



Article Extending the Theory of Planned Behavior with the Self-Congruity Theory to Predict Tourists' Pro-Environmental Behavioral Intentions: A Two-Case Study of Heritage Tourism

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Abstract: Tourists' pro-environmental behaviors are critical to the conservation of cultural landscape heritage and for the sustainability of heritage tourism. Applying the theories of planned behavior (TPB) and self-congruity, this research explained the formation of tourists' pro-environmental behavioral intentions (TPEBI). A total of 342 effective responses were gathered at a heritage destination, while another set of data was collected from a historic cultural destination for cross-validation (n = 345). The findings indicated that: (1) there are direct and positive associations between TPEBI and attitudes toward the behavior, subjective norms, perceived behavioral control, self-congruity, and functional congruity; (2) functional congruity mediates the association between self-congruity and TPEBI; (3) the "congruity-TPB" framework has greater predictive capacity in comparison to the single model; (4) a cross-validation approach found consistent results by using a historic cultural district as another case. Taking both rational and value-expressive factors into consideration, the current study expands the applicability of the self-congruity theory in TPEBI research. Findings produce some new insights into sustainable destination management.

Keywords: theory of planned behavior; self-congruity theory; self-congruity; functional congruity; tourists' pro-environmental behavioral intentions; cross-validation; cultural landscape heritage; historic cultural district

1. Introduction

Landscape has substantial positive impacts on the culture, environment, and society and is considered a vital element of economic and regional activities, particularly in terms of tourism [1,2]. As "the common work of nature and humankind" [3], cultural landscape heritage reflects the evolution of the human–land harmonious relationship and represents a paradigm for understanding this relationship [4]. Landscape has long been favored by tourists due to its profound significance and universal value [5–7]. In addition to providing the destinations with financial advantages, the increase in tourist arrivals and activities also raises environmental concerns [8,9]. Tourists are key stakeholders of destinations [10,11]. Their undesirable behaviors negatively affect sustainable development [12], such as littering, graffiti, and overcrowding [10,13,14]. These impacts pose major challenges to environmental conservation, making the management of heritage sites a critical part of land management [15]. This highlights the prominent role of tourists' pro-environmental behaviors in the sustainability of destination environments [16,17]. Therefore, it is of considerable significance to cultivate and improve tourists' pro-environmental behaviors [18,19], as well as to enhance the sustainable use and management of land heritage [15].

Pro-environmental behavior, either as a single-dimensional concept [20] or a multidimensional one [11], is altruistic in nature and considered as an individual's rational



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Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). choice of balancing personal interests and collective or long-term environmental benefits [21]. Among various theories for predicting tourists' pro-environmental behaviors and intentions, the theory of planned behavior (TPB) is one of the most prominent [22,23]. TPB proposes that an individual's intention of performing a given behavior is the major determinant of the actual behavior, while this intention is driven by attitudes toward the behavior, subjective norms, and perceived behavioral control [24]. The efficacy of TPB has been extensively validated in the literature on tourists' pro-environmental behaviors and intentions [25–28]. With TPB focusing on the rational attributes of individual behaviors, scholars acknowledge that extensions with other concepts or models is necessary to improve prediction [29–33]. Since the primary goal of human endeavors is to preserve and improve one's self-concept or symbolic self, people tend to promote the self-concept by adjusting their behaviors to enhance this concept [34]. As a logical consequence of the self-concept [35], the self-congruity theory underlines an individual's value-expressive attributes [36]. In this sense, the self-congruity theory may help us understand individual behaviors in a more holistic way. Thus, this research argues that the self-congruity theory may be a feasible supplement to TPB for exploring tourists' pro-environmental behavioral intentions (TPEBI).

As the self-congruity theory proposes, the alignment between consumers' self-concepts and a product's image affects their purchase intentions [37]. In tourism, if tourists' selfimages are consistent with destination images (i.e., self-congruity), they will adopt positive behaviors to maintain that consistency [36]. Tourists also pursue an overlap between expected functional attributes of destinations and actual perceptions of those attributes (i.e., functional congruity) [36]. Employing the self-congruity theory in tourism research mainly involves its effects on destination-related decision-making processes, such as destination choice [38], visit or revisit intentions [39,40], satisfaction [41], loyalty [42,43], and recommendation intentions [40]. Studies have investigated how self-congruity affects tourists' behaviors or intentions in tourism and hospitality settings, such as cruises [44], hotels [45], and conventions [46]. However, existing studies have fallen short of examining the formation of TPEBI within the framework of the self-congruity theory. Against this background, the present research extended TPB with the self-congruity theory to construct an integrated theoretical model for better explaining TPEBI.

The cross-validation approach is effective in improving the stability and applicability of a conceptual model [19]. Therefore, this research also used a historic cultural district as another case to perform a cross-validation procedure and test the proposed theoretical model. Based on the definition of historic urban areas proposed in the Washington Charter 1987, this research describes the historic cultural district as a part of a city, together with its natural and man-made environments, which encompasses older buildings with historical and cultural significance [47]. Cultural landscape heritage emphasizes outstanding universal values and the interaction between the human and natural environment. Unlike cultural landscapes, historic cultural districts function as living fossils of history and culture, which are endowed with significant symbolic meanings. Therefore, people usually visit historic cultural districts for cultural experiences [48], through which they maintain and enhance their self-images.

