [62]. Mohamed found that environmental attitude is an important factor in whether consumers participate in green buying behavior [63]. Blok found that, compared with other factors, a positive attitude toward recycling was an important factor explaining individual recycling behavior [64]. The important theory of planned behavior (TPB) in environmental behavior also regards behavioral attitudes as one of the important driving factors that can positively influence their environmental behaviors. Han found that the environmental behavior attitude of tourists in green hotels in the United States can significantly and positively affect the pro-environmental behavior of tourists [8].

Therefore, in summary, this paper proposes the following assumptions:

*H6: Environmental attitudes have a positive impact on pro-environmental behavior.*

#### **1.4.5 The mediating role of environmental attitudes**

According to the values-attitude-behavior (VAB) theory, an individual's values (abstract cognition) can affect an individual's behavioral attitude (intermediate cognition), which in turn affects an individual's specific behavior (outcome). The effectiveness of the VAB model in behavioral explanation has been confirmed by many scholars. For example, Jayawarhena (2004) found that consumers' attitudes and values towards e-shopping play a mediating role between consumers' consumption values and e-shopping behavior. When Fu, Koo, and Kim explored the relationship between American consumers' attitudes and behaviors toward Chinese-made products, they found that consumers' global consumption outlook can positively influence values and attitudes in specific fields, thereby influencing the purchase of Chinese-made products Behavior. Yu found that green consumption attitude has a complete mediating effect between altruistic values and green consumer behavior, and there is a partial mediation between ecological values and green consumption behavior [65]. In this study, environmental care, collective culture

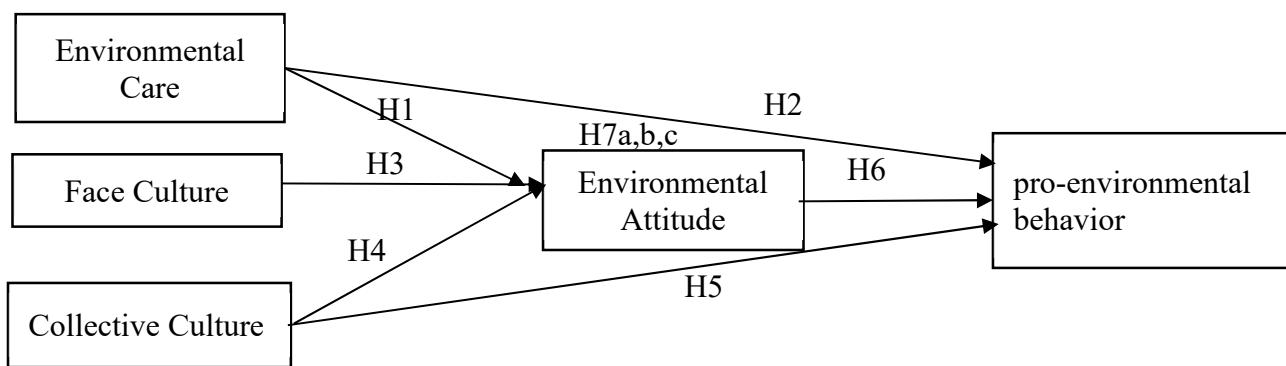
and face culture are selected as the cultural and psychological factors of tourists, and on this basis, the following hypotheses are proposed:

*H7a: Environmental attitude mediates between environmental care and pro-environmental behaviors.*

*H7b: Environmental attitude mediates between face culture and pro-environmental behaviors.*

*H7c: Environmental attitude mediates between collective culture and pro-environmental behavior.*

In summary, the framework of this study is as follows :



## 2. Study Design and Data Collection

### 2.1 Study area

Hangzhou West Lake is one of the main ornamental freshwater lakes, the first batch of national key scenic spots, the first batch of national 5A-level tourist attractions and one of the top ten scenic spots in China. According to data from the data center of the Ministry of Culture and Tourism, Hangzhou West Lake Scenic Spot will receive a total of 17.9852 million tourists during the National Day in 2021, ranking first among the most popular tourist attractions in the country. Tourists visiting the scenic spot can not only directly observe or enjoy the natural beauty of West Lake, but also feel the cultural influence brought by traditional Chinese culture through sculptures, signs and other media, and then make pro-environmental behaviors. Therefore, it is typical for this study to make a case study area of cultural psychological factors and pro-environmental behaviors.

