

Article

The Influence of Visitors' Recreation Experience and Environmental Attitude on Environmentally Responsible Behavior: A Case Study of an Urban Forest Park, China

Lisheng Weng ¹, Yijin Zhu ¹, Xiangting Xu ¹, Jiayi Yang ², Shuhui Zheng ¹, Huifang Liu ^{3,4}, Hairong Wang ⁵ and Liqun Zhu ^{1,*}

¹ College of Humanities & Social Development, Nanjing Agricultural University, Nanjing 210095, China

² College of Economics and Management, Nanjing Agricultural University, Nanjing 210095, China

³ College of Business Administration, Xinjiang University of Science & Technology, Korla 841000, China

⁴ School of Management, Shandong University, Jinan 250099, China

⁵ Headquarter of NAU New Campus Construction, Nanjing Agricultural University, Nanjing 210095, China

* Correspondence: zhulq@njau.edu.cn

Abstract: Nature-based tourism destinations such as national forest parks have become important places for outdoor recreation. This study empirically investigates the structural relationships among the four subdivided dimensions of recreation experience (education, aesthetics, entertainment, and escapism), environmental attitude, and environmentally responsible behavior. In addition, the mediating effect of environmental attitude and the moderating effect of gender are also examined. A field survey was conducted in an urban forest park to collect data, and 468 usable questionnaires were collected. Results indicate that, in addition to the educational experience, the entertainment experience, aesthetic experience, and escape experience have significant positive impacts on visitors' environmental attitudes and environmentally responsible behavior. In addition, environmental attitude partially mediates the relationship between recreation experience and environmentally responsible behavior. The results of moderating effect analysis demonstrate that men and women have differences in terms of recreation experience and environmental attitude. Theoretical and practical implications are discussed, and nature-based tourism destinations are encouraged to emphasize the four subdivided dimensions of recreation experience, especially the educational experience.

Keywords: recreation experience; environmental attitude; environmentally responsible behavior; nature-based tourism; national forest park



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1. Introduction

The global outbreak of COVID-19 at the end of 2019 has had a great impact on people's travel [1–5]. The instability brought about by the pandemic has made people more inclined to choose natural places with less population density around cities [6,7]. In this context, nature-based tourism destinations such as urban forest parks have become important places for outdoor recreation experiences for tourists and urban residents [6,8]. Urban forest parks are of great help and high significance in reducing psychological stress and improving quality of life and health status for tourists and urban residents [9–11].

The recreation experience of tourists in natural destinations (e.g., urban forest parks) is one of the important fields in tourism research [12]. Some researchers suggested that outdoor recreation experience plays a significant educational role in changing tourists' attitudes towards the environment and facilitating tourists' environmentally responsible behavior (ERB) in the context of nature-based tourism [12,13]. Subsequently, several studies explored the structural relationship between recreation experience, environmental attitude (EA), and ERB. Using 1342 questionnaires, Lee and Jan (2015) examined the impact of recreation experience on the EA and ERB of nature-based tourists. They discovered that

recreation experiences strengthen tourists' EA and consequently increase their participation in ERBs [12–14]. However, most of the existing research only considers the recreation experience as a whole and then examines its relationship with EA and ERB [14,15]. In fact, according to the study of Pine and Gilmore (1998), experience can be subdivided into four aspects: education, aesthetics, entertainment, and escapism [16–18]. However, whether dividing the recreation experience into four dimensions has the same effect as viewing the recreation experience as a whole remains to be further explored. Therefore, a comprehensive analysis of the relationship between the four dimensions of recreation experience, EA, and ERB is extremely necessary.

Additionally, previous studies have claimed that there are significant differences between genders in terms of tourist experiences, motivations, and behaviors [5,19–24]. Deem (1986) argued that leisure experiences and the meanings associated with the experience may be significantly different for women than they are for men [25]. Despite the fact that a number of researchers have studied gender differences as a constraint to recreation experience, few have examined the moderating role of gender in the relationships among recreation experience, EA, and ERB.

To fill the above-mentioned research gaps, the specific goals of the present study are twofold: (1) examining the structural relationships among the four components of recreation experience (education, aesthetics, entertainment, and escapism), EA, and ERB in a nature-based tourism context (urban forest park) and (2) exploring how gender plays a moderating role in the aforementioned structural relationship. An urban forest park in Nanjing City, Jiangsu Province, China, was chosen as the study site for the present study.

2. Literature Review

2.1. The Importance of Urban Forests during COVID-19

An urban forest is basically considered to be an ecological system within the urban area and is composed of forest green space, urban garden, urban greening, and the environment in which it is located [26,27]. As a green space, an urban forest is rich in natural resources. It can provide tourists and urban residents with outdoor recreation experience, make positive contributions to people's health, and become an important space for the public to have fun and enjoyment and improve mental health, especially during the COVID-19 pandemic [5,7,9,17,28]. Numerous studies have demonstrated that recreation experience in green environments such as urban forests can not only psychologically improve the negative emotional state brought about by the pandemic and improve people's sense of well-being, but also help people physically cope with many diseases and improve their quality of life and health status [29–31]. Therefore, urban forests play an increasingly essential part in the outdoor recreation experience of tourists and urban residents.

