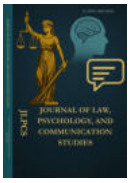
PANORAMA SCHOLARLY GROUP

Journal of Law, Psychology, and Communication Studies (JLPCS)



Museum Tourism Experiences and Visitors' Recommendation Intentions: A Stimulus–Organism–Response Approach

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ARTICLE INFO

Keywords:
Recommendation intention
Destination image
Perceived value
Stimulus–Organism–Response (S-O-R)

DOI: *https://doi.org/10.63802/jlpcs.V2.I1.195*

ABSTRACT

Using the PLA Naval Museum as an empirical setting, this study examines how museum tourism experiences influence visitors' recommendation intentions through a Stimulus–Organism–Response (S-O-R) framework. Data were collected via a structured questionnaire and analyzed with reliability/validity tests, correlation analysis, and regression modeling. The results indicate that experience-related stimuli—exhibits and display design, educational and cultural value, and environment and service quality—significantly enhance visitors' affective and cognitive experiences and perceived value, which in turn strengthen their intention to recommend (including willingness to revisit and share experiences). This study provides contextual evidence for applying S-O-R theory to military-themed museum tourism and offers practical suggestions for improving experience design and communication effectiveness in similar museums.

1. Introduction

With sustained global tourism growth and the increasing prominence of cultural tourism, museum tourism has attracted growing scholarly attention because of its cultural, educational, and experiential value (Xu et al., 2025). As a venue showcasing the development of China's naval forces and the associated spirit, the PLA Naval Museum receives a large number of visitors each year (Liu et al., 2025). In the experience economy, visitors' expectations have shifted from simple sightseeing to a stronger emphasis on experiential quality, emotional resonance, and cognitive gains (Pine & Gilmore, 1999). Understanding how these experiences shape word-of-mouth behaviors is therefore important for both research and practice (Xu et al., 2025).

The Stimulus–Organism–Response (S-O-R) framework is widely used to explain how external stimuli trigger internal psychological states and subsequently influence behavioral responses (Mehrabian & Russell, 1974). In museum settings, exhibits, spatial layout, interpretive services, and cultural atmosphere constitute stimuli (S) that shape visitors' affective and cognitive responses (O), which then translate into behavioral intentions (R), such as recommending the museum, revisiting, and sharing experiences online (Xu et al.,2025). Despite increasing applications in tourism research, evidence from specialized institutions such as military-themed museums remains limited (Liu et al., 2025).

Destination image and perceived value are also important predictors of tourists' behavioral intentions. A favorable destination image can attract visitors and form lasting impressions that encourage positive word-of-mouth and revisit-related intentions (Baloglu&McCleary, 1999). Perceived value—covering functional, emotional, and social value—reflects visitors' overall evaluation of benefits relative to costs and can strengthen recommendation intention (Woodside & Dubelaar, 2002). However, the relationships among museum tourism experience, destination image, perceived value, and recommendation intention

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have not been examined sufficiently in military-museum contexts (Xu et al., 2025).

Accordingly, this study investigates the PLA Naval Museum through the S-O-R lens and incorporates destination image and perceived value to clarify how museum tourism experience shapes visitors' recommendation intentions (Liu et al., 2025). The findings are expected to enrich museum tourism research and provide actionable suggestions for improving visitor experience, strengthening destination image, and enhancing visitors' proactive recommendations, thereby supporting the high-quality development of museum tourism (Xu et al., 2025).

2. Literature Review

With the upgrading of cultural tourism consumption, museum tourism has become a central carrier of deep, experience-based travel. Military-themed museums, characterized by unique historical value and spiritual connotations, have gradually emerged as an important growth segment in the tourism market (Liu et al., 2025). In the experience economy, recommendation intention is a core indicator of tourists' behavioral intention and a key dimension for evaluating the value of museum tourism (Pine & Gilmore, 1999).

The Stimulus–Organism–Response (S-O-R) theory proposed by Mehrabian and Russell (1974) provides a robust framework for analyzing the link between tourism experiences and behavioral intentions. In museum settings, stimuli (S) include exhibition resources, spatial layout, interpretive services, and cultural atmosphere; organismic responses (O) include pleasure, awe, and cultural identification; and responses (R) are expressed as recommendation and revisit intentions (Xu et al., 2025). Existing studies support the applicability of S-O-R in museum tourism, yet research specifically targeting military museums remains scarce, and further contextual adaptation is needed (Liu et al., 2025).