To fill the aforementioned knowledge gaps, this current research aimed to: (1) extend TPB with the self-congruity theory for investigating TPEBI; (2) examine the impacts of the TPB variables (i.e., attitudes toward the behavior, subjective norms, and perceived behavioral control) and self-congruity constructs (i.e., self-congruity and functional congruity) on TPEBI; (3) examine how functional congruity mediates the associations between self-congruity and subsequent TPEBI; (4) test the overall explanatory power of the integrated theoretical framework; and (5) employ the cross-validation approach to re-examine the stability of the above relationships in the conceptual model. By taking rational and value-expressive attributes into account, this research expands the literature on both the self-congruity theory and TPB in TPEBI research at heritage sites and historic cultural

districts. It offers some implications for the sustainable management of heritage sites and historic cultural districts.

2. Literature Review and Hypotheses Development

2.1. Theory of Planned Behavior (TPB)

The theory of planned behavior is developed from the theory of reasoned action and has been extensively utilized to predict individual decision-making processes [33]. As TPB proposes, an individual's behavioral intention is a reliable predictor of the actual behavior, while this intention is a function of volitional factors (i.e., attitudes toward the behavior and subjective norms) and non-volitional factors (i.e., perceived behavioral control) [24]. The effectiveness of TPB in predicting tourists' behaviors and intentions has been acknowledged in diverse tourism settings, such as travelers' pro-social intentions in festival tourism [49], volunteer re-participation intentions in volunteer tourism [50], scuba divers' marine-based environmental behaviors [51], and willingness to pay more [52]. Particularly, the extensive application of this model in the research of pro-environmental behaviors has demonstrated its value and feasibility in explaining tourists' pro-environmental behaviors and intentions [26–28]. To this end, there are solid grounds for this research to apply the TPB framework for investigating TPEBI.

Effects of the TPB Constructs on TPEBI

Attitudes toward behavior refer to one's evaluation of performing a given behavior, either favorable or unfavorable [24]. When people recognize the value or importance of a behavior, they will develop the intention of performing that behavior [24]. The possibility of engaging in the behavior increases when the attitudes toward the behavior are more positive [24]. This research thus describes the attitudes toward the behaviors in destinations. Rational attributes allow people to weigh between pros and cons of their behaviors during trips [21]. When the benefits of protecting the environmental behavioral intentions [27,53], which increases the possibility of adopting pro-environmental behaviors [54]. However, if the costs outweigh the benefits, they may feel reluctant to perform pro-environmental behaviors [55]. For example, in investigating tourists' intentions to replace single-use plastics with reusable substitutions, researchers reported that attitudes toward reusable alternatives positively affected intentions to use reusable alternatives [56]. Therefore, the hypothesis was proposed as follows:

H1: *Attitudes toward behavior directly and positively affect tourists' pro-environmental behavioral intentions.*

The perceived social pressure to engage in a particular behavior is defined as subjective norms [24]. Subjective norms reflect the influence of those "important ones" (e.g., families, acquaintances, and coworkers) on individual decision-making processes [24]. Their socially approved behaviors or beliefs represented by subjective norms act as guidelines for individual behaviors fearing exclusion by these important people. This view is also aligned with cognitive dissonance theory which postulates that the conflict between one's beliefs and behavior motivates an individual to change an attitude or behavior [57]. Empirical studies in tourism research have noted the significant and positive effects of subjective norms on TPEBI, such as the willingness to choose green hotels, willingness for environmentally friendly waste disposal, and waste-sorting intentions in destinations [53,54,58]. Thus, it was proposed that:

H2: *Subjective norms directly and positively affect tourists' pro-environmental behavioral intentions.*

Perceived behavioral control is understood as an individual's assessment of the difficulty of performing a certain behavior [24]. When people believe that their abilities or skills can withstand the risks posed by a given behavior, they tend to act more actively with a stronger perception of the behavior control [59]. In tourism, tourists' perceived behavioral control derives from their own resources (e.g., knowledge and environmental awareness) [60], or the conditions for carrying out pro-environmental behaviors (e.g., environmental protection policy, publicity and education campaigns) [53,55]. For example, perceived behavioral control has been confirmed to positively and directly affect intentions to engage in environmental conservation [33,61]. Consequently, this research formulated the following hypothesis:

H3: *Perceived behavioral control directly and positively affects tourists' pro-environmental behavioral intentions.*

2.2. Extending TPB with the Self-Congruity Theory

In spite of its wide application in predicting individual behavioral intentions [59], researchers also argued that TPB may not fully explain the complexity of behaviors [29,62]. It is contended that TPB is open to embracing other notions or theories for a more holistic understanding of individual behavioral intentions [24,33]. One of the criticisms of TPB is that it excludes the effects of value-expressive attributes on one's behavioral intentions, such as self-congruity [63–65].

The notion of self-congruity is the very basis of the self-congruity theory [37]. As an important social–psychological theory, self-congruity proposes that the degree to which the brand image and consumer's self-concept align affects behavior and consequent results (e.g., loyalty, brand trust, and favorable word-of-mouth) [66]. Marketing research has seen extensive applications of this theory in predicting consumer behaviors [67–71]. Tourism scholars also started to employ the self-congruity theory to examine tourist behaviors [36,72,73], especially how self-congruity drives people to behave more sustainably [16]. Thus, TPB was extended with the self-congruity theory to delineate the underlying formation of TPEBI.