2.2. The Relationship among Forest Recreation Experience, EA, and ERB

Experience is an important element of tourism activities and is regarded as the personal thoughts, emotions, feelings, knowledge, and skills formed by participating in an activity [32]. Recreation experience is defined as a person's mental state caused by a specific activity, and scholars believe that recreation is the perception and emotion generated by an individual participating in recreational activities [33,34]. Several studies suggest that recreation experience is often considered to include four dimensions: education, aesthetics, entertainment, and escapism [16,21,35]. Education is an important factor in motivating tourists to carry out recreational activities [18]. Tourists can gain more environmental knowledge by participating in outdoor recreational activities [36]. Aesthetics refers to the aesthetic perception of the natural environment and landscape aesthetics that tourists can acquire when participating in outdoor recreational activities [37–39]. Entertainment refers to the entertainment activities that tourists participate in in the outdoor recreation experience and the entertainment perception provided by the natural environment [29,40]. The term "escapism" refers to the extent to which visitors become totally engrossed in various types of recreational activities [35,41].

Environmental attitude is defined as a psychological disposition expressed through an individual's evaluation of a specific object or environmental issue [42,43]. Previous studies have pointed out that recreation experiences have significant impacts on improving tourists' EA [44,45]. In nature-based tourism, the recreation experience can increase tourists' environmental awareness, which in turn generates positive cognitions, emotions, and attitudes [40]. For example, Collado et al. (2013) proposed that direct recreation experience can enhance students' attitudes towards the environment [46]. Duerden and Witt (2010) argued that the exposure of tourists to the natural environment via its on-site activities might increase their awareness of nature, consequently enhancing their environmental knowledge and sensitivity to environmental issues [47]. In addition, more and more scholars have confirmed that recreation experience can be regarded as an antecedent of EA [30,47]. The following four hypotheses are presented based on the preceding elaboration:

- H1.** *Visitors' educational experience has a significant positive impact on their environmental attitudes.*
- H2.** *Visitors' aesthetic experience has a significant positive impact on their environmental attitudes.*
- H3.** *Visitors' entertainment experience has a significant positive impact on their environmental attitudes.*
- H4.** *Visitors' escape experience has a significant positive impact on their environmental attitudes.*

Environmentally responsible behavior refers to behaviors that minimize negative impacts on the environment and contribute to environmentally sustainable development, reflecting individuals' environmental concerns and beliefs in reducing environmental problems [13,48–50]. Numerous studies have confirmed that recreation experience has important effects on tourists' ERB. For example, Lin and Li (2020) used the ancient trail of Alangyi and the Historic Fish Road Trail as case sites to examine the correlation between recreation experience, place attachment, EA, and responsible behavior of tourists. The analysis of 1579 questionnaires revealed that recreational experience has significant and positive effects on EA, and influenced ERB indirectly [51]. Additionally, in the case of Nansha Wetland Park, Xu et al. (2018) found that tourists' experience can be used as the predecessor of ERB [52].

Numerous prior studies have also suggested that positive EA can obviously lead to an increase in ERB [46,53–55]. When environmental attitudes are strong, more actions can be predicted to support environmental responsibility [55]. By engaging in recreational activities, visitors can improve their EA and possibly encourage ERB when they are in close contact with the natural environment. Therefore, based on the discussion above, the following five hypotheses are presented:

- H5.** *Visitors' educational experience has a significant positive impact on their environmentally responsible behavior.*
- H6.** *Visitors' aesthetic experience has a significant positive impact on their environmentally responsible behavior.*
- H7.** *Visitors' entertainment experience has a significant positive impact on their environmentally responsible behavior.*
- H8.** *Visitors' escape experience has a significant positive impact on their environmentally responsible behavior.*
- H9.** *Visitors' environmental attitude has a significant positive impact on their environmentally responsible behavior.*

The above discussion has shown that visitors' recreation experience has substantial positive impacts on their EA, and EA also has substantial positive impacts on their ERB. EA basically plays a moderating role in the influence of recreation experience on ERB [14,46]. Lee and Jan (2015) have pointed out that recreation experience is significantly correlated with ERB through EA, and EA acts as a mediator between recreation experience and ERB in nature-based tourism [14]. Moreover, Collado et al. (2013) also claimed that EA mediates

the relationship between children’s recreational experiences and general ERB [46]. Thus, the following hypothesis is proposed based on the above evidence:

H10. *Visitors’ environmental attitudes play a moderating role between recreation experience and environmentally responsible behavior.*

2.3. The Moderating Effect of Gender

Existing studies have shown that there are significant gender differences in terms of tourism experience, tourism motivation, tourist behavior, etc. [5,19–24]. Weng et al. (2022) argued that there are differences in emotional experience between men and women, and fear, worry, and sadness are more commonly reported by women than by men [5]. Similarly, Dagher, Itani, and Kassar (2015) also claimed that gender affects consumers’ environmental concerns and attitudes towards green purchasing behavior, and women show more intense green purchasing behavior [56]. On this basis, considering the influence of gender on the regulation of the link between recreation experience, EA, and ERB, the following hypotheses are proposed:

H11. *Gender plays a moderating role in the relationship between recreation experience and environmental attitude.*

H12. *Gender plays a moderating role in the relationship between recreation experience and environmental responsibility behavior.*

H13. *Gender plays a moderating role in the relationship between environmental attitude and environmental responsibility behavior.*

Figure 1 presents an illustration of the conceptual framework that was used for this study.