### 2.2. Questionnaire Design

The questionnaire in this paper consists of five parts. The first part measures the tourists' environmental care, the second part measures the tourists' face culture, the third part measures the tourists' collective culture, the fourth part measures the tourists' environmental attitudes, and the fifth part measures the tourists' pro-environmental behavior. Tourists' environmental care and collective culture mainly refer to Dunlap's New Environmental Paradigm Scale [29] and Zhang and Alian (2003)'s scale. The scale of environmental attitudes is mainly the scale of Cheng and Wu (2015), which mainly emphasizes tourists' intuitive attitude towards the behavior of protecting

the environment. The scale of environmental protection behavior is mainly selected from the pro-environmental behavior scale for Chinese tourists by Qiu and Zhou (2017). All questionnaire items used a five-point Likert scale, with "1" to "5" points representing "strongly disagree" to "strongly agree".

### 2.3 Data collection

The selected Hangzhou West Lake scenic spot is free to enter, and some scenic spots are charged, and most tourists can complete most of the scenic spots in the scenic spot in one day. Therefore, to understand as much as possible the real thoughts and practices of tourists after visiting the scenic spots, our survey work is mainly concentrated between 4:00 pm and 8:00 pm, mainly in the Leifeng Pagoda and the West Lake Broken Bridge in the West Lake Scenic Spot. and famous scenic spots such as West Lake Su Causeway.

This research was carried out three times in total. After the first questionnaire pre-survey in October 2021, a total of 500 questionnaires were distributed in the two official surveys, and 382 valid questionnaires were obtained after recycling, with an effective rate of 76.4%.

### 2.4 Sample description

Among the 382 valid samples, the proportions of males and females remained basically balanced, accounting for 44% and 56% of the total population, respectively. Most of the tourists participating in the survey are young and middle-aged (59.3%) between the ages of 20 and 30, of which the majority (79.3%) have a college degree or above, and 95.6% have a high school degree or above. In terms of income, tourists are mainly from middle-income and lower-income groups, accounting for 70.7% and 9.3% of the total number respectively.

According to the five-point Likert scale scoring rule, when the average value of an item is between 3.5 and 5, it can be considered that the item has a high degree of recognition among researchers. Data analysis shows that environmental attitudes (4.352) and environmental care (4.12) have higher recognition degrees, which indicates that many respondents recognize the importance of environmental protection and believe that the environment and human beings are closely related. In addition, the mean value of collective culture is also higher, at 4.1, indicating that most respondents are collectively conscious and value collective goals and collective interests more. The item with the lowest degree of recognition is pro-environmental behaviors (3.1), and the lowest score is "donate to help tourism protection" (2.02) and "participate in local environmental protection activities" (2.34). This shows that although respondents generally agree that environmental protection is important, it is difficult to implement specific behaviors such as donations or direct participation.

Table 1 Reliability and validity analysis

Variable	codin g	Items	Loadin g	CR	AVE	P	Cronbach $\alpha$	KM O
Environmenta l care	VEC1	Animals and plants have the same right to life as humans.	0.617			0.00 0		
	VEC2	Humans are currently abusing and destroying the environment	0.797	0.77 4	0.53 6	0.00 0	0.769	0.710
	VEC3	Human destruction of nature often leads to catastrophic consequences.	0.769			0.00 0		
Face culture	VFC1	I wish I could always say new things no one else knew when I was chatting	0.816			0.00 0		
	VFC2	I want people to think that I can do things that ordinary people can't.	0.589			0.00 0		
	VFC3	I care a lot about the compliments and compliments others give me	0.841	0.81 3	0.52 7		0.805	0.768
	VFC4	As far as I'm concerned, the feeling of belonging to a group or	0.622			0.00 0		