In the digital era, technologies such as AR and VR have shifted experience modes from object-centered display to visitor-centered immersion, making immersive experiences crucial for improving quality (Zhou et al., 2025). For a naval museum, exhibit authenticity, situational immersion, and professional interpretation—especially emotional resonance evoked by 'red culture'—are decisive for experience quality (Liu et al., 2025). Perceived value and destination image play important mediating roles between experience and recommendation intention: perceived value, as a comprehensive evaluation of benefits and costs, can significantly strengthen recommendation intention through affective and cognitive dimensions (Woodside & Dubelaar, 2002); a positive destination image promotes recommendation behavior by enhancing emotional connection (Baloglu & McCleary, 1999).

Although prior research has constructed the 'stimulus–psychology–behavior' chain and confirmed that museum stimuli can be transformed into recommendation intention via internal psychological responses (Kim et al., 2020), several gaps remain. First, existing research predominantly focuses on comprehensive or art museums, with insufficient attention to military museums. Second, S-O-R applications often lack contextual adaptation and do not fully capture unique stimuli such as red-cultural atmosphere. Third, the complex interplay among experience, perceived value, destination image, and recommendation intention has not been examined in depth (Zhou et al., 2025).

Future studies may (1) refine the variable dimensions of S-O-R models for military museums by incorporating distinctive stimuli, (2) build multiple-mediation models to test the pathways of perceived value and destination image, and (3) explore mechanisms through which digital technologies influence recommendation intention, thereby informing practical experience design in museums.

2.1. Theoretical Foundations

2.1.1. Concept of a Tourism Destination

Geographical-space and resource-integration perspective: A tourism destination can be defined as an integrated region within a certain geographical scope, where tourism resources are organically combined with dedicated facilities, infrastructure, and other supporting conditions to meet tourists' needs for staying, sightseeing, and experiencing. For example, Spain is a world-class destination not only because of its cultural heritage and natural scenery, but also due to supporting elements such as transportation systems, accommodation, and festivals.

Tourist behavior and experience perspective: Leiper (1995) proposed that a tourism destination is a place that people choose to stay in to experience its distinctiveness or perceived attractiveness. This view emphasizes the link between tourists' subjective experiences and a destination's uniqueness. For instance, Spain's Camino de Santiago integrates religion, nature, and history, becoming a typical destination for spiritual and cultural exploration.

2.1.2. Research Progress on Destination Image

International research on destination image began relatively early. In the early 1970s, Hunt first introduced the concept in his doctoral dissertation, opening a sustained research stream. Regarding concepts and theories, scholars have offered definitions from different perspectives. Baloglu and McCleary (1999) viewed destination image as a concept reflecting tourists' personal attitudes, encompassing individuals' cognition, emotions, and impressions of a destination. Research has also examined drivers and formation mechanisms, including macro-level factors (e.g., major events, negative incidents, and information sources) and micro-level individual differences (e.g., travel stage, first-time vs. repeat visits, and demographic characteristics), as well as image repair and crisis management.

In China, destination image research started in the 1990s. Domestic scholars have proposed definitions and explored strategies for image shaping and communication, such as examining how tourists' experience sharing contributes to destination promotion and image construction. Methodologically, the field has shifted from qualitative to quantitative approaches, including questionnaires, interviews, and big-data analysis. For example, Hu and Liang (2019) reviewed 56 studies (1989–2015) and suggested that combining structured and unstructured measurement methods would be a key future trend.

2.2. S-O-R Theory

2.2.1. Definition

S-O-R (Stimulus–Organism–Response) theory was proposed by Albert Mehrabian and James A. Russell in 1974. The theory posits that when individuals are situated in a particular environment, they are exposed to external stimuli (S), which act upon the organism (O) and trigger internal responses in physiological and psychological terms, including affect, cognition, and arousal, ultimately leading to behavioral responses (R).