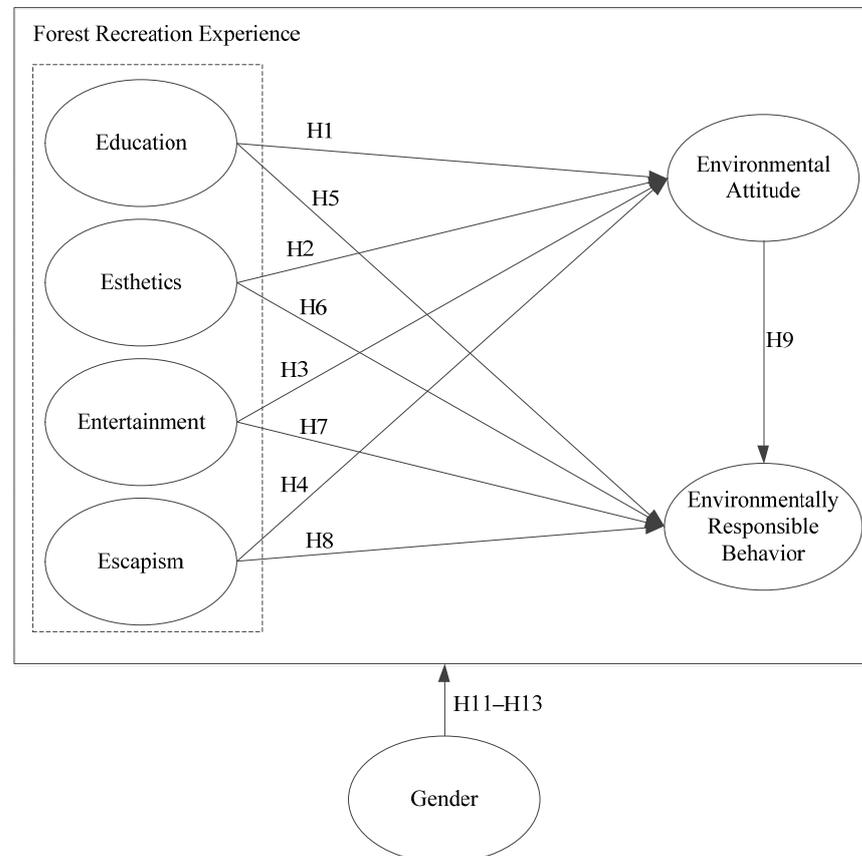


Figure 1. The conceptual framework.

3. Materials and Methods

3.1. Study Site

Zijinshan National Forest Park (hereinafter referred to as Zijinshan) is an urban forest park located in Nanjing City, Jiangsu Province (see Figure 2). The total area of Zijinshan is about 45 square kilometers, and the forest coverage rate reaches 70.2%. Zijinshan has a strong forest atmosphere, well-preserved biodiversity, and more than 200 natural and cultural landscapes. Zijinshan has rich spatial layers and numerous ravines, forming many streams and lakes, which have laid the foundation for the development of forest ecotourism. It has become one of the must-see scenic spots for tourists in Nanjing. Especially during the COVID-19 pandemic, Zijinshan has become an important destination for tourists and residents to enjoy outdoor recreation. Tourists and urban residents can carry out recreational activities such as mountain climbing, cycling, kite flying, running, swimming, camping, and barbecuing in this urban forest park. In addition, this park also organizes educational activities, such as identifying plants and insects, giving lectures on environmental protection, and watching stars and the sun at the Purple Mountain Observatory. In recent years, the overall average annual number of tourists to Zijinshan has been around 10 million.

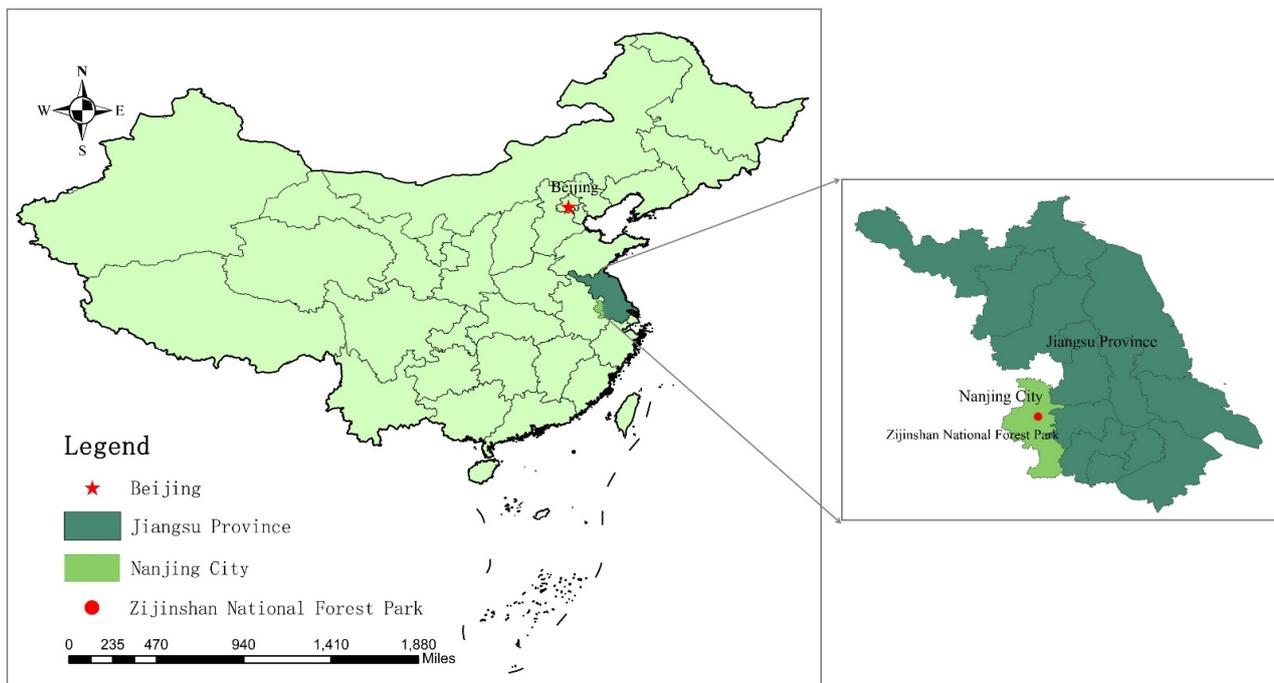


Figure 2. Location of Zijinshan National Forest Park in Jiangsu Province, China.