Collective culture	VCT1	organization is important As far as I'm concerned, the feeling of belonging to a group or organization is important	0.887	0.00	0		
	VCT2	I think you should know how to live in harmony with others	0.668	0.82 2	0.60 9	0.00	0.810 0
	VCT3	I avoid attacking others, avoid embarrassing others	0.77		0.00	0	
		I am very willing to adopt environmental friendly behaviors in my life and travel.	0.755		0.00	0	
Environmental Attitude	ATT1	I think it is very good to adopt eco-friendly behavior in life and travel.	0.857	0.92 4	0.70 9	0.00	0.925 0
	ATT2	I think it is very wise to adopt eco-friendly behavior in life and travel.	0.901		0.00	0	0.885
	ATT3	I think it is very beneficial to adopt eco-friendly	0.847		0.00	0	
	ATT4						

Pro-environmental behaviors	ATT5	behaviors in life and travel. It is a pleasure for me to be environmental friendly in life and travel.	0.843	0.00	0		
	PEB1	Pay attention to the government's environmental policies and measures for tourist destinations.	0.844	0.00	0		
	PEB2	Publicly express support for environmental protection or encourage others to practice environmental protection	0.618	0.00	0		
	PEB3	Participate in local environmental activities	0.769	0.00	0		
	PEB4	Proactively discuss environmental issues with others	0.771	0.00	0		
	PEB5	Donate to help tourist destinations protect the environment	0.705	0.00	0		
				0.89	0.58	0.892	0.842
				3	4		

PEB6	Actively pay attention to environmental issues or environmental information in media reports	0.853	0.00 0
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### 3. Data Analysis and Results

#### 3.1 Reliability and validity analysis

This study mainly used SPSS 22.0 software and AMOS 17.0 software to conduct empirical analysis on the data. First, this study uses SPSS 22.0 software to test the reliability and validity of the items of the measurement questionnaire. The reliability of the scale is mainly tested by Cronbach's coefficient. When the coefficient value is closer to 1, it indicates that the reliability of the questionnaire is higher. Generally speaking, Cronbach's  $\alpha$  value higher than 0.7 is regarded as acceptable reliability, and higher than 0.8 is regarded as excellent. The results show that the KMO value is 0.831, the significance of the Bartlett sphericity test is below 0.001, and the Cronbach coefficients of environmental care, face culture, collective culture, environmental attitudes and pro-environmental behaviors are Above 0.7, this indicates that the reliability of the data is high and the internal consistency is good.

In addition, this study also conducted a validity analysis of the data. The results show that the factor loadings of each item in the questionnaire are above 0.598-0.7, reaching the standard of 0.5 (Tracey et al., 1999), and all of them are significant at the 0.001 level, which indicates that each item has a significant impact on the corresponding. Convergent validity of the data can be tested by construct reliability (CR) and mean extraction variance (AVE). At the same time, the structural reliability CR of each latent variable in this study exceeded 0.7, and the AVE exceeded 0.5, which indicated that the convergent validity of the data was good. Table 4 shows that the AVE values of all variables are greater than the sum of the squares of the correlation coefficients of this variable and all other variables, indicating that the validity of the differences between variables is good (Fornell and Larcker, 1981), and the discriminant validity is good.

Table 4 Discriminant validity test results

Variables	AVE	EC	CC	FC	PEB	EA
EC	0.536	<b>0.732</b>				
CC	0.609	0.308	<b>0.780</b>			
FC	0.527	0.021	0.064	<b>0.726</b>		
PEB	0.584	0.094	0.318	0.021	<b>0.764</b>	
EA	0.709	0.251	0.448	0.171	0.263	<b>0.842</b>

Note: EA: environmental attitude; EC: environmental care; PEB: pro-environmental behavior; FC: face culture; CC: collective culture.

### 3.2 Structural Model Analysis

#### 3.2.1 Hypothesis test results

In this study, a structural equation model was constructed by using AMOS26.0 software, assuming that the output of the standardized parameters of the model is shown in Figure 3. The chi-square value of the degrees of freedom ratio ( $\chi^2/df$ ) of the research model is =2.072, which is less than the ideal boundary value of 3; the RMSEA is 0.060, which is between 0.05 and 0.08, which belongs to a good range. The other tested indicators are CFI=0.941, IFI=0.941, TLI=0.932, NFI=0.892, and RFI=0.876, and the values are all close to 0.9, indicating that the model fits well and the structure is reasonable, and the next structural equation test can be carried out. Table 5 shows the test results of the proposed hypothetical model.