Effects of the Self-Congruity Theory Constructs on TPEBI

Previous research identifies two types of congruities in tourism, i.e., self-congruity and functional congruity [36]. Self-congruity is the degree of fit between a visitor's self-concept and the destination image [41]. It implies that people tend to favor destinations when images mirror their self-images. This match positively affects behaviors or intentions at destinations, including revisit intentions, loyalty, and recommendation intentions [38–43]. Similarly, heritage tourism researchers have also found similar supportive evidence, i.e., self-congruity significantly and positively influences tourists' pro-environmental behaviors [16]. Thus, this research hypothesized that:

H4: Self-congruity directly and positively affects tourists' pro-environmental behavioral intentions.

In addition to symbolic attributes, people may also evaluate destinations in terms of its functional attributes (e.g., service quality and price) [36]. The consistency between the utilitarian features of destinations and anticipation of such features is defined as functional congruity [36]. Expectation theory suggests that people will be more motivated if they feel a greater possibility of achieving a certain goal in the future [74]. As such, behaviors can be attributed to the expected outcome of this behavior [22]. Previous studies suggest that functional congruity is significantly associated with destination loyalty and visit intentions [42,75]. Furthermore, if visitors perceive that the functionality of a destination meets or exceeds their expectations, they will develop a more positive overall evaluation of this destination, which might motivate them to behave in a more sustainable manner [19]. Accordingly, this research proposed the following hypothesis:

H5: Functional congruity directly and positively affects tourists' pro-environmental behavioral intentions.

To understand how self-congruity is related to functional congruity, the heuristic-systematic model, focusing on an individual's information processing, may shed some light on the understanding of this relationship. According to the heuristic-systematic model, systematic information processing demands more cognitive effort than heuristic processing [76]. Comparatively,

tourists need more knowledge or experience to assess the functionality of a destination than its symbolic cues. It takes more cognitive effort for people to establish functional congruity than self-congruity [36]. Self-congruity is more likely to be processed peripherally before functional congruity is centrally processed. The tourism research literature notes that self-congruity has a bias effect on functional congruity and helps explain travel intentions [75]. Visitors who exhibit a high degree of self-congruity may be inclined to evaluate the utilitarian aspects of a destination more positively. Hence, this research argued that self-congruity might influence functional congruity and assumed that:

H6: Self-congruity directly and positively affects functional congruity.

Based on the above discussions and literature review, the extended TPB theoretical framework with the self-congruity theory was proposed (Figure 1).



Figure 1. The integrated theoretical framework of this research.

3. Method

3.1. Measurement

Multiple previously validated items were used to measure each construct. Given the specific research context, the item scales were adjusted accordingly (see Table 1 for details). For example, four items (e.g., 'I think conserving X/Y's environment is a wise behavior.') were adapted from Liu et al., (2020) to measure attitudes toward the behavior [77]. To measure subjective norms, four items (e.g., 'Most people who are important to me think I should conserve X/Y's environment.') were adapted from Liu et al., (2020) and Song et al., (2014) [77,78]. To measure perceived behavioral control, four items (e.g., 'I am capable of conserving X/Y's environment.') were adapted from Meng and Choi (2016) [79]. Self-congruity was measured by four items (e.g., 'The typical tourists to X/Y are similar to me.') adapted from Zhou (2020) [80]. Functional congruity was measured by four items (e.g., 'X/Y has most of the functions I desire from a destination.') adapted from Su et al., (2019) [81]. Four items (e.g., 'I intend to conserve X/Y's environment.') were adapted from Meng and Choi (2016) to measure tourists' pro-environmental behavioral intentions [79]. Five-point Likert scales were adopted to evaluate the items, varying from 1 (strongly disagree) to 5 (strongly agree).

Construct	Item	Source
Attitudes toward	ATT1	
the behavior	ATT2	
(ATT)	ATT3	[77]
(A11)	ATT4	
	SN1	
Subjective norms	SN2	
(SN)	SN3	[//,/0]
	SN4	
Porceived hehavioral	PBC1	
Perceived behavioral control	PBC2	[79]
	PBC3	[79]
(r DC)	PBC4	
	SC1	
Self-congruity	SC2	[80]
(SC)	SC3	
	SC4	
	FC1	
Functional congruity	FC2	[81]
(FC)	FC3	[01]
	FC4	
Tourists' pro-environmental	TPEBI1	
behavioral intentions	TPEBI2	[79]
(TPFRI)	TPEBI3	
	TPEBI4	

Table 1. Measurements of each construct.

Note: See Table A1 in the Appendix A for details of the measurements of all variables.

3.2. Pretest of Measurements

The translation and back-translation methods between English and Chinese were utilized to ensure accuracy and measurement validity [82]. A pretest was performed before the field survey. Both content and construct were validated in the pretest. Regarding content validity, two tourism researchers and three destination managers were recruited to review the scale and evaluate the relevance, clarity, and applicability of the survey instruments. Furthermore, the research team also recruited some 105 domestic visitors who had visited the study site to conduct the pilot study. As for construct validity, the results of exploratory factor analysis indicated that the standard factor loading of each item exceeded 0.5 (p < 0.001), showing acceptable construct validity. According to the initial findings, the measurement scales had desirable reliability (Cronbach's alpha >0.70) and validity (standard factor loadings >0.50) at this stage [83,84].

3.3. Data Collection

Two sets of data were collected for this research. One set was collected from a cultural landscape heritage destination named Hangzhou West Lake Cultural Landscape. The other set was collected from a historic cultural district named Qiaoxi Historic Cultural District for a cross-validation procedure. Both sites are located in Hangzhou, China.