3.2. Questionnaire Design

To better understand the relationships among participants' forest recreation experience, EA, and ERB, a questionnaire was designed to collect data. The questionnaire consists of two sections. The evaluation of the three constructs is covered in the first section (i.e., forest recreation experience, environment attitude, and environmentally responsible behavior). The second section focuses on the demographic characteristics of the respondents, including their gender, age, education, occupation, and monthly income.

The items of each construct are based on prior research. The measurement of forest recreation experience was adapted from the research of Lee and Jan (2015) and Lee et al. (2015) and is a 4-dimensional 14-item scale [13,57]. The four dimensions are education (3 items, such as "The experience made me more knowledgeable"), entertainment (3 items, such as "The experience activities were amusing"), aesthetics (4 items; sample statement reads "The setting of this national forest park was attractive"), and escapism (4 items, such as "I completely escaped from my daily routine"). The assessment of EA was adapted from

the study of Lee and Jan (2015) and Kil, Holland, and Stein (2014) [14,58]. This scale has 9 items; a sample instrument is “Humans have no right to alter the natural environment to suit their needs”. ERB was measured via a 6-item scale from the study of Su et al. (2020) [59]. A sample measurement reads “I abide by the legal ways not to destroy the destination’s environment”.

The measurement items were assessed through a five-point Likert scale. Items that were initially designed in English were translated into Chinese. Back-translation was applied in order to guarantee the accuracy of the translation [60–62]. In addition, a pilot study with 60 participants was conducted to ensure that the questionnaire could be comprehended without ambiguity. In the pilot study, participants were required to complete questionnaires and provide feedback and suggestions. Based on the comments, a few unclear items were revised to increase clarity in relation to the context of the present study.

3.3. Field Survey

The formal field survey was conducted in Zijinshan National Forest Park in Nanjing from late April to late June 2022. Visitors were sampled at the exit of the Zijinshan Cableway. During daylight hours, data were collected using a systematic sampling technique (one out of every ten visitors was sampled) [57]. Six well-trained research assistants administered the questionnaire survey. After the screening question (visitors must be at least 18 years old), the research assistants informed each respondent of the research objectives, variables, and items prior to the completion of the questionnaires. Afterward, participants who were eligible for the study were given the opportunity to indicate the degree to which they agreed or disagreed with the questions and statements contained in the questionnaire [63]. In addition, the responders who completed the survey received small gifts as a reward for their time. Overall, 500 questionnaires were administered, 32 of which were incomplete, resulting in a total of 468 valid questionnaires.

3.4. Data Analysis

SPSS 20.0 and Amos 21.0 were utilized to analyze the data in this study. To investigate the rationality of the measurement scales, reliability and validity tests were first undertaken. Then, confirmatory factor analysis (CFA) was performed to provide the basis for the analysis of the measurement model. Finally, the research hypotheses were examined by conducting hypothesis testing and mediating and moderating analysis.

4. Results

4.1. Sample Profile

The descriptive information of the sample is outlined in Table 1. It can be found that males made up 47.6% ($n = 223$) of 468 respondents, while females made up 52.4% ($n = 245$). Nearly half of the respondents (46.8%, $n = 219$) are between the ages of 18 and 35. Over fifty percent of the respondents (54.7%, $n = 256$) have a bachelor’s degree or above. In addition, more than half of the respondents (54%, $n = 253$) are employed as enterprise employees, self-employed, or owners. In addition, 86.3% of the respondents have a monthly salary in excess of CNY 3000 (USD 470).

4.2. Measurement Model Testing

4.2.1. Reliability Test and Confirmatory Factor Analysis

A reliability test’s primary objective is to ascertain whether or not a measurement scale maintains its internal consistency. In general, a Cronbach’s alpha value higher than 0.7 suggests that the scale is reliable [64]. According to the analysis results, the Cronbach’s alpha coefficient of the scale has a value of 0.937. Specifically, the values of the Cronbach’s coefficient for education, entertainment, aesthetics, escapism, EA, and ERB are 0.849, 0.832, 0.902, 0.909, 0.922, and 0.894 (Table 2), respectively, indicating that this study’s measurements are very reliable.

Table 1. Sociodemographic information of the study sample.

		Frequency (<i>n</i> = 468)	Percentage (%)
Gender	Male	223	47.6
	Female	245	52.4
Age	18 to 35 years	219	46.8
	36 to 45 years	118	25.2
	46 to 55 years	59	12.6
	56 to 65 years	41	8.8
	Over 65 years	31	6.6
Education	High school or below	74	15.8
	Associate degree	138	29.5
	Bachelor's degree	187	40.0
	Master's degree or above	69	14.7
Occupation	Enterprise employee	177	37.8
	Self-employment or owner	76	16.2
	Student	49	10.5
	Government official	69	14.7
	Professional, teacher, or technical	51	10.9
	Other	46	9.8
Personal monthly income (CNY)	Less than 3000	64	13.7
	3001–6000	126	26.9
	6001–10,000	163	34.8
	10,001–15,000	69	14.7
	More than 15,000	46	9.8

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Table 2. Reliability and confirmatory factor analysis results.