Table 2 Structural model fit test results

Model	$\chi^2/df$	RMSEA	CFI	IFI	TLI	NFI	RFI
Value	2.072	0.060	0.941	0.941	0.932	0.892	0.876

Table 5 shows that the proposed hypothesis is also validated. The influence of environmental care, collective culture and face culture on environmental attitudes is significant at the level of 0.05, and the standardized path coefficients are 0.14, 0.339, and 0.098, respectively, indicating that cultural psychology has a strong direct impact on environmental attitudes. Tourists with face culture have a more positive attitude towards environmental issues during their travels. The impact of environmental care on environmental behavior is not significant at the level of 0.05, and the standardized path coefficient is 0.888, which means that tourists with environmental relationship values are not more willing to participate in environmental behavior than other tourists. This may be because although these tourists recognize the environment. It is closely related to the survival of human beings, but it is easy to turn a blind eye to the environmental problems in the public domain because of the immediate interests, emphasizing private morality over public morality.

The impact of collective culture on environmental behavior is significant at the level of 0.05, and the standardized path coefficient is 0.422, which means that tourists with collectivist values will actively implement environmental protection behaviors because they value the interests of the collective. The influence of environmental attitude on environmental behavior is significant at the level of 0.05, and the standardized path coefficient is 0.309, which indicates that tourists who have a positive attitude towards environmental issues are more willing to participate in pro-environmental behaviors.

Table 5. Test result of research hypothesis

Hypothesis	Estimate	S.E.	C.R.	t value	p-value	Result
H1EC-->EA	0.14	0.063	2.214	2.222	0.027	Accept
H2CC-->EA	0.339	0.057	5.908	5.947	0.000	Accept

H3FC-->EA	0.098	0.04	2.458	2.450	0.014	Accept
H4EC-->PEB	0.019	0.134	-0.14	0.142	0.888	Reject
H5CC-->PEB	0.422	0.123	3.418	3.431	0.000	Accept
H6EA-->PEB	0.309	0.141	2.187	2.191	0.029	Accept

### 3.2.2 Mediation effect test

In order to further test whether environmental attitudes have a mediating effect on the influence of cultural psychological factors (face culture, collective culture and environmental care) on environmental protection behaviors, this study used the Bootstrap sampling test method in AMOS 22 software to adjust the number of repeated samplings is 5000, the confidence interval is 95%, and the mediation effect of environmental attitudes is tested. The establishment of the mediating effect mainly depends on two parts. First, if the t value of the total effect is greater than 1.96, and the upper and lower limits of Bias-corrected and Percentile do not include 0, it means that the overall effect of the path is significant, but the mediating effect may exist. Otherwise, it does not exist. Secondly, it depends on whether the indicators of indirect effects and direct effects satisfy the condition that the t value is greater than 1.96, and the upper and lower limits of Bias-corrected and Percentile do not include 0. If both are satisfied, it means that there is a partial intermediary effect between the variables. If the indirect effect is not satisfied but the direct effect is satisfied, indicating that there is a complete mediating effect between variables. The test results are shown in Table 6:

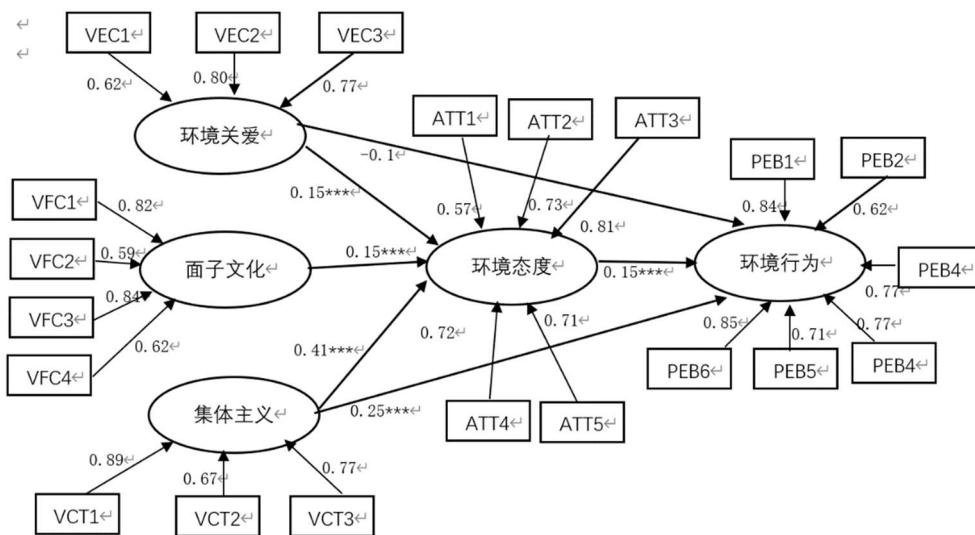
Table 6 Results of the mediation effect test

Path	effect	Bootstrapping (5000)							
		confidence interval 95%							
		Estimate		S. E	t value	Bias-corrected		Percentile	
EC-->EA-->PEB	total effect	0.013	0.710			-0.132	0.148	-0.125	0.152
	direct effect	-0.010	0.070			-0.153	0.125	-0.147	0.133
	indirect effect	0.022	0.017			0.001	0.074	-0.004	0.061
CC-->EA-->PEB	total effect	0.449	0.108			0.260	0.695	0.248	0.679
	direct effect	0.360	0.112			0.156	0.599	0.150	0.591
	indirect effect	0.089	0.045			0.017	0.200	0.011	0.190

The total effect, direct effect and indirect effect in the relationship path between environmental care and environmental behavior did not meet the standard, the t value was not greater than 1.96 (0.018, -0.143 and 1.294), and the confidence difference between Bias-corrected and Percentile

contains 0, which indicates that environmental attitudes have no mediating effect on the relationship between environmental care and pro-environmental behavior. The data show that environmental care has a direct impact on environmental attitudes, but has no indirect effect on pro-environmental behaviors, that is, environmental care cannot indirectly affect pro-environmental behaviors through environmental attitudes.

The total effect, direct effect and indirect effect of collective culture on the relationship path of pro-environmental behavior all meet the standard, the t values are all greater than 1.96 (4.157, 3.214 and 1.978), and the confidence difference in Bias-corrected and Percentile does not contain 0, indicating a partially mediated effect between collective culture and pro-environmental



behavior. Collective culture can have an indirect impact on pro-environmental behavior through environmental attitudes. The specific path is collective culture→environmental attitude→pro-environmental behaviors ( $SE=0.045$ ). The confidence difference between Bias-corrected and Percentile is (0.017, 0.200) and (0.011, 0.190). This shows that environmental attitudes play a partial mediating role in the relationship between collective culture and pro-environmental behaviors, that is, collective culture may affect pro-environmental behaviors through environmental attitudes or directly affect pro-environmental behaviors.

Figure 2 Structural equation model diagram

#### 4 Conclusions and recommendations

##### 4.1 Research conclusions and implications

Combined with the VAB theory, the research constructs an action mechanism model with pro-environmental attitude as the mediating variable, cultural and psychological factors as the independent variable, and tourists' pro-environmental behavior as the outcome variable. Conclusions and Implications:

First, in this study, the average values of environmental care, collective culture, face culture and environmental attitudes of the tourists are all higher than 3.5 points. It shows that most of the tourists agree with the importance of the environment to human beings, they will have a more positive environmental attitude when facing environmental problems, they will consider the interests of the collective, and they will also be more concerned about their own face image. The average value of tourists' pro-environmental behavior is 3.1, which reflects that most of the tourists' environmental awareness is not strong, and the environmental protection behavior needs to be improved urgently. Therefore, tourism managers should pay full attention to the lack of pro-environmental behaviors of tourists, focus on strengthening the reasonable guidance of tourists' cultural psychology, focus on cultivating tourists' pro-environmental attitudes, and implement normative strategies for pro-environmental behaviors.

