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Cultural worldview and cultural experience in natural tourism sites

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ABSTRACT

Cultural worldview (CW) refers to people's underlying general attitudes such as basic beliefs and perceptions of a culture. The cultural experience (CE) in tourism is multi-dimensional, but little research has paid attention to the relationship between CW and CE in cultural tourism, especially with regard to nature sites. This paper explores the scales of CW and CE in the Chinese context in order to examine their relationship and compare the difference between high and low self-cultivation groups. Taking Huangshan Mountain as the study area, 253 usable questionnaire forms from 2016 to 322 usable questionnaire forms from 2017 were collected. Through exploratory factor analysis (EFA), confirmatory factor analysis (CFA), structural equation modeling (SEM) and multi-group analysis, the following results were obtained: 1) the scales of CW and CE in the Chinese context were identified; 2) the cultural linkages, cultural protection and Chinese traditional culture of nature in CW positively affected most dimensions of CE (conservation education, scientific knowledge, person-valuing and high culture); and 3) for the high self-cultivation group, the relationships between CW and CE were stronger and most of the latent mean scores were greater than those of the low self-cultivation group. This study contributes to the research in both cultural and nature tourism and social psychology, and has practical implications for destinations.

1. Introduction

Cultural experience is a process whereby tourists learn, discover, perceive and interpret related cultural information in a destination during their travels (Richards, 2002). Tourists' cultural experiences are complex (Cui, Liao, & Xu, 2017), especially regarding culture experiences in nature. Nowadays, nature is often treated from a dualist perspective as opposite from human, and therefore a scientific understanding of nature is often considered to be the universal. However, nature is socially constructed (Castree & Braun, 2001; Macnaghten & Urry, 1998), and nature has always been understood socially, culturally and even politically (Braun, 1997). In different socio-cultural contexts, nature is understood and interpreted differently, and therefore many nature sites are considered as important cultural heritage sites, such as the world heritage sites at Mountain Huangshang, Tianshan, etc. In China, nature has cultural meaning (Yu, 1998). Tourists' experiences in nature are influenced by their cultural background, and so they gaze at natural sites through a cultural lens. In fact, a natural tourism experience is a cultural experience. For instance, Chinese have a long history of visiting natural sites, which has been described as Shanshui (山水 water and mountain) by scholars and artists. Through the centuries, a huge number of Shanshui-themed poems and essays have been written, and many Chinese have learned these by heart. Therefore, when Chinese tourists visit nature destinations, their experiences are related to these interpretations of nature (Xu, Cui, Sofield, & Li, 2014).

Cultural worldview may impact tourists' cultural experience. As an extended typology of worldview, cultural worldview refers to the basic beliefs and perceptions of a culture (Choi, Papandrea, & Bennett, 2007; Matsumoto, 2006). As well, according to the confirmation bias theory, individuals tend to search for evidence to confirm their beliefs and judgments (Nickerson, 1998). Based on basic beliefs around culture, tourists will consciously seek evidence (e.g., experiences) to support their beliefs during their travels. Their beliefs (i.e., worldviews) will strongly influence their judgments of information related to culture (Jonas, Schulz-Hardt, Frey, & Thelen, 2001). Although some researchers have explored the complexity of tourists' cultural experience (Cui et al., 2017; Xu et al., 2014), much empirical research is still needed.

The first purpose of this study is to explore the underlying mechanisms of the impact of cultural worldview on cultural experience, based on the confirmation bias theory. Secondly, in order to accomplish the first purpose, the scales of cultural experience in nature and cultural worldview of tourists in the Chinese context are developed. Finally, a moderator, i.e., self-cultivation, is integrated into the theoretical model

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to help investigate whether people with higher self-cultivation may have an enhanced culture experience.

Therefore, this paper is structured as follows. First the literature related to the key concepts is reviewed in order to: 1) introduce the definition of cultural experience, concentrating on the experience in nature destinations; 2) explain how cultural worldview can influence cultural experience, with support from confirmation bias theory; and 3) demonstrate self-cultivation in the Chinese context. Secondly, the scales of cultural experience and cultural worldview are developed, and the model framework and hypotheses are proposed. Thirdly, the measurement process for the variables and the process of data collection are introduced. Immediately after that, the paper provides the results and the findings. Lastly, some discussion about the findings is provided and the conclusions are given.

2. Literature review

2.1. Cultural experience

Cultural tourism has witnessed remarkable growth around the world (Corsale & Krakover, 2019), and the United Nations World Tourism Organization (UNWTO) has set an important goal to strengthen the synergies between tourism and culture and advance the contribution of cultural tourism to its 2030 agenda for sustainable development (UNWTO, 2018). Reisinger (1994) defined cultural tourism as a form of special interest and experiential tourism based on the search for participation in new and deep cultural experiences of an aesthetic, intellectual, emotional or psychological nature. As well, the field of cultural tourism has shifted its focus from the previous emphasis on traditional “tangible heritage” to a much broader and inclusive field of diverse cultural practices (Richards, 2018). According to Stebbins (1996), cultural tourists’ main motivation is to obtain knowledge about a region, and art, music, traditions and history are the main components of culture in a destination. But for McKercher (2002), cultural tourists are those who visit or participate in any cultural attraction or event during their stay, regardless of the main motivation for their trip. In this paper, the definition of cultural experience given by Richards (2002) as a process where tourists learn, discover, perceive and interpret the related cultural information in a destination is adopted.