Dependent Variables	Mean (SD)	Factor Loading	CR	AVE	Cronbach's α
Education			0.849	0.652	0.849
The experience made me more knowledgeable	3.51 (0.92)	0.811			
It was a learning experience	3.43 (0.94)	0.795			
It inspired my curiosity to learn new things	3.47 (0.93)	0.816			
Entertainment			0.833	0.625	0.832
Experiential activities were amusing	3.04 (0.87)	0.804			
Experiential activities were captivating	3.16 (0.90)	0.805			
Experiential activities were entertaining	3.20 (0.90)	0.761			
Aesthetics			0.905	0.704	0.902
The setting of the forest park was attractive	3.44 (1.05)	0.860			
The forest park was set up with design details	3.38 (1.13)	0.802			
Being here was pleasant	3.39 (1.10)	0.776			
I felt real harmony	3.44 (1.10)	0.912			
Escapism			0.910	0.717	0.909
I felt like playing a different character here	3.58 (0.99)	0.875			
The experience made me imagine being someone else	3.56 (0.96)	0.773			
I escaped from my daily routine	3.55 (0.96)	0.810			
I felt I was in a different time or place	3.57 (0.99)	0.922			

Table 2. Cont.

Dependent Variables	Mean (SD)	Factor Loading	CR	AVE	Cronbach's α
EA			0.922	0.567	0.922
We are approaching the limit number of people the earth can support	3.87 (1.14)	0.830			
Earth is like a spaceship with limited room and resources	3.60 (1.02)	0.725			
Humans have no right to alter the natural environment to suit their needs	3.57 (0.98)	0.705			
Plants and animals have the same right to exist as humans	3.80 (1.12)	0.797			
Humans shouldn't rule over the rest of nature	3.61 (1.08)	0.753			
Human interference with nature often produces disastrous consequences	3.71 (1.02)	0.787			
Nature's balance is delicate and easily upset	3.62 (0.99)	0.703			
Humans are still subject to the laws of nature despite special abilities	3.55 (0.99)	0.729			
Humans learn enough about how nature works to control it	3.57 (1.02)	0.740			
ERB			0.895	0.587	0.894
I abide by the legal ways not to destroy the destination's environment	3.56 (1.12)	0.794			
I report environmental pollution or destruction to the destination administration	3.55 (1.06)	0.723			
I try to throw away garbage and branches when I see them	3.50 (1.05)	0.728			
I'll attend the environment cleaning activities	3.55 (1.13)	0.775			
I'd convince my travel companions to protect the natural environment	3.61 (1.02)	0.764			
During travel, I try not to disturb the fauna and flora (animals and plants)	3.53 (1.03)	0.810			

Note: Model fit indices: $\chi^2/df = 2.215$, NFI = 0.910, CFI = 0.949, GFI = 0.894, AGFI = 0.873, RMSEA = 0.051, SRMR = 0.039. All the factor loads are greater than 0.5, and the p values are significant ($p < 0.001$).

In addition, CFA was also employed to assess the measurement model. Table 2 presents the model fit indices that are satisfactory according to the predetermined cutoff thresholds ($\chi^2/df = 1.155$, NFI = 0.910, CFI = 0.987, GFI = 0.910, AGFI = 0.901, RMSEA = 0.018, SRMR = 0.031) [61,65,66], indicating that the measurement model corresponds well to the data.

4.2.2. Validity Test

Principally, convergent validity and discriminant validity are used to evaluate the validity test. The concept of convergent validity relates to the degree to which various aspects of a single variable are correlated with one another [65]. According to Hair et al. (2006), all factor loads are larger than 0.5, and the p values are significant from a statistical point of view [67]. In addition, as indicated in Table 2, the AVE is greater than 0.5, and the CR is greater than 0.6 [68]. All of these suggest that the latent variables have a high level of convergent validity.

The concept of discriminant validity relates to the capacity to differentiate between distinct variables [68]. Hu and Bentler (1999) stated that discriminant validity occurs when the square root of AVE is greater than its correlation coefficient with other variables [69,70]. According to Table 3, the correlation coefficients for each variable range between 0.108 and 0.53. The square root of AVE for each variable is bigger than its correlation coefficient with other factors, suggesting the variables have strong discriminant validity.

Table 3. Discriminant validity.

Variables	Education	Entertainment	Aesthetics	Escapism	EA	ERB
Education	0.807					
Entertainment	0.163 **	0.791				
Aesthetics	0.166 **	0.519 **	0.839			
Escapism	0.108 *	0.438 **	0.491 **	0.847		
EA	0.110 *	0.432 **	0.489 **	0.479 **	0.753	
ERB	0.142 **	0.475 **	0.533 **	0.482 **	0.474 **	0.766

Note: * < 0.05, ** < 0.01.

4.3. Structural Model and Hypotheses Testing

4.3.1. Goodness-of-Fit Test of the Structural Model

To guarantee that the data were normal, the skewness and kurtosis were assessed. The skewness and kurtosis ranged from -0.929 to 0.019 and -0.888 to 0.221 , respectively, indicating that the data were regularly distributed [64]. Additionally, the goodness-of-fit test of the structural model was also conducted. The results suggested that the structural model also fits the data well ($\chi^2/df = 2.215$, NFI = 0.910, CFI = 0.949, GFI = 0.894, AGFI = 0.873, RMSEA = 0.051, SRMR = 0.039) [64,67,69,70].

4.3.2. Hypotheses Test

The above-mentioned research hypotheses were examined using a structural equation model, and the results are presented in Table 4 and Figure 3. The standardization path coefficients of H1 and H5 are 0.001 ($t = -0.008$, $p = 0.993$) and 0.041 ($t = 0.041$, $p = 0.410$), which suggests that the educational experience provided by Zijinshan National Forest Park has no significant effect on visitors' EA and ERB. Thus, H1 and H5 were not supported. The standardization path coefficients of H2 and H6 are 0.258 ($t = -4.736$, $p = 0.000 < 0.001$) and 0.231 ($t = -4.483$, $p = 0.000 < 0.001$), indicating that the aesthetic experience provided by Zijinshan National Forest Park has a significant positive impact on visitors' EA and ERB. Therefore, H2 and H6 were both supported.