Hangzhou West Lake Cultural Landscape was inscribed on the World Heritage List by the 35th UNESCO World Heritage Committee in June 2011, making it China's 41st World Heritage Site [85]. It is also the third Chinese project approved as a Cultural Landscape World Heritage Site. The lake is surrounded on three sides by cloud-capped hills and on the fourth by the city. With the addition of causeways, temples, pagodas, pavilions, gardens, and ornamental trees, the lake displays exceptional spatial features and has become a heritage site of Chinese culture for centuries. The long-term interaction between human activities and landscape environments has gradually formed this unique cultural landscape. According to the official statistics, the number of tourist visits to major tourist attractions in the West Lake Scenic Area exceeded nine million person–time in 2021, while the number was over seven million person-time in 2020 [86]. To improve people's awareness of environmental protection, various types of events and campaigns are organized frequently every year, such as the "Beautiful West Lake Environmental Protection Project", West Lake trail-walk and marathon events advocating environmental conservation, garbage picking and sorting around the lake by volunteers, etc. With these efforts, West Lake demonstrates a sustainable image to both locals and tourists. Therefore, this destination was considered as an appropriate location for the current research.

International visitors did not participate in the survey as the COVID-19 pandemic and relevant prevention regulations severely constrained international travel. Domestic visitors constituted the majority of survey participants [87]. Three teams of one researcher and one trained assistant carried out the field survey in October 2021. The survey was performed with convenience samples. Potential participants were given a short explanation of the survey before filling in the questionnaires. If travelers refused to cooperate or were not eligible as domestic visitors, the researchers sought the next potential participants. Among approximately 380 questionnaires collected, 342 were valid, with an effective response rate of 90.0%. As recommended by Nunnally (1967), 342 effective responses were sufficient as this number exceeds the minimum requirement of 240 (determined by multiplying all 24 items by 10) [88].

A balanced number of males (49.1%) and females (50.9%) participated in the survey. Regarding respondents' age groups, respondents aged between 18–24 accounted for 27.2%; between 25–34, 34.5%; between 35–44, 25.7%; 45 and above, 12.6%. In terms of educational background, approximately 5.6% of respondents attended middle school; 9.9%, high school or vocational secondary school; 20.5%, vocational college; 48.8% of them obtained Bachelor's degrees; while 15.2% had postgraduate degrees. Univariate skewness statistics (-1.527 to 0.490) and kurtosis statistics (-0.754 to 2.060) showed values that fell in the acceptable range [80].

3.4. Statistics Analysis Method

This research applied the CB-SEM method for statistical analysis. CB-SEM, as one of the two widely used SEM methods, refers to the covariance-based SEM method which considers constructs as common factors [89]. This method is typically employed to validate an existing theory when it is required to examine the conformity of the model and the appropriateness of the factor selection. Since the basis for describing the dependent connections in our model is theory-driven, CB-SEM is an appropriate choice for our study, and this method is suitable for the purpose of evaluating or extending a fundamentally theory-driven model [89]. Specifically, the CB-SEM method is recommended due to the following reasons: (1) latent variables and complex models need to be tested; (2) direct, indirect, and total effects need to be assessed; and (3) all structural relationships in a model need to be simultaneously evaluated [90]. Considerable research in hospitality and tourism has employed the CB-SEM method for data analysis [91,92], including research on pro-environmental behaviors and behavioral intentions [11,93].

4. Results

4.1. Common Method Bias Analysis

Survey-based research requires a common method bias (CMB) test, especially with the data coming from the same source [94]. Harman's single-factor test was performed with the factor analysis tool in SPSS [95]. It was indicated that no single factor explained over 50 percent of the covariance (the first factor explains 31.164% of the total variance). Confirmatory factor analysis was used to determine if a common latent factor explained all of the variances. The proposed measurement model demonstrated a better fit than the common factor model ($\Delta \chi^2(15) = 2644.313$, *p* < 0.001). Thus, CMB was not an issue for this research [96].

4.2. Measurement Model Analysis

Before using AMOS to validate the measurement model, confirmatory factor analysis (CFA) was performed to evaluate the measurement reliability and validity [97]. The results indicated a favorable compatibility (χ^2 /df = 1.532, RMR = 0.017, RMSEA = 0.039, GFI = 0.920, NFI = 0.928, IFI = 0.974, TLI = 0.969, CFI = 0.973, SRMR = 0.0388).

The results demonstrated that the composite reliability (CR) of each variable was above 0.838, exceeding the threshold of 0.70 (Table 2) [88,98]. Each item displayed notable factor loadings (p < 0.001), varying between 0.665 and 0.918. The average variance extracted (AVE) values were higher than the minimum criterion of 0.50, falling between 0.564 and 0.743. Therefore, convergent validity was obtained. The square roots of each construct's AVEs were compared with the correlations between constructs to test the discriminant validity [99]. The results suggested that the measuring model complied with the validity criteria (Table 3).