However, although general tourism experience models have been developed, current studies have not sufficiently examined cultural experience (Cetin & Bilgihan, 2016). Specifically, while studies on cultural experience in nature are limited, they do point out some important issues. For example, tourists traveling at Huangshan Mountain may experience high culture, popular culture and scientific knowledge, i.e., a modern culture of nature introduced from Western countries (Cui et al., 2017). As well, person-valuing (Yu, 2012; Zhang, Tang, Shi, Liu, & Wang, 2008) is an important traditional cultural feature in nature destination for Chinese. When Chinese tourists visit nature attractions, they want to choose sites that are related to famous historical people, such as national heroes, emperors, or poets. They want to feel the experiences of these important people. With globalization and modernization, conservation education (Martini, Buffa, & Notaro, 2017) became a new culture of humans and nature (Lu,Yin, Xu, Ding, & Qian, 1998). Overall, tourism experiences in nature destinations not only connect to local and traditional cultural contexts, but are influenced by the modern culture of ecological conservation. However, up to now there has been no measurement scale for the cultural experience of nature, and no studies have been done on the antecedents of that sort of cultural experience.

Since cultural experiences are based on learning, discovering, perceiving and interpreting the related cultural information, the information-processing involved is affected by tourists’ initial beliefs (Jonas et al., 2001). Thus, cultural worldview can be an important factor influencing cultural experience.

2.2. Cultural worldview and Cultural experience

Arndt, Greenberg, Solomon, Pyszczynski, and Simon (1997) indicated that individualized versions of cultural worldview which imbue the world with meaning, order, and permanence provide standards for valued behavior, and promise either literal or symbolic immortality to those who meet or exceed the notions of value. According to this understanding, a cultural worldview is an underlying conception giving us a direction for thought and behavior. However, the definition has a weak relationship with culture. Choi et al. (2007) developed this concept further through rigorous scale development and empirical research, and their study connected cultural worldview to people's underlying general attitudes, such as basic beliefs and perceptions of perceived culture.

Confirmation bias theory provides a theoretical basis to understand the influence of cultural worldview on cultural experience. Confirmation bias theory suggests that people have a preference to search for information which conforms with or supports their beliefs (Jonas et al., 2001), and confirmation bias theory has been widely used to explain the observed systematic inclinations in peoples' judgment- and decision-making processes. Thus, once people form a belief or idea, they will consciously seek evidence to support it or to help to prove their beliefs, sometimes even artificially distorting new evidence. People's beliefs will strongly influence their judgment through the priming effect and belief perseverance prejudice. The priming effect suggests that what we do or think is primed by events in our memory, even when we do not realize it (Bargh, 2006), while belief perseverance can make people become obsessed with a belief they have held, and they try to find reasons for this belief, even when the basis of the belief is incorrect (Anderson, Lepper, & Ross, 1980).

According to confirmation bias theory, individual's cultural worldview, as a kind of cultural belief, may lead to pre-judgments and pre-hypothesizing regarding cultural elements, which will ultimately affect a tourist's cultural experience. Specifically, under the influence of the priming effect and belief perseverance prejudice (Anderson et al., 1980; Bargh, 2006; Chi, Ouyang, & Xu, 2018), tourists seek cultural information that meets their judgments and interpretations, and during this process, tourists' cultural worldviews may shape their cultural experience.

2.3. Self-cultivation in the Chinese context

Regarding cultural experience in Chinese context, self-cultivation is an essential concept. Self-cultivation means improving one's mind and nurturing one's character through a particular art or philosophy (Hwang & Chang, 2009). The term for self-cultivation in Mandarin is *xiu yang* (修养), an abbreviation of *xiu xin yang xing* (修心养性), where an individual's self-cultivation is built through accumulating knowledge of the Chinese traditional culture of nature, which includes philosophy and religion (such as Confucianism, Taoism, and Buddhism), history, literary heritage, poetry, art, calligraphy, famous persons, places and sites, and activities and festivals (Li, 2008; Xu, Ding, & Packer, 2008). As well, self-cultivation plays an important role in the education of Chinese adolescents. It regulates their selves, families and community (Wu & Devine, 2018).

3. Research model and hypothesis development

3.1. Cultural experience (CE) scale

Many studies on the cultural tourism in China have pointed out some important features of the Chinese cultural experience of nature (Cui et al., 2017; Xu et al., 2014; Yu, 2012), but the scales of CE are limited. Based on previous literatures (Cui et al., 2017; Xu et al., 2014; Yu, 2012), we developed a CE scale with four dimensions (person-valuing, high culture, scientific knowledge and conservation education)

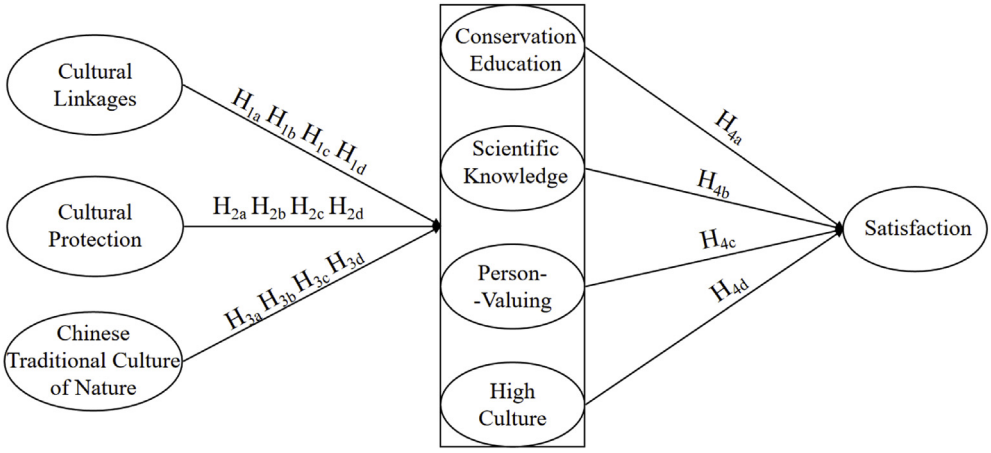

Fig. 1. Conceptual framework for CW, CE, and satisfaction.

which is suitable for Chinese culture context.