Table 4. Hypothesis testing results.

Hypothesis Paths	Estimate	S.E.	<i>t</i>	<i>p</i>	Results
H1: Education → EA	0.001	0.055	-0.008	0.993	Not support
H2: Aesthetics → EA	0.258	0.055	4.736	***	Support
H3: Entertainment → EA	0.287	0.084	3.431	***	Support
H4: Escapism → EA	0.268	0.055	4.906	***	Support
H5: Education → ERB	0.041	0.050	0.823	0.410	Not support
H6: Aesthetics → ERB	0.231	0.051	4.483	***	Support
H7: Entertainment → ERB	0.261	0.078	3.332	***	Support
H8: Escapism → ERB	0.172	0.051	3.354	***	Support
H9: EA → ERB	0.179	0.050	3.592	***	Support

Note: *** < 0.001.

In addition, the standardization path coefficients of H3 and H7 are 0.287 ($t = 3.431$, $p = 0.000 < 0.001$) and 0.261 ($t = 3.332$, $p = 0.000 < 0.001$), suggesting that the entertainment experience provided by Zijinshan National Forest Park has a significant positive impact on visitors' EA and ERB. Hence, H3 and H7 were both supported. Results of the standardization path coefficients of H4 and H8 are 0.268 ($t = 4.906$, $p = 0.000 < 0.001$) and 0.172 ($t = 3.354$, $p = 0.000 < 0.001$), which shows that the escape experience provided by Zijinshan National Forest Park has a significant positive impact on visitors' EA and ERB. Therefore, H4 and H8 were both supported. The standardization path coefficient of H9 is 0.179 ($t = 3.592$, $p = 0.000 < 0.001$), indicating that visitors' EA has a significant positive effect on their ERB. Thus, H9 was also supported.

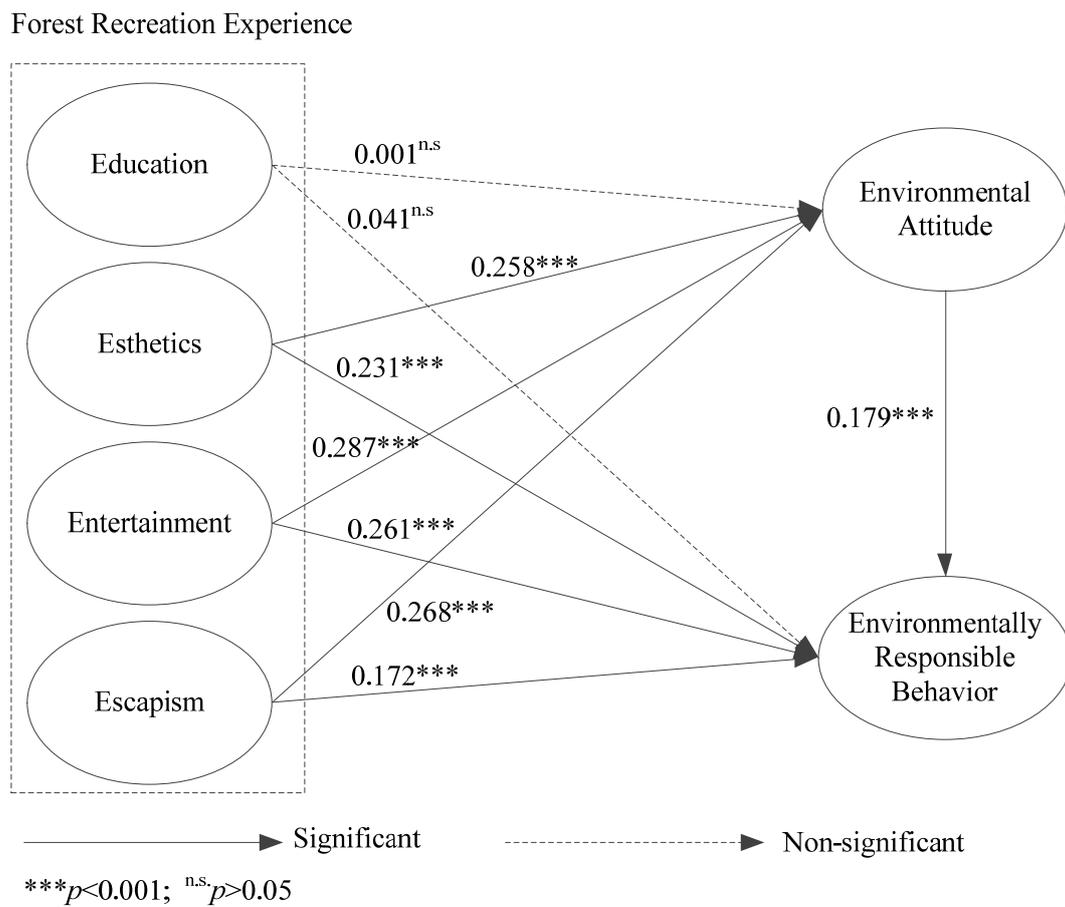


Figure 3. Standardization path coefficient and hypothesis testing results.

4.3.3. Mediating Effect Analysis

The mediating variable in this study is EA. This study employed the bootstrap approach to test the mediating effect. The results are shown in Table 5. The findings indicated that the percentile 95% CI for the mediating effect of education on ERB is -0.023 to 0.021 , whereas the bias-corrected 95% CI is -0.022 to 0.021 . It can be found that the bias-corrected 95% CI and the percentile 95% CI of the indirect effect include 0, demonstrating that the indirect effect does not exist.

Table 5. Result of mediating effect analysis.