<u> </u>		Case1 W	est Lake		Case	2 Qiaoxi Histor	ric Cultural Di	strict
Construct	Loading	t-Value	CR	AVE	Loading	t-Value	CR	AVE
ATT			0.866	0.618			0.878	0.644
ATT1	0.805	13.686			0.765	13.995		
ATT2	0.852	14.294			0.854	15.62		
ATT3	0.766	13.089			0.835	15.308		
ATT4	0.716	-			0.752	-		
SN			0.920	0.743			0.927	0.760
SN1	0.883	19.532			0.851	21.068		
SN2	0.918	20.574			0.918	24.224		
SN3	0.831	17.887			0.841	20.604		
SN4	0.812	-			0.874	-		
PBC			0.838	0.564			0.856	0.597
PBC1	0.782	13.101			0.777	14.442		
PBC2	0.783	13.111			0.772	14.349		
PBC3	0.700	11.878			0.748	13.879		
PBC4	0.737	-			0.794	-		
SC			0.877	0.641			0.898	0.688
SC1	0.781	14.295			0.785	15.975		
SC2	0.827	15.147			0.874	18.264		
SC3	0.830	15.206			0.847	17.617		
SC4	0.761	-			0.808	-		
FC			0.882	0.653			0.898	0.689
FC1	0.665	13.315			0.728	15.454		
FC2	0.819	17.703			0.826	18.64		
FC3	0.888	19.505			0.905	21.159		
FC4	0.843	-			0.851	-		
TPEBI			0.886	0.660			0.872	0.632
TPEBI1	0.829	14.618			0.823	13.163		
TPEBI2	0.841	14.808			0.842	13.386		
TPEBI3	0.849	14.948			0.828	13.218		
TPEBI4	0.724	-			0.674	-		

Table 2. The measurement model results.

Note: ATT = Attitudes toward the behavior; SN = Subjective norms; PBC = Perceived behavioral control; SC = Self-congruity; FC = Functional congruity; TPEBI = Tourists' pro-environmental behavioral intentions; CR = composite reliability; AVE = average variance extracted.

Construct	Case1 West Lake							Case2 Qiaoxi Historic Cultural District					
Construct	ATT	SN	PBC	SC	FC	TPEBI	ATT	SN	PBC	SC	FC	TPEBI	
ATT	[0.786]						[0.802]						
SN	0.449	[0.862]					0.390	[0.872]					
PBC	0.304	0.396	[0.751]				0.303	0.335	[0.773]				
SC	0.165	0.253	0.294	[0.801]			0.185	0.228	0.306	[0.829]			
FC	0.227	0.331	0.255	0.230	[0.808]		0.321	0.287	0.179	0.297	[0.830]		
TPEBI	0.418	0.492	0.435	0.356	0.353	[0.812]	0.411	0.443	0.401	0.329	0.322	[0.795]	

Table 3. Results of the discriminant validity.

Note: ATT = Attitudes toward the behavior; SN = Subjective norms; PBC = Perceived behavioral control; SC = Self-congruity; FC = Functional congruity; TPEBI = Tourists' pro-environmental behavioral intentions.

4.3. Structural Model Analysis

The structural equation modeling (SEM) analysis was executed to test the direct hypotheses. The fit indices (χ^2 /df = 1.634, RMR = 0.033, RMSEA = 0.043, GFI = 0.914, NFI = 0.922, IFI = 0.968, TLI = 0.963, CFI = 0.968, SRMR = 0.0741) indicated that the model fit the data well. All six hypotheses were supported (Table 4). ATT, SN, and PBC all significantly and directly affected TPEBI (β_{ATT} = 0.195, p < 0.01; β_{SN} = 0.243, p < 0.001; β_{PBC} = 0.199, p < 0.01), which confirmed H1, H2, and H3. SC significantly and directly impacted TPEBI (β = 0.174, p < 0.01) and FC (β = 0.244, p < 0.001), supporting H4 and H6. Further, FC directly affected TPEBI (β = 0.151, p < 0.01), which thus supported H5.

Table 4. Results of the structural model analysis and hypothesis test.

		С	ase1 West Lak	e	Case2 Qiaoxi Historic Cultural District			
Hypotheses	Path	Standardized Coefficient	t-Value	Results	Standardized Coefficient	t-Value	Results	
H1	ATT→TPEBI	0.195	3.186 **	Supported	0.198	3.253 **	Supported	
H2	SN→TPEBI	0.243	3.867 ***	Supported	0.238	3.922 ***	Supported	
H3	PBC→TPEBI	0.199	3.207 **	Supported	0.201	3.237 **	Supported	
H4	SC→TPEBI	0.174	3.009 **	Supported	0.144	2.424 *	Supported	
H5	FC→TPEBI	0.151	2.843 **	Supported	0.121	2.21 *	Supported	
H6	$SC \rightarrow FC$	0.244	3.999 ***	Supported	0.305	5.155 ***	Supported	

Note: * p < 0.05, ** p < 0.01, *** p < 0.001. ATT = Attitudes toward the behavior; SN = Subjective norms; PBC = Perceived behavioral control; SC = Self-congruity; FC = Functional congruity; TPEBI = Tourists' pro-environmental behavioral intentions.

4.4. Mediating Effect Test

Multiple methods, including the causal steps approach, the Sobel test, and the bootstrapping method, were adopted to test the mediating effects. The causal steps approach, which was developed by Baron and Kenny [100], is one of the most frequently used methods. However, this approach is criticized for two reasons. First, the causal steps technique is one of the least effective approaches for testing mediating effects as simulation studies suggested [101,102]. Second, this method fails to consider the scale of the mediating effect [103], making it unable to accommodate frameworks with inconsistent mediation [104]. This method is sometimes supplemented by another method named the Sobel test [105]. The Sobel test assumes a normal sampling distribution of *ab*. The sampling distribution of *ab*, however, frequently exhibits asymmetry, while skewness and kurtosis values are nonzero [106]. Compared to the Sobel test, bootstrapping with a confidence interval is regarded as a preferable option because it can prevent a significant Type I error rate brought by the deviation from the normal distribution [107]. The bootstrapping method has recently been used in considerable research to examine mediation effects [33,87,108–110].