Secondly, in this study, cultural psychological factors and pro-environmental attitudes and behaviors present a positive and strong influence mechanism, which is reflected in the following three aspects: First, environmental care has a direct impact on environmental attitudes, and it has an impact on the pro-environmental behavior of tourists through environmental attitudes. Therefore, it is of great significance and role to positively influence the environmental care of the tourists to enhance the environmental protection awareness and environmental behavior of the tourists. Scenic area managers can promote and strengthen the intimate relationship between man and nature through the use of television, the Internet, radio, banners, and posters. For example, at the entrance of the scenic spot and next to popular attractions, in the popular science publicity area near the viewing (fish), LCD screens are installed 24 hours to display photos and videos of friendly interaction between people and fish. In addition, interesting activities such as fish feeding and interactive activities, plant specimen-making services, and woodworking services can also be provided in the scenic area to enhance the love and compassion of the tourists of the tourist area for animals and plants, thereby encouraging the tourists of the tourist area to make pro-environmental actions that are beneficial to the scenic area.

Second, collective culture not only has a direct impact on environmental attitudes and behaviors but also indirectly affects environmental behaviors through environmental attitudes. Therefore, it is of great significance to actively enhance the collective sense of the tourists in the scenic spot to enhance the environmental protection awareness and behavior of the tourists. Managers of the scenic area can organize environmental collective activities for tourists, such as environmental knowledge quizzes, trade in old (garbage) for new (scenic souvenirs), cash in exchange, stamp collection (collecting environmental knowledge stamps from different places in the scenic area and exchanging gifts), etc. In this way, tourists are encouraged to actively participate in environmental protection activities, and an environmental protection collective atmosphere in which everyone is responsible for protecting the environment is created.

Third, face culture has a positive impact on environmental protection attitudes. Therefore, positively influencing the face awareness of the tourists in the scenic spot plays an important role in enhancing the environmental protection awareness and behavior of the tourists. Thus, the scenic

area work managers can formulate and issue relevant policies, give praise and rewards to the tourists of the tourist area who actively participate in the environmental behavior of the scenic area, and post and publicize the typical environmental protection behavior of the tourists in the conspicuous places of the scenic area, and provide free tickets and other services to tourists that perform well. At the same time, severe punishment measures are taken for the tourists that damage the environment. In addition to the traditional means of fines, criticism can be broadcast in serious cases.

Finally, this study examines the effect of tourist destination tourists' environmental attitudes on pro-environmental behaviors. Empirical evidence shows that environmental attitudes have a direct impact on pro-environmental behavior, and can also act as a mediating factor in the relationship between collective culture and pro-environmental behavior. Therefore, actively influencing the environmental attitudes of the tourists in the scenic spot plays an important role in enhancing the environmental protection awareness and behavior of the tourists. To this end, the scenic area managers have added environmental knowledge and viewing reminders to the tourist manuals of the scenic spots. In addition, some publicity activities for caring for the flower, bird and fish lake, museum exhibitions, handicraft experience, knowledge lectures, cultural day reading, etc. are added to the festivals that are popular among the tourists, such as the Osmanthus Festival, the Mid-Autumn Festival, the Hanfu Cultural Festival, and the Hangzhou West Lake Day.

## 6. Limitation

The research of this paper takes the tourists of the West Lake tourist destination in Hangzhou as the research object and explores the relationships among cultural and psychological factors (environmental care, collective culture and face culture), environmental attitudes and pro-environmental behaviors of the tourists in the tourist destination. However, because Chinese cultural and psychological factors are relatively new in the research of pro-environmental behaviors, the reference of the scale is limited, so there may be a problem of insufficient coverage. Secondly, this paper only considers the proposed model based on the VAB theoretical model from three aspects: cultural psychological factors, environmental attitude and pro-environmental behavior. In the future, more variables can be introduced from more theoretical perspectives, such as environmental background, place attachment, behavioral control, and awareness of consequences, and consider their mediating and moderating variables to enrich theories on the relationship between cultural-psychological factors and pro-environmental behaviors. Finally, this study only selected Hangzhou West Lake Scenic Spot as the research area and obtained it mainly through the self-report of a single subject. In the future, the coverage area and research time of the sample can be appropriately expanded to obtain more reasonable sample data.

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