Person-valuing is an important feature of Chinese cultural tourism (Yu, 2012). As a civilization with a long history, many nature sites in the central part of China have been inhabited or visited by famous people, or are associated with historical events or legends (Zhang et al., 2008). These stories are well known by Chinese people, and whether a destination has a cultural value depends on the relationship between the destination and someone who is famous (Yu, 2012). Person-valuing has therefore been vital for Chinese attractions throughout history. As well, places may serve in the same role, and Huangshan Mountain is a typical example (Li, 2008).

The depth of cultural experience is a key to determine cultural tourism (McKercher, 2002). Poems, paintings, essays and calligraphy reflect a spiritual linkage and experience for natural attractions (Kuang, 2007). And Cui et al. (2017)'s study shows that experiencing poems, landscape paintings and cliff inscriptions at destinations can bring a deep experience of the cultural heritage in nature sites. In their study, they regarded these types of culture as high culture. Similar findings have been obtained in other studies. Yu and Xu (2016, 2019) find that ancient poetic elements have constituted an essential part of cultural tourists' experience, especially in the aesthetic and moral experience of nature.

Scientific knowledge is an essential part of the tourism experience at a heritage site. The scientific interpretation of nature for many developing countries, including China, is a recent phenomenon and has spread worldwide with globalization. Scientific knowledge, as a standard subject taught in formal educational institutions, becomes a standard interpretation tool for natural attractions (Cater, 2006; Weaver & Lawton, 2007). Interpretation signs and narratives such as morphological characteristics, growth habits, and structure have been developed for rocks, trees, flowers and wild animals (Cui et al., 2017; Xu, Cui, Ballantyne, & Packer, 2013), and tourists expect to learn scientific knowledge while they are touring nature sites.

Conservation education is an important function for most heritage sites. Conservation is a kind of cultural understanding of the relationship between nature and human beings. And modernly, conservation education is an important service delivered by the management committees of nature sites, and education has been indicated as one of the dimensions of experience (Han, 2006; Kim, Youn, Um, & Lee, 2015). Martini et al. (2017) confirmed that the conservation and valuation of natural resources can be obtained through environmental interpretation and education. Learning the importance of conserving the wonderful value of a heritage site is an integral cultural experience on tourists' trips.

3.2. Cultural worldview (CW) scale

Choi et al. (2007) developed the CW scale with four dimensions: (1) cultural linkages, (2) recognition of cultural values, (3) cultural loss, and (4) preservation of traditions and customs. Cultural linkages include inter-community and inter-generational linkages, which refers to how cultural heritage is close to both our own and future generations, and helps people to understand each other in the same or similar cultural contexts. Recognition of cultural values means the extent to which we learn, care about and enjoy our cultural heritage, and that people should realize that cultural heritages need to be preserved. Cultural loss represents the ability of people to perceive the disappearance of a cultural heritage and traditional customs, while preservation of traditions and customs means the willingness of people to preserve or protect their traditional customs and lifestyles.

However, to be suitable in the Chinese cultural context, the CW scale needs to be modified. Firstly, we deleted the variable "recognition of cultural values" and added another construct, "Chinese traditional culture of nature" (CTCN). Importantly, the harmony between humans and nature (i.e., 天人合一) must be paid attention to when focusing on the cultural worldview of Chinese tourists (Cui, Xu, & Wall, 2012; Xu et al., 2008). For Chinese traditional culture, humans do not exist independently away from nature. There are abundant spiritual sustenance and symbol in nature.

Additionally, when it comes to "cultural loss" (CL) and "preservation of traditions and customs" (PTC), the two dimensions have been merged as a new variable "Cultural Protection" (CP). Huangshan Mountain has always been considered as a cultural and natural dual heritage site, and many cultural carriers exist there in natural forms, such as the rocks, stones, cliff carvings, and even some animals and plants (Cui et al., 2017). Therefore, the tangible and valuable heritage factors at Huangshan require more protection and preservation than the intangible traditions and customs.

In short, through discussion and appropriate modifications for Chinese situations, the CW scale includes three dimensions: (1) Cultural linkages, (2) Cultural protection, and (3) Chinese traditional culture of nature.

3.3. Hypotheses and framework

Fig. 1 shows the conceptual framework that includes the 3 dimensions of CW, 4 dimensions of CE, and satisfaction. Based on the confirmation bias theory, CW will have a positive impact on CE, and in view of the specific dimensions of the CW and CE scales, the following hypotheses are put forward:

Hypothesis 1. The cultural linkages in CW have a positive impact on

Table 1
Demographic information of the participants.