Therefore, the AMOS's bootstrapping method was utilized to examine the mediating effects. The bootstrapping mediating effect test was performed with 5000 bootstrap samples and a 95% confidence interval [111]. SC had a considerable mediating effect on TPEBI through FC (β = 0.037; CI = (0.011, 0.075); *p* < 0.01) (Table 5).

Mediating - Hypothesized Path	Case1 West Lake						Case2 Qiaoxi Historic Cultural District			
	Indirect Effects	Lower	Upper	<i>p</i> -Value	Results	Indirect Effects	Lower	Upper	<i>p</i> -Value	Results
H7: SC→FC→TPEBI	0.037	0.011	0.075	0.005	Supported	0.037	0.006	0.082	0.022	Supported

Table 5. Mediation test results.

Note: SC = Self-congruity; FC = Functional congruity; TPEBI = Tourists' pro-environmental behavioral intentions.

4.5. Explanatory Capacity of the Conceptual Framework

The explanatory capacity of the proposed "congruity-TPB" framework was assessed by R^2 values of the endogenic constructs. The large, medium, and small effects of model thresholds for the R^2 values were 0.25, 0.09, and 0.01, respectively [112]. As Table 6 indicates, findings from the squared multiple correlations (SMC = R^2) imply that TPB (or M0) accounted for 34.4% of the variance for TPEBI; the self-congruity model (or M1), 20.4%; the "congruity-TPB" framework (or M2), a higher 37.3%. These results suggested a greater explanatory capacity of the integrated theoretical framework in comparison to the single model.

Table 6. Model comparison test results.

Model Category	Case1 West Lake	Case2 Qiaoxi Historic Cultural District
Would Category	R ² : TPEBI	R ² : TPEBI
M0: TPB	0.344	0.311
M1: SC + FC	0.204	0.164
M2: M0 + M1	0.373	0.332

Note: TPB = Theory of planned behavior; SC = Self-congruity; FC = Functional congruity; TPEBI = Tourists' pro-environmental behavioral intentions.

4.6. Cross-Validation Analysis

To further the universal applicability of a study, a cross-validation procedure is performed to test it in different settings [113]. Consequently, cross-validation was performed in both the heritage (i.e., West Lake) and the historic cultural destinations (i.e., Qiaoxi Historic Cultural District).

Qiaoxi Historic Cultural District is located on the west side of the Beijing–Hangzhou Grand Canal and Gongchen Bridge. It consists of a large number of ancient architectures which are adapted for several purposes, such as exhibition halls of intangible cultural heritage, museums of traditional crafts, and workshops, etc. It is known as a living cultural heritage since it maintains the style and features of local urban architecture in the late Qing Dynasty and is filled with the dynamics of civil life. Functioning as the "skeleton" of a famous historical and cultural city, the historic cultural district is endowed with a considerable number of precious historical and cultural relics. It is an essential part of the famous historical and cultural city and a carrier of urban culture. It has an irreplaceable value and role in inheriting urban history and culture [114]. Environmental conservation practices are implemented in this district, such as the black and red list of environmental protection, mandatory waste sorting, strict urban planning policies, etc. Considering the above recognitions, the historic cultural destination is an appropriate site for the field study. Figure 2 presents the geographical locations of the study sites.



Figure 2. The geographical locations of Zhejiang Province (a) and two study sites in Hangzhou (b).

The survey at Qiaoxi Historic Cultural District also concentrated on domestic visitors. A total of 345 of 380 questionnaires gathered were effective, showing a 90.8% effective response rate. A relatively balanced number of males (48.4%) and females (51.6%) participated in the survey. For respondents' age groups, respondents aged between 18–24 accounted for 26.7%; between 25–34, 35.7%; between 35–44, 24.1%; 45 and above, 13.6%. In terms of educational background, approximately 6.7% of respondents attended middle school; 15.7%, high school or vocational secondary school; 23.5%, vocational college; 42.9% of them obtained Bachelor's degrees; while 11.3% had postgraduate degrees. Tables 2 and 3 show the results of each validity and reliability test, which validated the conceptual framework. The results of the Qiaoxi Historic and Cultural District (case 2 in Table 4) supported all six hypotheses formulated in the conceptual framework (Figure 1). The mediation effect is shown in Table 5. The AMOS output results for both the heritage and historic cultural destinations are shown in Figure 3.



Figure 3. AMOS output results in the heritage destination (left) and the historic cultural destination (right).

Two groups were formed from the participants, one is a heritage destination group (n = 342) and the other a historic cultural destination group (n = 345). Consistent with Su and Swanson (2017) [115], the data from the two groups in various circumstances were tested using a multi-group comparative analysis with a good fit (Table 7). After assessing the differences between the constrained and the unconstrained models, no substantial statistical differences were discovered (p > 0.05), which supported cross-validation (Table 8).

