

Supplementary Materials

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1. Reliability and validity tests

To assess the scale's reliability, we calculated Cronbach's alpha index using SPSS 27.0, a widely recognized and extensively used metric. Internal consistency and reliability are generally considered adequate when Cronbach's alpha value exceeds 0.70. In this case, the values achieved indicated high data reliability, as shown in Table S1.

Table S1. Reliability test results of concepts.

Concept	Nnumber of items	Standardized Cronbach's alpha index value
Landscape characteristics	4	0.776
Function	3	0.719
Historical-cultural Importance	3	0.863
place identity	9	0.850

Table S2. Validity test results of concepts.

Concept	Index			
	KMO value	Approximate chi-square	Degrees of freedom	Significance (p)
Landmark landscape perception	0.814	740.011	45	0.000
Place identity	0.852	582.217	28	0.000

Table S3. PCA and explained variance.

Concept	Rotate the sum of squares to load %		cumulation
	total	variance	
1 Place identity	3.483	19.351	19.351
2 Historical-cultural importance	3.089	17.163	36.514
3 Landscape characteristics	2.539	14.104	50.619
4 Function	2.092	11.620	62.239

Table S4. Exploratory factor analysis.

Concept	Item variables	Principal component factor			
		1	2	3	4
Place identity	PI6	0.788			
	PI7	0.744			
	PI1	0.715			
	PI4	0.606			
	PI3	0.530			
	PI8	0.510			

		PI2	0.504				
		PI5	0.426				
Historical-cultural importance		HCS1		0.850			
		HCS2		0.839			
		HCS3		0.783			
Landscape characteristics		LC4			0.801		
		LC3			0.733		
		LC2			0.709		
		LC1			0.616		
Function		F2				0.793	
		F1				0.713	
		F3				0.698	

2. Exploratory factor analysis

Table S5. Structural validity s analysis.

	Route		Standardized Estimate	S.E.	T-value	P	AVE	CR
LC4	<---	Landscape Characteristics	0.603			***		
LC3	<---	Landscape Characteristics	0.641	0.147	7.063	***	0.458	0.770
LC2	<---	Landscape Characteristics	0.688	0.158	7.329	***		
LC1	<---	Landscape Characteristics	0.763	0.160	7.294	***		
F3	<---	Function	0.756			***		
F2	<---	Function	0.576	0.129	6.942	***	0.464	0.720
F1	<---	Function	0.700	0.135	7.357	***		
HCS3	<---	Historical-cultural importance	0.792			***		
HCS2	<---	Historical-cultural importance	0.874	0.093	12.552	***	0.684	0.866
HCS1	<---	Historical-cultural importance	0.813	0.095	11.746	***		
PI1	<---	Place Identity	0.584			***		
PI2	<---	Place Identity	0.726	0.149	7.705	***	0.420	0.851
PI3	<---	Place Identity	0.660	0.162	7.255	***		
PI4	<---	Place Identity	0.714	0.149	7.620	***		

PI5	<---	Place Identity	0.560	0.150	6.439	***
PI6	<---	Place Identity	0.631	0.162	7.260	***
PI7	<---	Place Identity	0.714	0.167	7.744	***
PI8	<---	Place Identity	0.570	0.101	6.518	***

*** $p < 0.001$.

Table S6. Distinguishing validity analysis.

	Landscape Characteristics	Function	Historical-cultural Importance
Landscape Characteristics	0.458		
Function	0.167**	0.464	
Historical-cultural Importance	0.200**	0.158**	0.684
AVE square root	0.676	0.681	0.827

** $p < 0.01$.

3. Model evaluation and hypothesis testing

Table S7. Fitting indices for the conceptual mode.

Metrics to measure the degree of fit	Metric threshold	Estimated value	Estimated value(revised)
Df		129	126
χ^2/Df	≤ 3.000	2.604	2.171
CFI	≥ 0.900	0.863	0.902
GFI	≥ 0.800	0.839	0.868
AGFI	≥ 0.800	0.787	0.820
IFI	≥ 0.900	0.865	0.904
RMSEA	≤ 0.080	0.089	0.076