	Year 2016		Year 2017			
Variables			Lower		Higher	
Items	**Frequency**	**%**	**Frequency**	**%**	**Frequency**	**%**
Gender						
Male	181	56.2	93	61.2	88	52.1
Female	141	43.8	59	38.8	81	47.9
Age						
Younger than 15 yrs.	19	5.9	11	7.2	8	4.7
15–24 yrs.	171	53.1	92	60.5	79	46.7
25–44 yrs.	104	32.3	42	27.6	62	36.7
45–64 yrs.	28	8.7	7	4.6	20	11.8
Education						
Junior school or lower	29	9.0	13	8.6	16	9.5
High school	61	18.9	32	21.1	29	17.2
Junior college	49	15.2	21	13.8	28	16.6
Bachelor's degree	153	47.5	73	48.0	80	47.3
Master's degree or above	30	9.3	13	8.6	16	9.5
Monthly income (RMB)						
Less than 1001	119	37.0	60	39.5	59	35.1
1001-2000	33	10.2	21	13.8	12	7.1
2001-3000	30	9.3	9	5.9	21	12.5
3001-5000	49	15.2	21	13.8	28	16.7
5001-10000	60	18.6	25	16.4	35	20.8
More than 10000	31	9.6	16	10.5	13	7.7
Occupation						
Civil servant	11	3.4	9	5.9	2	1.2
Enterprise staff	72	22.4	32	21.1	40	24.0
Farmer/worker	23	7.1	5	3.3	12	7.2
Private business owner	17	5.3	9	5.9	8	4.8
Institutional staff	41	12.7	13	8.6	28	16.8
Student	143	44.4	79	52.0	64	38.3
Retired	2	0.6	2	1.3	2	1.2
Others	19	5.9	2	1.3	11	6.6

Note: All percentages were rounded up to the nearest decimal point. Therefore, the percentage may not add up to 100.0 because of rounding errors.

conservation education in CE (H1a), scientific knowledge in CE (H1b), person-valuing in CE (H1c), high culture in CE(H1d).

Hypothesis 2. Cultural protection in CW has a positive impact on conservation education in CE (H2a), scientific knowledge in CE (H2b), person-valuing in CE (H2c), high culture in CE (H2d).

Hypothesis 3. Chinese traditional culture of nature in CW has a positive impact on conservation education in CE (H3a), scientific knowledge in CE (H3b), person-valuing in CE (H3c), high culture in CE (H3d).

For cultural tourists, “high-quality cultural experience” usually means high satisfaction. From the tourism perspective, satisfaction refers to a tourist's feeling of gratification when their experience exceeds their prior expectations (Chen & Chen, 2010). For destinations, satisfaction is seen as a utilitarian value that meets the basic needs of the social or physical characteristics of its services (Stedman, 2002), and because of the strong relationship between customer satisfaction and loyalty, destination managers must pay attention to maximizing tourists' satisfaction (Yuksel, Yuksel, & Yasin, 2010). As far as cultural tourism is concerned, a high-quality cultural experience satisfies the motivations of tourists and has a positive impact on their satisfaction. As satisfaction is a subjective assessment when tourists finish their trips to Huangshan, it is reasonable to believe that CE will have a positive impact on satisfaction. Specifically, the following hypothesis are put forward:

Hypothesis 4. Satisfaction correlates positively with conservation education in CE (H_{4a}), scientific knowledge in CE (H_{4b}), person-valuing in CE (H_{4c}), high culture in CE (H_{4d}).

In addition, self-cultivation is a moderator between CW and CE, and tourists among high and low self-cultivation groups may have different cultural worldview, cultural experience and satisfaction. By ‘improving hearts’, ‘being sincere in thoughts’ and ‘extending knowledge’, people always have a preference for cultural learning to ‘make themselves better’ (Wu & Devine, 2018). In this sense, people who pay attention to self-cultivation are more likely to be fond of culture.

According to confirmation bias theory, people with higher self-cultivation will have a stronger motivation to seek information about culture, and specifically, those who have received systematic cultural training and learning will be more likely to have experience in science and high culture (Wu & Devine, 2018). Additionally, compared with people with lower self-cultivation, they may have a stronger cultural worldview, a deeper cultural experience and a more satisfactory trip (Hypothesis s1 in the Supplementary document). In short, self-cultivation can be seen a moderator between cultural worldview and cultural experience. So, the following hypotheses are put forward:

Hypothesis 5. The impact of cultural linkages (H_{5a}), cultural protection (H_{5b}), Chinese traditional culture of nature (H_{5c}) on scientific knowledge is greater when tourists' self-cultivation is higher.

Hypothesis 6. The impact of cultural linkages (H_{6a}), cultural protection (H_{6b}), Chinese traditional culture of nature (H_{6c}) on high culture is greater when tourists' self-cultivation is higher.

4. Methodology

4.1. The context of study area

This study was conducted in Huangshan Mountain scenic area, which is located in Huangshan city in southern Anhui province. It was designated as a world heritage site in 1990, and has received the dual title of World Natural and Cultural Heritage site (UNESCO World Heritage Center, 2012). To be specific, Huangshan Mountain first demonstrates an important intersection of human values in nature sites over a long historical period; second, it has unique natural beauty and aesthetic importance; and third, it is an important natural habitat for in situ conservation of biological diversity (Xu, 2015). Nowadays, Huangshan Mountain is a famous destination in China which attracts thousands of tourists every year and provides diverse and multi-dimensional cultural experiences for tourists.

4.2. Measurement

The items of CE are showed in Table 2 while the items of CW are showed in Table 3. All these items were rated on a 5-point Likert scale in which 1 represented “I do not agree at all” and 5 represented “I agree very much”.