Model	χ^2/df	RMR	RMSEA	GFI	NFI	IFI	TLI	CFI
Unconstrained	1.648	0.032	0.031	0.915	0.924	0.969	0.964	0.968
Measurement weights	1.619	0.032	0.030	0.913	0.923	0.969	0.965	0.969
Structural weights	1.605	0.032	0.030	0.913	0.922	0.969	0.966	0.969
Structural covariances	1.584	0.033	0.029	0.912	0.922	0.970	0.967	0.970
Structural residuals	1.579	0.033	0.029	0.912	0.922	0.970	0.968	0.970
Measurement residuals	1.559	0.033	0.029	0.909	0.919	0.969	0.969	0.969

Table 7. Goodness results of fit indices.

Table 8. Significance results of tested model compared with unconstrained model.

Model	DF	x ²	Р	NFI Delta-1	IFI Delta-2	RFI Rho-1	TLI Rho-2
Measurement weights	18	15.462	0.630	0.001	0.002	-0.002	-0.002
Structural weights	24	18.098	0.798	0.002	0.002	-0.002	-0.002
Structural covariances	34	23.337	0.916	0.002	0.002	-0.003	-0.004
Structural residuals	36	24.203	0.933	0.002	0.002	-0.004	-0.004
Measurement residuals	60	50.974	0.790	0.005	0.005	-0.005	-0.005

5. Conclusions, Contributions and Implications

5.1. Conclusions

Examining the formation of TPEBI is vital to the sustainability of tourism destinations [19]. This research integrated the self-congruity theory into TPB to explore how two types of congruity influence TPEBI in the setting of cultural landscape heritage. Cross-validation was conducted to re-examine the integrated theoretical framework with the data collected from a historic cultural district. The empirical analysis presented the following results:

First, the results showed that attitudes toward the behavior, subjective norms, and perceived behavioral control all positively and significantly affect TPEBI. This is in line with the findings of multiple existing studies and reconfirms the explanatory power of TPB for predicting TPEBI [22,23,116]. It suggests that people are more willing to perform pro-environmental behaviors if they believe that the pro-environmental behaviors bring greater benefits, or they feel a stronger sense of social pressure and control over the behaviors. Thus, the results validated the feasibility of TPB in explaining TPEBI in heritage tourism [28,33,117].

Second, this study investigated the impact of tourist-destination congruity on TPEBI from two aspects, i.e., self-congruity and functional congruity. The findings indicated that these two value-expressive factors exert a positive and significant impact on TPEBI. This means the two circumstances will induce tourists to behave pro-environmentally. One circumstance is when the image of a destination reflects a person's self-image; the other is when the utilitarian aspects of a destination satisfy expectations of those aspects. As previous research indicates, self-congruity helps develop positive environmental behaviors [16]. The results provide further evidence that another value-expressive factor, i.e., functional congruity, also facilitates the fostering of pro-environmental behavioral intentions.

Third, this research examined how self-congruity and functional congruity are related. The results demonstrated that self-congruity has a positive impact on functional congruity, which confirms the findings of the extant tourism literature [75,118,119]. This showed a mediating pathway for self-congruity to influence TPEBI through functional congruity. Specifically, tourists with a perception of congruence between self-images and destination images foster favorable attitudes toward the destination, which further facilitates positive behavioral intentions. Thus, this supports the view that the combination of these two types

of congruity can explain the formation of tourists' behavioral intentions in a more stable and effective way [68,120].

Finally, cross-validation indicated the feasibility of this research by confirming the robustness of the integrated theoretical framework in different tourism settings. Data retrieved from the cultural landscape heritage site was first analyzed before the cross-validation was conducted using the historic cultural district for re-examination. Consistent results were found for the samples from both types of destinations, which implies the generalizability of the conceptual framework. It also underlined the better explanatory capacity of this integrated framework.

5.2. Theoretical Contributions

By considering both rational and value-expressive factors, this research revealed the predictors of TPEBI in cultural landscape heritage sites and historic cultural districts, which offered the following theoretical implications:

First, the study constructed and empirically tested an integrated "congruity-TPB" model in predicting TPEBI in two tourism settings, i.e., cultural landscape heritage site and historic cultural district. In addition to reaffirming the effectiveness of TPB in fostering TPEBI [22,23,33,116], the tourist–destination congruity offers new evidence in TPEBI research from value-expressive perspectives. Tourists' tendency of presenting their own images and values is related to their behaviors [38,40–43,75]. This research, however, incorporates TPB with the self-congruity theory to investigate how self-concept exerts its influence on pro-environmental behavioral intentions in a cultural landscape heritage site and historic cultural district. The findings suggest that the combination of TPB and the self-congruity theory better explains environmental intentions, providing a new theoretical perspective for the research of TPEBI [66,67].

Second, the present research validates the direct impacts of self-congruence and functional congruity on TPEBI. The previous literature shows that these two types of congruity can effectively drive individual behavioral intentions and are applicable in tourism [66]. The results imply that self-concept can be interpreted into pro-environmental behavioral intentions [68,120]. Specifically, either the self-expressive aspect of congruity (i.e., self-congruity) or the knowledge aspect of congruity (i.e., functional congruity) can lead people to behave pro-environmentally during trips. As a result, this research extends the application of the self-congruity theory in TPEBI research [16].

Finally, self-congruity and functional congruity operate together in this research to explain TPEBI, which is different from some extant studies approaching this topic from one single construct, i.e., self-congruity [16]. This research also examines the association between self-congruity and functional congruity. The results show that, on the one hand, two types of congruity complement each other to better predict behavioral intentions [67,75]. On the other hand, functional congruity noticeably mediates the association between self-congruity and TPEBI. This highlights the critical role of functional congruity within the self-congruity theory [66], as well as in investigating tourist behaviors [68,120]. Overall, the findings of this empirical research enrich the application of the self-congruity theory by taking functional congruity into account and advancing the understanding of the relationship between the two value-expressive constructs within the theoretical framework.