2.2.2. Research Progress

Since its inception, S-O-R theory has been widely applied in psychology and has gradually expanded to marketing and consumer behavior. In marketing, scholars use the model to

explain consumer behavior. For example, Yadav (2022) applied S-O-R to examine how consumer involvement and destination preference influence tourism behavioral intentions, highlighting the moderated-mediation role of electronic word-of-mouth. In tourism, the framework has been used to investigate how destination landscapes, facilities, and other stimuli evoke tourists' emotional experiences and cognitive evaluations that shape revisit and recommendation intentions.

Domestic research on S-O-R started relatively late but has developed rapidly. In consumer behavior studies, researchers have analyzed behavioral logic across consumption scenarios; for instance, Wang (2023) examined how anchor characteristics and livestream atmosphere influence consumers' emotions and cognition to form impulsive buying behavior. In tourism, Liu (2022) applied S-O-R to the Qingcheng Mountain–Dujiangyan Scenic Area to analyze how heritage display and visitor experience affect revisit intention through emotional and cognitive responses.

Overall, while S-O-R has yielded rich insights across domains, research in the niche field of museum tourism—particularly for specialized military museums such as the PLA Naval Museum—remains underdeveloped. Further work is needed to clarify how stimuli such as exhibition presentation, cultural atmosphere, and interpretive services precisely influence visitors' affective and cognitive responses and, in turn, their recommendation intentions.

2.3. Museum Tourism

Museum tourism is an emerging form of tourism that uses museums as core venues and integrates cultural education, leisure experiences, and tourism consumption. Development content includes exhibitions, educational study tours, cultural and creative products, and digital interactions, aiming to meet visitors' deeper cultural experience needs. With higher cultural literacy and the growth of urban leisure tourism, museum tourism has become an increasingly popular urban leisure activity.

2.4. Research on Museum Tourism

International studies began relatively early in examining how the experience economy affects museums, focusing on a shift from 'education-oriented' to 'experience-oriented' approaches. For example, Liu (2024/2025) highlighted how a VR liquor-culture museum uses multimodal interaction and intelligent virtual avatars to enhance engagement while emphasizing emotional connection and memory retention. In consumer behavior research, S-O-R has been used to analyze how physical environments indirectly promote recommendation behavior via affective arousal. Massari (2024) examined how digital technologies turn museums into interactive platforms for value co-creation in tourism destinations. International research also emphasizes sustainable museum tourism, including visitor flow management, cultural authenticity protection, and balancing commercialization.

In China, studies increasingly employ online text analysis and grounded theory to explore deeper determinants of visitor experience. Findings suggest that facilities, exhibition innovation, and digital presentation are key to improving experience, while young visitors (e.g., Generation Z) value interaction and personalization. Nevertheless, S-O-R-based research on military museums remains scarce, calling for theoretical refinement, methodological integration, and practical innovation to explore distinctive pathways for the PLA Naval Museum and to support cultural–tourism integration and patriotic education.

2.5. Revisit Intention

Revisit intention refers to a visitor's intention or likelihood of returning to the same destination for tourism activities. It reflects a sustained preference toward a specific destination or provider. A higher revisit intention typically indicates satisfaction with prior experiences and a desire to revisit for further enjoyment.

Prior research has shown that rich and distinctive red-tourism resources can evoke emotional resonance and deepen cognition of revolutionary history, thereby influencing revisit intention. In addition, landscape perception can positively influence satisfaction and revisit intention, with satisfaction often playing a mediating role. As markets evolve, repeat visitors are increasingly recognized as crucial for sustaining mature destinations, stabilizing revenues, and expanding potential markets through word-of-mouth effects.

3. Research Design

3.1. Research Model

Against the backdrop of the booming global tourism industry, exploring the influence mechanism of tourism experience on tourists' recommendation intention has become a key topic in tourism management research. After a literature review, the research model of this study is presented in Figure 1 below (Fig.1: Research Model Diagram). The model is constructed based on the Stimulus-Organism-Response (S-O-R) theoretical framework, which divides the core elements into three dimensions, namely tourism experience as the stimulus, psychological activities as the organism, and recommendation intention as the response. This framework helps to systematically reveal the internal logical relationship between tourists' perception of tourism products and their behavioral intentions, and provides a theoretical basis for subsequent empirical analysis.