The items in cultural linkages (CL) dimension of CW scale were adapted from Chio et al. (2007). The items in Chinese traditional culture of nature (CTCN) dimension and cultural protection (CP) dimension were adapted from Xu et al.’s (2008) and Cui et al. (2017)'s research. .

From Cui et al. (2017), we developed three dimensions to measure the cultural experience of Huangshan Mountain: high culture (HC), scientific knowledge (SK) and person-valuing (PV). And the conservation education (CSE) of CE scale was measured by three items adapted from Kim et al. (2015). Self-cultivation (SC) includes 6 items were adapted from Li (2008) and Cui et al. (2017). And satisfaction is measured by a scale developed by Chen and Chen (2010).

Table 2
Results for the CW scale in exploratory factor analysis during the pre-test.

Factors	Factors loading	% of variance
Cultural Linkages (Cronbach's alpha = 0.900)		29.557
CL1 Landscape culture is a unique culture in China	0.714	
CL2 The present cultural heritage should be available for my children's children	0.849	
CL3 Future generations have the right to enjoy the present cultural heritage	0.846	
CL4 Culture helps us to live with people of different backgrounds	0.800	
Chinese Traditional Culture of nature (Cronbach's alpha = 0.886)		26.029
CTCN1 Nature and culture are inseparable	0.639	
CTCN2 We need to live in harmony with nature	0.765	
CTCN3 We know ourselves better through nature	0.814	
CTCN4 We should inherit the traditional view of the unity of human and nature	0.835	
Cultural Protection (Cronbach's alpha = 0.884)		22.973
CP1 I take good care of the architecture and environment of Huangshan during the tour	0.803	
CP2 I will promote the ideas of cultural protection to others	0.853	
CP3 I will abide by the management measures to protect the cultural landscape	0.813	

Note: Kaiser-Meyer-Olkin = 0.902; Bartlett's Test of Sphericity = 0.000 (χ^2 = 2710.872, df = 55); the analyses followed the principle component method with varimax rotation.

4.3. Data collection procedure

After the original questionnaire was designed, several experts helped to check the correctness and clarity of the item expressions. The corrected and clarified measurement items could be easily understood by the research participants. To refine the content validity of the measurement scale, a pre-test was conducted before the formal data collection. Data were collected in the entrance of Huangshan scenic area and Tangkou villiage which is the main area tourist may stay near Huangshan scenic area. There is a screening question to identify the respondents by asking them if you have climbed the Huangshan Mountain. Random sampling method is used to enhance the sample's representation (Levy & Lemeshow, 2013). The sampling process includes the following steps. Firstly, the duration of the questionnaire distribution time is one week (in year 2016 is 6 days, including 4 working days and 2 weekend days; in year 2016 is a whole week) and is randomly selected from the eight weeks in summer vocation. Then, there are two main exits of Huangshan scenic area, each exit have three rest areas. Everyday one rest area of each exit was randomly selected as the questionnaire distribution place. The number of questionnaire investigator in each entrance is depended on the visitor flows in each entrance. The number of questionnaire distributed per day (about 50 copies) is equal to the total number we need divided by the duration of the questionnaire distribution time. 300 questionnaires were distributed to tourists in Huangshan scenic area by during June 27th to July 1st, 2016, and 253 usable copies were collected (84.3%). Through exploratory factor analysis (EFA) of the constructs during the pre-test, items that may lead to large measurement errors were deleted. In the procedure of formal data collection by 12 trained students during July 6th to 13th 2017, the researchers distributed 350 questionnaires in total, and 322 usable copies were received (92%).

5. Results

5.1. Demographic profile of respondents

Among all the participants, the number of females was less than that of males (Table 1). There were more young participants (less than 25 years old) than older ones, accounting for more than half. Under the occupation column, the number of students (44.4%) can be seen as accounting for nearly half of the total. In addition, most people had college educations. As for monthly income, many people had lower monthly income (less than 1001 RMB) levels (It was related to the large number of students). In contrast, high-income people accounted for a relatively low proportion (9.6%).

5.2. Measurement model

The EFA was conducted using the SPSS 24.0. The results are shown in Tables 2 and 3. In the CW scale, the study found three factors, which

Table 3
Results for the CE scale in exploratory factor analysis during the pre-test.

Factors	Factors loading	% of variance	Reliability coefficient
Conservation education		21.342	0.857
CSE1 Huangshan has taught me about sustainable tourism	0.823		
CSE2 I will pay more attention to the ecological environment after the tour	0.855		
CSE3 I will pay more attention to traditional cultural heritage after the tour	0.850		
High culture		20.147	0.804
HC1 I can tell the complex characters on the cliff	0.808		
HC2 I can appreciate the calligraphy style on the cliff	0.871		
HC3 I had the idea of creating landscape literature and art works after this trip	0.783		
Person-Valuing		18.495	0.765
PV1 I think there's a big difference between a natural attraction with these celebrity stories	0.766		
PV2 Adding celebrity stories while interpreting on attractions will increase my satisfaction	0.829		
PV3 I hope the guide can explain the natural landscape of “strange stone” and “strange pine” through stories and legends	0.749		
Scientific Knowledge		16.362	0.802
SK1 I will take the initiative to understand the formation of Huangshan rocks, rock structure, age and other scientific knowledge	0.891		
SK2 I will take the initiative of the morphological characteristics and growth habits of Huangshan pine	0.900		

Note: Kaiser-Meyer-Olkin = 0.786; Bartlett's Test of Sphericity = 0.000 (χ^2 = 1582.784, df = 55); the analyses followed the principle component method with varimax rotation.