5.3. Managerial Implications

This research probes the underlying characteristics of TPEBI by considering the effects of tourist–destination congruity in two types of destinations, namely, a cultural landscape heritage site and a historic cultural district. The findings provide managers of these destinations with the following practical implications:

First, due to the importance of the TPB constructs in explaining TPEBI, destination management should make efforts to reinforce visitor attitudes toward protecting the destination environment. For example, the unique features and value of these destinations can be stressed in publicity and education campaigns. In this way, people will realize

that they can make contributions to the sustainable growth of the destination through proenvironmental behaviors. This can motivate them to preserve the destination environment. Interactive installations can be set up to draw tourist attention, especially family groups. The involvement of family members or close friends will make individuals feel social pressure and encourage them to engage as well. Destination managers should diversify the approaches for people to engage in destination conservation, which may enhance their perceptions of the ability to perform pro-environmental behaviors.

Second, the integration of the self-congruity theory demonstrates the influence of valueexpressive motives on behavioral intentions. For destination managers, potential visitors should be targeted based on destination images in the marketing and landscape planning efforts. To facilitate visitors' expression of self-concept, tourism products and programs should take visitor needs into account [121]. Strategical tool-like place-telling can be used to transmit the identity of the destination to visitors from other cultures [122]. Visitors who perceive a matched destination image with their own will be more willing to visit the destination and consequently maintain its ecological integrity. Visitor feedback and reviews on both online and offline platforms should be assessed, which will enable destination managers to properly adjust destination images for achieving tourist–destination congruity. The interaction and collaboration between tourists and destinations cannot only benefit tourists, but also helps to sustain the development of the destination.

Lastly, as functional congruity is a critical mediator between self-congruity and TPEBI, destination managers should pay special attention to the functional attributes of destinations, such as prices of tourism products, service quality, and accessibility of transport and facilities. To attract more visitors and satisfy their diverse needs, the pricing strategy should be adjusted according to market feedback. When necessary, university–industry cooperation should be strengthened to cultivate well-trained staff to improve service quality. Regarding accessibility, particular attention should be given to potential tourists with special needs (such as disabled or seniors), especially in the landscape planning or management of destinations [123]. Equipment and facilities should be adapted for those in need to travel and entertain more easily. The inclusion of functional features will result in greater satisfaction, which in turn promotes TPEBI.

6. Limitations and Future Research Directions

Similar to other research, this study also had some limitations. First, the behavioral intentions were captured by self-reported measurement, which may be subject to social desirability effects [94]. Second, the SEM method was used for data analysis. Experimental approaches, which show increasing popularity among researchers [124,125], can be good options for in-depth research in the future, [14,126]. Mixed methods can also be critical for future research [127,128]. Third, pro-environmental behavior was discussed as a one-dimensional concept, more specific pro-environmental behaviors should be measured in future research [22], such as waste recycling and waste sorting [58,60,129]. Lastly, due to the international travel restrictions caused by the COVID-19 pandemic, the samples collected in this research were mainly domestic tourists. The sample structure needs to be further improved in the future.

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Appendix A

Table A1. Detailed measurements of all variables.

Construct	Item	Source
Attitudes toward the behavior (ATT)	ATT1 I think conserving X/Y's environment is a wise behavior. ATT2 I think conserving X/Y's environment is a valuable behavior. ATT3 I think conserving X/Y's environment is a necessary behavior. ATT4 I think conserving X/Y's environment is a beneficial behavior. SNI Most people who are important to me think I should conserve X/Y's	[77]
Subjective norms (SN)	environment. SN2 Most people who are important to me support my conserving X/Y's environment. SN3 Most people who are important to me recommend that I conserve X/Y's environment.	[77,78]
Perceived behavioral control (PBC)	SN4 Most people who are important to me agree with me to conserve X/Y's environment. PBC1 I am capable of conserving X/Y's environment. PBC2 Whether or not I conserve X/Y's environment is up to me. PBC3 I have enough resources, time and opportunities to conserve X/Y's environment. PBC4 I am confident that if I want I can conserve X/Y's environment	[79]
Self-congruity (SC)	SC1 The typical tourists to X/Y are very much the kind of persons I like to be. SC3 The typical tourists to X/Y are consistent with how I like to see myself. SC4 The typical tourists to X/Y reflect the type of person who I am.	[80]
Functional congruity (FC)	 FC1 X/Y has most of the functions (food, accommodation, transportation, travel, consumption, recreation) I desire from a destination. FC2 X/Y performs well on the functional attributes (food, accommodation, transportation, travel, consumption, recreation) I value the most. FC3 The functional value (food, accommodation, transportation, travel, consumption, recreation) provided by X/Y is consistent with what I expected from a destination. 	[81]
Tourists' pro-environmental behavioral intentions (TPEBI)	FC4 X/Y meets all my functional needs (food, accommodation, transportation, travel, consumption, recreation) for staying at a destination. TPEBI1 I intend to conserve X/Y's environment. TPEBI2 I will make an effort to conserve X/Y's environment. TPEBI3 I am willing to conserve X/Y's environment. TPEBI4 I am planning to conserve X/Y's environment.	[79]

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