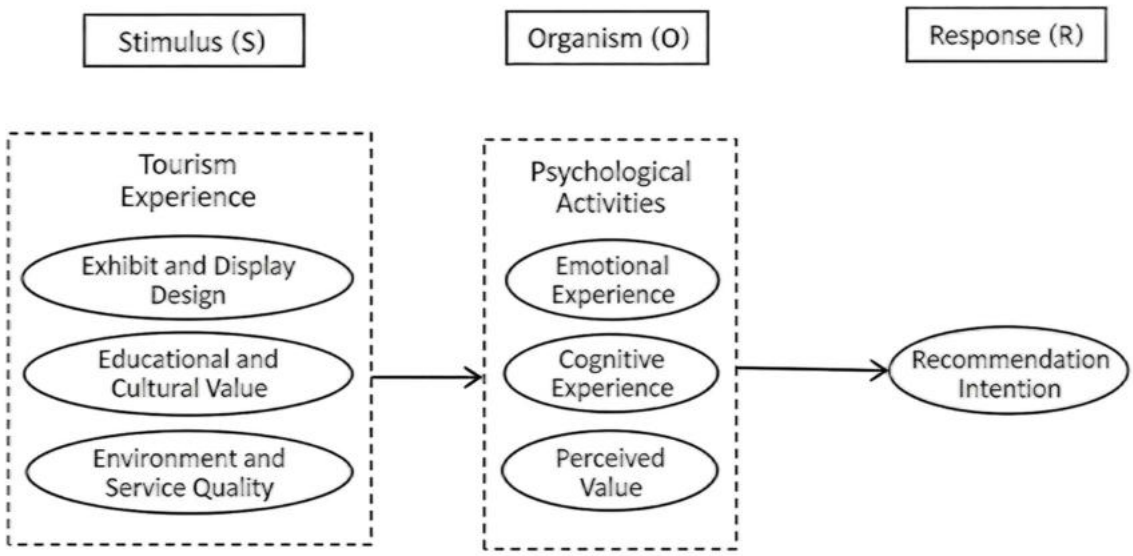


Fig. 1. Research Model Diagram

3.2. Research Hypotheses

3.2.1. Effects of Stimuli (S) on the Organism (O)

Tourism experience positively influences psychological activities. Based on S-O-R theory, Li (2023) found that cultural identity in cultural tourism environments influences behavioral intention through affective experience; Li (2023) further noted that perceived destination image directly affects tourists' emotional attachment; Zhou (2023) verified that immersive exhibition design enhances emotional resonance in red tourism. Accordingly, this study hypothesizes that diverse exhibition and display methods (e.g., artifacts, models, and multimedia) in the PLA Naval Museum strengthen visitors' emotional connection to naval history.

Research also suggests that brand personality of red tourism destinations enhances place attachment via cognitive experience, and cultural perception can increase subjective well-being through cognitive experience. Interactive educational activities (e.g., military lectures and simulation training) may deepen visitors' understanding of red culture. Thus, museum educational activities are expected to promote visitors' cognitive gains regarding the strategic significance of the navy.

3.2.2. Effects of the Organism (O) on Responses (R)

Psychological activities positively influence recommendation intention. Empirical studies have demonstrated that place attachment significantly affects recommendation intention through affective experience, and emotional experience is strongly correlated with recommendation intention. Hence, patriotic emotions elicited in the naval museum are expected to directly enhance visitors' overall recommendation intention.

Cognitive experience positively influences recommendation intention. Evidence shows that knowledge acquisition strengthens visitors' recommendation intention, and deeper cultural cognition improves experience-based recommendations. Accordingly, enhanced cognition about naval tactics and equipment development is expected to increase visitors' recommendation intention.

Perceived value positively influences recommendation intention. Perceived value has been identified as a core driver of recommendation intention, and service quality can indirectly raise recommendation intention through perceived value. Therefore, when visitors perceive the ticket price as reasonable and the experience as rich, their recommendation intention is expected to increase significantly.