Table 4
Results for the CW scale items in the confirmatory factor analysis.

Latent variables and items	Standardized factor loading	Standard deviation	AVE	CR	Cronbach's alpha
Cultural Linkages			0.798	0.922	0.922
CL2	0.905	0.714			
CL3	0.915	0.735			
CL4	0.859	0.734			
Cultural Protection			0.731	0.890	0.884
CP1	0.821	0.738			
CP2	0.793	0.826			
CP3	0.943	0.706			
Chinese Traditional Culture of nature			0.713	0.881	0.873
CTCN2	0.861	0.715			
CTCN3	0.912	0.752			
CTCN4	0.752	0.842			

cumulatively explained the variance of 78.559% in the original data. The reliability coefficient ranged from 0.884 to 0.900, both KMO and the Spherical test were in line with the basic requirements for factor analysis. In the CE scale, the study found four factors, which cumulatively explained the variance of 76.347% in the original data. The reliability coefficient ranged from 0.765 to 0.857, both KMO and the Spherical test were in line with the basic requirements of factor analysis.

After the EFA, the items with lower factor-loading were deleted in order to conduct the CFA and verify the structural model. Mplus 7.4 software was used to conduct CFA. The fit indices of the CW scale and the CE scale were all good (CW: $\chi^2/(24) = 1.754$, the comparative fit index (CFI) = 0.988, Tucker-Lewis index (TLI) = 0.982, The Root Mean Square Error of Approximation (RMSEA) = 0.048; CE: $\chi^2/(38) = 1.723$, CFI = 0.976, TLI = 0.965, RMSEA = 0.048). Meanwhile, the Cronbach's alpha values (CW: 0.873–0.922; CE: 0.765–0.857) for all the measurements indicated an acceptable internal consistency across the items (Tables 4 and 5). Additionally, the composite reliability (CR) estimates are all high (CW: 0.881–0.922; CE: 0.774–0.860), and the average variance extracted (AVE) of all the constructs were greater than 0.5. Furthermore, all factor loadings for the individual items were found to be significant (> 0.7)(except PV1 = 0.623; PV3 = 0.682 and HC3 = 0.693 in CE scale) (Anderson & Gerbing, 1988). The internal convergent validity of the variable satisfaction was tested (AVE = 0.591, CR = 0.811, Cronbach's alpha = 0.795).

Table 5
Results for the CE scale items in the confirmatory factor analysis.

Latent variables and items	Standardized factor loading	Standard deviation	AVE	CR	Cronbach's alpha value
Conservation education			0.673	0.860	0.857
CSE1	0.768	0.767			
CSE2	0.860	0.731			
CSE3	0.830	0.803			
Scientific Knowledge			0.674	0.804	0.802
SK1	0.776	1.006			
SK2	0.863	0.967			
Person-Valuing			0.561	0.789	0.765
PV1	0.623	0.990			
PV2	0.911	0.910			
PV3	0.682	0.881			
High culture			0.591	0.812	0.804
HC1	0.774	0.968			
HC2	0.833	0.938			
HC3	0.693	0.988			

5.3. Hypotheses testing

Through k-means clustering algorithm, which is a typical clustering method in tourist segmentation research (Formica & Uysal, 1998; Park & Yoon, 2009; Sung, Chang, & Sung, 2016), the tourists were divided into two groups: low self-cultivation (152 samples) and high self-cultivation (170 samples). Their demographic charecters was showed in Table 1. The maximum likelihood method was used to estimate the overall structural model. The goodness-of-fit indices, $\chi^2/(211)$ was 2.211, RMSEA was 0.061, CFI was 0.927 and TLI was 0.912, suggesting the proposed structure model was good fitted. Consequently, the standardized path coefficients between the exogenous and endogenous variables were tested (Fig. 2). It was found that:

1) Cultural Linkages had positive effects on Conservation Education ($\beta = 0.303$, $p < 0.01$; therefore, H_{1a} is supported) and Person-Valuing ($\beta = 0.317$, $p = 0.01$; therefore, H_{1c} is supported).
2) Cultural Protection had positive effects on Conservation Education ($\beta = 0.353$, $p < 0.01$; therefore, H_{2a} is supported), Scientific knowledge ($\beta = 0.483$, $p < 0.01$; therefore, H_{2b} is supported), Person-Valuing ($\beta = 0.343$, $p < 0.01$; therefore, H_{2c} is supported) and High Culture ($\beta = 0.374$, $p < 0.01$; therefore, H_{2d} is supported).
3) Chinese Traditional Culture of nature had significant positive effects on Scientific knowledge ($\beta = 0.261$, $p < 0.01$; therefore, H_{3b} is supported.) and High Culture ($\beta = 0.232$, $p < 0.01$; therefore, H_{3d} is supported).
4) Conservation Education ($\beta = 0.540$, $p < 0.01$; therefore, H_{4a} is supported) and High Culture ($\beta = 0.124$, $p < 0.01$; therefore, H_{4d} is supported) had significantly positive effects on Satisfaction.

For the moderating effect of self-cultivation, based on K-means cluster analysis, the samples were divided into two groups (lower self-cultivation vs. Higher self-cultivation). The basic premise of the moderating effect is that responses to the relationship between tourists' worldview and their culture experience depend on their self-cultivation. $H_{5a\text{-}c}$ and $H_{6a\text{-}c}$ were tested by comparative analysis of the path differences using SEM analysis, and the results are shown in Table 6.