Mediation Path	Path Effects	Effect Size	Bias-Corrected 95% CI		Percentile 95% CI	
			Lower	Upper	Lower	Upper
Education → EA → ERB	Total	0.041	-0.070	0.159	-0.074	0.156
	Indirect	0.000	-0.022	0.021	-0.023	0.021
	Direct	0.041	-0.066	0.151	-0.068	0.151
Aesthetics → EA → ERB	Total	0.277	0.161	0.388	0.168	0.393
	Indirect	0.046	0.019	0.087	0.017	0.083
	Direct	0.231	0.121	0.343	0.124	0.347
Entertainment → EA → ERB	Total	0.312	0.164	0.475	0.160	0.472
	Indirect	0.051	0.017	0.105	0.014	0.100
	Direct	0.261	0.113	0.421	0.110	0.419
Escapism → EA → ERB	Total	0.220	0.125	0.323	0.121	0.320
	Indirect	0.048	0.017	0.093	0.016	0.092
	Direct	0.172	0.070	0.266	0.070	0.266

Additionally, the bias-corrected 95% CI for the indirect effect (mediating effect) of aesthetics on ERB is 0.019 to 0.087, and the percentile 95% CI is 0.017 to 0.083, suggesting that the EA has a mediating effect. Similarly, the mediating role of EA also exists in the effects of entertainment and escapism on ERB.

Therefore, the environmental attitude is certified to have partial mediation effects in the model. Based on this finding, it can be concluded that H10 was partially supported.

4.4. Moderating Effect of Gender

Using a structural equation model with a multi-group sample, the moderating influence of gender was investigated. As presented in Table 6, for both male and female samples, the influence coefficients of education on EA and ERB do not reach the range of significance ($t = 0.353, p = 0.724 > 0.05$; $t = -0.505, p = 0.614 > 0.05$; $t = -0.139, p = 0.889 > 0.05$; $t = 1.173, p = 0.241 > 0.05$).

Table 6. Results of the moderating effect.

Hypothesis Paths	Male Group			Female Group		
	Estimate	<i>t</i>	<i>p</i>	Estimate	<i>t</i>	<i>p</i>
H1: Education → EA	0.027	0.353	0.724	−0.040	−0.505	0.614
H2: Aesthetics → EA	0.210	2.861	0.004	0.315	3.794	***
H3: Entertainment → EA	0.325	2.423	0.015	0.250	2.302	0.021
H4: Escapism → EA	0.275	2.885	0.004	0.264	4.018	***
H5: Education → ERB	−0.009	−0.139	0.889	0.089	1.173	0.241
H6: Aesthetics → ERB	0.155	2.438	0.015	0.305	3.636	***
H7: Entertainment → ERB	0.249	2.150	0.032	0.256	2.390	0.017
H8: Escapism → ERB	0.181	2.207	0.027	0.171	2.596	0.009
H9: EA → ERB	0.169	2.681	0.007	0.180	2.326	0.020

Note: *** < 0.001.

In addition to the above-mentioned influence relationships, it can be found that, for the male sample, the influence coefficient of aesthetics on EA is 0.210 ($t = 2.861, p = 0.004 < 0.01$), which is statistically significant at the 0.01 level. For the female sample, the influence coefficient of aesthetics on EA is 0.315 ($t = 3.794, p < 0.001$), which is also significant. The influence coefficient of the female sample is greater than that of the male sample. A similar finding can also be drawn from the influence coefficient of aesthetics on ERB (0.155, $t = 2.438, p = 0.015 < 0.05$ vs. 0.305, $t = 3.636, p < 0.001$). These results demonstrated that female groups can obtain more aesthetic experiences, which in turn will affect their EA and ERB more than male groups.

Moreover, for male groups, the influence coefficients of entertainment on EA and ERB are 0.325 ($t = 2.423, p = 0.015 < 0.05$) and 0.249 ($t = 2.150, p = 0.032 < 0.05$). The influence coefficients of escapism on EA and ERB are 0.275 ($t = 2.885, p = 0.004 < 0.01$) and 0.181 ($t = 2.207, p = 0.027 < 0.05$), respectively. For female groups, the influence coefficients of entertainment on EA and ERB are 0.250 ($t = 2.302, p = 0.021 < 0.05$) and 0.256 ($t = 2.390, p = 0.017 < 0.05$). The influence coefficients of escapism on EA and ERB are 0.264 ($t = 4.018, p < 0.001$) and 0.171 ($t = 2.596, p = 0.009 < 0.01$). These results indicated that male groups can generally obtain more entertainment and escape experiences, and this will affect their EA and ERB more than those of the female groups.

In addition, the influence coefficient of EA on ERB for female groups (0.180, $t = 2.326, p = 0.020 < 0.05$) is greater than that for male groups (0.169, $t = 2.681, p = 0.007 < 0.01$). This suggests that when the female groups obtain more environmental attitude changes, their ERB will change more than that of the male groups.

In summary, it is evident that gender acts as a partial moderator in the influence of recreational experience on EA and ERB. Therefore, H11 and H12 were partially supported and H13 was supported.

5. Discussion

5.1. Theoretical Implications

This research provides several substantial contributions to the existing body of knowledge. First, this study examines and verifies the four subdivided dimensions of tourists' recreation experience and applies this subdivision in the context of nature-based tourism. Most of the existing research usually measures tourists' recreation experience as a whole, ignoring its subdivided dimension [14,15]. This study closes this research gap and explores the four dimensions of recreation experience: education, aesthetics, entertainment, and escapism. The subdivided dimensions were examined and verified in an urban forest park. The results of the reliability test, validity test, and confirmatory factor analysis indicate that the relevant values are all in line with the statistical standard and the four constructs of recreation experience have been well verified. In the context of nature-based tourism, the natural environment affords tourists the chance to interact with and acquire environmental knowledge from nature, which in turn affects their level of satisfaction, as well as their attitude and behavior [12]. Therefore, it is necessary to apply the subdivision of recreation experience to the following research.