It is worth mentioning that H_{1b} and H_{1d} were not supported by the overall model, so it was unnecessary to analyze the differences in the relationship between the cultural linkages and scientific knowledge among the two groups. In the relationship between cultural protection and scientific knowledge, the high self-cultivation group was stronger than the low self-cultivation group ($\Delta\chi2 = 7.212$, $p < 0.01$) (H_{5b}), and a significant difference was detected between the low and high self-cultivation samples in the relationship between Chinese traditional culture of nature and scientific knowledge ($\Delta\chi2 = 10.612$, $p < 0.01$) (H_{5c}). For the low and high self-cultivation groups, a significant difference regarding the positive relationship between cultural protection and high culture was detected ($\Delta\chi2 = 8.343$, $p < 0.01$) (H_{6b}). There was a significant difference between the low and high self-cultivation samples in the positive relationship between Chinese traditional culture of nature and high culture ($\Delta\chi2 = 12.021$, $p < 0.01$) (H_{6c}).

6. Discussion

There has been a lot of discussion about cultural tourism (Chen & Huang, 2018; McKercher, 2002; Vong, 2016), but it has been insufficient for the discussion of CE, and a clear measurement scale has been lacking, particularly in the cultural experience of nature. This paper developed a four dimensions CE scale to mearsure nature in Chinese context: person-valuing, high culture, scientific knowledge and conservation education. As noted in previous studies, conservation education and gaining knowledge remain a part of CE in cultural tourism around the globe (Martini et al., 2017; Richards, 2018; Weaver & Lawton, 2007), but it is worth mentioning that person-valuing and

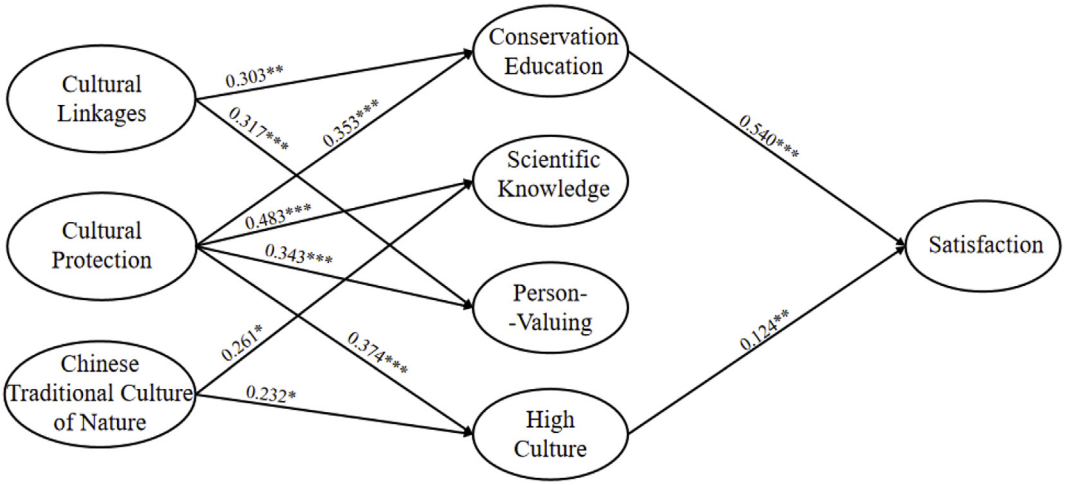

Fig. 2. Structural model of CW-CE-Satisfaction. Note: *p < 0.05, **p < 0.01, ***p < 0.001.

high culture play important roles in Chinese cultural tourism. Many tourists are more enthusiastic towards person-valuing than about any other factor of a tourist destination (Yu, 2012; Zhang et al., 2008). In addition, high culture at Huangshan Mountain is experienced by some tourists, and enjoying and learning high culture and obtaining the same feelings and experiences as their respected ancestors are meaningful for tourists.

As for the influence of CW on CE, several findings need to be discussed. First, the results of the data analysis revealed that cultural linkages in CW had a positive effect on conservation education and person-valuing in CE. Cultural linkages referred to the connections between humans and nature sites with a cultural heritage. Castree and Braun (2001) pointed out that natural areas are all to some extent related to human beings, and have meaningful cultural attributes. Humans usef them to convey certain values related to some person. In history, these cultural attributes provided spiritual sustenance for Chinese society, and in modern times, the cultural facilities and infrastructure can educate the public about the scientific values of nature (Mu, Nepal, & Lai, 2019). Cultural experience in a natural tourism destination is a product of culture (Kaaristo, 2019).

Secondly, the effects of the Chinese traditional culture of nature on scientific knowledge and high culture in CE are significant. When it comes to the connection between man and nature, we have to mention the special Chinese view of nature. In China, ancient philosophical thoughts about man and nature pay attention to the *tian ren he yi* (天人合一), meaning that humans and nature are united as one. This mixture of nature and humans is considered to be necessary to reach harmony (Ye & Xue, 2008). However, not all Chinese have such a view of nature. Those who hold a strong view that nature and humans are integral tend to have interests in understanding nature and gaining scientific knowledge from it. This cultural worldview of nature induces them to appreciate the poetry and cliff calligraphy which are often expressions of the spiritual linkages between humans and nature in Chinese culture.

Cultural Protection had a positive effect on all the dimensions of CE. When people pay more attention to the protection and preservation of cultural heritage, they concentrate on the cultural connotations contained in that heritage (Choi et al., 2007). In the case of China, they tend to associate their visits with famous people and poems. In addition, tourists with a cultural protection worldview are aware of the loss of cultural heritages due to poor conservation as well as the loss of knowledge and interest among some tourists due to the popularity of the consumption and entertainment culture. They therefore tend to support and take notice of the conservation education at tourism sites. The cultural protection view reflects a new way of thinking about tradition and modernity in modern China, and thus, tourists with a cultural protection view tend to have the capacity to appreciate scientific interpretations of nature.

As well, we found a positive effect from conservation education and high culture in CE on overall satisfaction. Actually, in tourism practice, as a famous natural and cultural heritage site in China, Huangshan Mountain cannot provide many infrastructure and entertainment facilities, and the tourist products it provides are conservation education, natural education and the interpretation of cultural heritage (Xu, 2015). Therefore, when tourists have a good experience with these products at nature sites, their satisfaction level will be high.

Lastly, it was found that high self-cultivation group will have a stronger cultural experience than the lower. Based on the confirmation bias theory (Jonas et al., 2001), where people with high cultural literacy often have a strong sense of culture and respect knowledge and education. Under the guidance of this belief, tourists will appreciate and explore the interpretations of the cliffs, rocks and plants, and they will have a stronger perception of Huangshan's cultural information, more accurate interpretations, and more accurate scientific judgments.

Table 6
Path coefficient comparison.

Path	Δχ2(Δdf)	p	Low self-cultivation		High self-cultivation		Hypothesis Testing
			Path Coefficient	p	Path Coefficient	p	
CL→SK	–	–	–	–	–	–	H1b Not supported
CP→SK	7.212(1)	0.007	0.335	0.002	0.762	0.003	H8b supported
CTCN→SK	10.612(1)	0.001	0.552	0.000	0.867	0.000	H8c supported
CL→HC	–	–	–	–	–	–	H1d Not supported
CP→HC	8.343(1)	0.004	0.368	0.000	0.745	0.000	H9b supported
CTCN→HC	12.021(1)	0.000	0.502	0.000	0.883	0.014	H9c supported

7. Conclusion

This study firstly develop a scale to measure the cultural experience of nature in the Chinese context and examine the relationship between cultural worldview and cultural experience. Cultural worldview has a significant positive influence on cultural experience, and that self-cultivation plays an moderating role in this relationship.

The study makes a few contributions. The relationship between cultural worldview and cultural experience found in this study contributes to the fields of social psychology and cultural tourism. With regard to underlying general attitudes such as basic beliefs and perceptions of a perceived culture (Choi et al., 2007), cultural worldview influences the process where tourists learn, discover, perceive and interpret related cultural information (i.e., cultural experience) (Richards, 2002). People's original beliefs and judgments about the external world and their later perceptions and behaviors can theoretically be chained into a logical line, supported by confirmation bias theory (Jonas et al., 2001), and the findings confirm this linkage. There are diverse cultural beliefs among tourists, and therefore differences in perceptions, interpretations and judgments about cultural heritage are observed, and tourists intentionally seek cultural information that meets their original beliefs.

This study has taken the unique traditional Chinese culture of nature into consideration when developing the scales for CW and CE, and this has helped us understand the different cultural meanings of nature. In modern society, nature is often now treated as assemblies of physical and biological elements, and an objective, scientific approach is used when considering the universal relationship with nature. Thus, the experience of visiting nature often focuses on both scientific knowledge and the wilderness, but diverse perspectives on nature and its social-cultural dimensions are not well acknowledged in nature experiences. In China, nature and humans are integral to each other, and harmony can only be reached when humans and nature are together, as the idea '*tian ren he yi*' in China (Ye & Xue, 2008). So, this study contributes to shifting the study of experiences in nature-based tourism from material existence (i.e., ontology) to questions of epistemology (Demeritt, 1998).

The findings have implications for the sustainable development of cultural heritage tourist destinations. First, the cultural attributes of tourist destinations should not be ignored, and managers should focus on exploring their connotations and providing cultural products. A natural landscape lacking the essence of culture is soulless, but it can be invigorated to carry forward its cultural heritage. Second, there is a need to improve the interpretation effectiveness of conservation ideas, scientific knowledge of the natural and cultural heritage, since good experiences from these interpretations can lead to tourist satisfaction. Finally, attention should be paid to the cultural cultivation of tourists. In this way, the utility of products and services at cultural heritage sites can be maximized, and tourists can obtain deeper cultural experiences and higher satisfaction.

Lastly, there are several limitations in this study. First, the study was conducted at Huangshan Mountain, and as Huangshan Mountain scenic area has its own unique cultural and natural landscape, tourists' mechanisms of processing Huangshan's cultural context cannot be fully replicated at other tourist destinations, and therefore future research should focus on different cultural contexts. Second, this study only focuses on the effects of cultural worldview, but ignores that tourists' experiences are complex. Based on the confirmation bias theory, there are more factors that may impact tourists' experiences, and in future, research should treat tourists' experiences as a complex system in order to identify other influential factors. Third, this research only compare the two groups with higher-lower self-cultivation, but tourists may vary. Future research will fill these gaps.

Declaration of competing interest

The authors declared that they have no conflicts of interest to this work.

We declare that we do not have any commercial or associative interest that represents a conflict of interest in connection with the work submitted.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jhtm.2020.04.011.

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