Second, this study is one of the first empirical studies to investigate the structural relationships between the four subdivided dimensions of recreation experience, EA, and ERB in the context of nature-based tourism. The results demonstrated that the entertainment experience, aesthetic experience, and escape experience provided by the nature-based destinations have significant positive impacts on visitors' EA and ERB. This is in line with previous studies showing that tourism experience has an impact on tourist satisfaction, attitude, behavioral intention, and loyalty [35,71,72]. However, the empirical results suggest that educational experience has no significant effect on visitors' EA and ERB, and the mediating effect of EA is partially mediated. This result is different from those of previous studies [44,45]. There are two possible reasons: On the one hand, the interpretation system of this urban forest park needs to be improved, and relevant knowledge has not been effectively passed on to tourists [14]. On the other hand, under the influence of the pandemic, tourists only wanted to take advantage of outdoor activities to fully relax physically and mentally and did not earnestly learn natural knowledge and obtain natural education.

Third, this study explores the function of gender as a moderator in the relationship between recreation experience, EA, and ERB. Existing studies have suggested that there are differences between males and females in terms of tourism experience, tourism motivation, tourist behavior, etc. [5,19–23]. For example, the research of Dagher, Itani, and Kassar (2015) found that gender affected consumers' environmental concerns and attitudes towards green purchasing behavior [56]. Similar results were discovered in this research as well. From the results of the moderating effect study, it is apparent that in addition to educational experience, women can obtain more aesthetic experience than men, which in turn affects EA and ERB more. However, men can generally obtain more entertainment and escape experiences than women. It is intended that this study will both act as a foundation for further research in this sector and motivate further research that is significantly important.

5.2. Practical Implications

The present study has the potential to provide significant practical implications for the administration of nature-based tourism destinations such as urban forest parks. First, the results of this research suggest that recreation experience is the preceding determinant of EA and ERB. To minimize environmental consequences, managers of nature-based tourism destinations should create chances for visitors to enhance their environmental knowledge through recreation experiences [14]. Particular emphasis should be placed on the four subdivided dimensions of the recreation experience. Nature-based tourism destinations should provide educational, aesthetic, entertaining, and escape recreation activities that enhance visitors' environmental attitudes. In addition, there is an urgent need to improve the interpretation system of urban forest parks [66,73]. The managers may supply systematic interpretation services, which may include interpretative logos and

knowledgeable interpreters. Therefore, tourists can then change their EA and subsequently improve their ERB, eventually contributing to sustainable tourism.

Second, it was discovered that men and women have differences in the structural relationships among the four subdivided dimensions of recreation experience, EA, and ERB. According to the results of this study, women have a higher propensity than men to promote ERB if they gain more aesthetic experience and environmental attitude change. However, men are more likely than women to change their EA and improve ERB if they have access to more entertaining and escape experiences. Based on these findings, two suggestions could be offered for nature-based tourism destinations such as urban forest parks. On the one hand, policymakers in the tourism industry should take into account the differences in the needs of men and women in recreation experiences and offer different outdoor activities. On the other hand, when natural tourism destinations provide tour guide services, they should focus on interpreting different recreation experiences for male and female tourists [65]. Thus, natural interpretation information can be effectively conveyed to tourists.

Third, suggestions are also provided on how to carry out pro-environmental activities in nature-based tourism destinations such as urban forest parks. It is recommended that managers and service providers conduct regular activities (for instance, hiking, camping, insect and plant identification, and environmental education seminars) and explain environmental concerns in order to enhance visitors' environmental attitudes and environmentally responsible behaviors. Additionally, managers may urge visitors to serve as "conservation partners" rather than relying on rules and legislation to restrict and limit visitors' negative environmental behaviors during their involvement in recreational activities [74]. These diverse activities can provide visitors with good opportunities to gain more educational knowledge, improve their EA, and promote their ERB.

6. Conclusions

Nature-based tourism destinations such as urban forest parks are increasingly becoming important places for outdoor leisure and recreation. The present study employed structural equation modeling to empirically investigate the relationships among the four subdivided dimensions of recreation experience (education, aesthetics, entertainment, and escapism), EA, and ERB in an urban forest park, as well as to examine the moderating effect of gender in the aforementioned influence relationship.

The findings indicate that, in addition to the educational experience, the entertainment experience, aesthetic experience, and escape experience provided by the urban forest park have significant positive impacts on visitors' EA and ERB. Moreover, visitors' EA significantly and positively influences their ERB. In addition, the mediating effect of EA is also examined in this study. The results imply that EA provides a partial moderating effect on the relationship between recreation experience and ERB. Additionally, the role of gender as a moderator is acknowledged and explored as well, with results suggesting that women may be more likely than men to promote ERB if they gain more aesthetic experience and environmental attitude changes. However, men are more likely to change their EA and improve ERB than women if they obtain more entertaining and escape experiences. This study contributes to theory and practice in the areas of environmental education and sustainable tourism development. It also recommends that nature-based tourism destinations should pay attention to the four subdivided dimensions of recreation experience, especially educational experience. Thus, visitors' EA and ERB can be effectively enhanced.

The present study is not without limitations. First, the structural relationship in this research was examined only in one study site. Similar studies should be carried out in other case sites in the future to evaluate and validate the conclusions of this research. Second, the frequency of visits to urban forest parks should be considered in future studies so that the motivations and behaviors of first-time and repeat visitors can be compared and analyzed. Third, this study only analyzed and tested the moderator variable of gender, and future

research can explore more moderator variables, such as age and location, and then examine their impact on visitors' environmentally responsible behaviors.

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