3.3. Case Site Profile

3.3.1. Overview of the PLA Naval Museum

The PLA Naval Museum is located at No. 8 Laiyang Road, Shinan District, Qingdao, adjacent to Luxun Park and Xiaoqingdao Island, facing Zhanqiao Pier across the sea. It enjoys a prime location with the Yellow Sea to the south and Signal Hill Park to the north. As China's only national-level military museum themed on naval history, it is both a microcosm of the People's Navy's development and an important base for national defense education, patriotic education, and maritime awareness education.

Founded in 1989, the museum was expanded and reopened in 2021. It covers approximately 94,000 square meters on land and 141,000 square meters of sea area. Over more than three decades, it has been recognized as a National Defense Education Demonstration Base, a National Patriotic Education Demonstration Base, and one of the first 100 classic red tourism sites. In 2022, its core exhibition 'Striving for Maritime Strength—A Basic Exhibition on the History of the People's Navy' won a national award for outstanding exhibitions. In 2023, it added 21 sets of first-grade revolutionary cultural relics, including the seal of the East China Military Region Navy Headquarters and the flight helmet of 'Guardian of the Sea and Sky' Wang Wei.

3.3.2. Current Research on the Museum

Recent scholarship has examined museums' functions as national defense education bases. Representative work indicates that during museum visits, tourists internalize information through firsthand experiences and integrate personal emotions into the narrative atmosphere created by the venue, thereby moving from emotional arousal to strengthened national identity. Research hotspots include (1) emotional mobilization mechanisms in museum narratives, (2) innovations in digital preservation of

military cultural heritage, and (3) differentiated national defense education strategies for youth. However, gaps remain, such as limited analysis of non-enthusiast visitors' motivations, insufficient international-comparative studies highlighting distinctive features of Chinese military museums, and a lack of longitudinal evaluation of the long-term effects of national defense education.

3.4. Questionnaire Design

Table 1. Questionnaire Items and Sources

Construct	Item	Sources
Exhibits & Display Design	The museum's exhibits are rich and representative. The exhibit layout is clear and easy to navigate. Exhibit labels are accurate and easy to understand. Interactive facilities (e.g., VR, simulators) increase my interest in visiting.	Li (2023); Li (2023)
Educational & Cultural Value	The museum helps me understand naval history and culture. Interpretive services (staff/audio guides) enhance knowledge acquisition. In-museum educational activities (e.g., lectures/workshops) are attractive.	Li (2023); Fang (2024)
Environment & Service Quality	The environment is clean and facilities are well maintained. Staff are friendly and professional. Tour routes are well planned and help avoid crowding.	Huang (2022)
Affective Experience	I feel strong patriotic emotions during the visit. I admire the navy's contributions. After the visit, I have a deeper understanding of national defense security.	Zhang (2023); Fan et al. (2023)
Cognitive Experience	The museum stimulates my interest in naval history. After the visit, I proactively search for more related knowledge. The museum helps me form an overall understanding of the navy.	Zhang et al. (2023); Gao et al. (2024)
Perceived Value	The time and money spent are worthwhile. The museum provides a unique cultural experience. The museum has a positive impact on my personal growth.	Yu (2023); Ji (2022)
Recommendation Intention	I am willing to recommend the museum to relatives and friends. I plan to visit the museum again. I will share my visiting experience on social media.	Jia (2023); Chen et al. (2023)

3.5. Questionnaire Administration and Collection

An online questionnaire was generated via Wenjuanxing and distributed through the museum's official WeChat account, Weibo, and other social media platforms. A survey station was set up at the museum entrance, where researchers guided visitors to scan a QR code and complete the questionnaire. Visitors were intercepted randomly during opening hours, and sample quotas were allocated by gender, age, and travel mode to ensure representativeness. The distribution period was March 1–March 28, 2025 (four weeks, covering weekdays and weekends), with daily time slots 9:00–12:00 and 14:00–17:00. The system automatically collected responses in real time. A total of 350 questionnaires were planned, and 321 valid questionnaires were obtained (29 invalid), which were used for empirical analysis.

4. Empirical Analysis

4.1. Demographic Characteristics

More than 60% of the respondents were male, while 38.94% were female. The largest age group was 18–25 years (29.91%). Regarding education, the largest share held a bachelor's degree (40.81%), followed by junior college (33.02%). In occupation, enterprise employees accounted for 39.88%, and government/public-institution staff accounted for 32.09%. For monthly income, 50.16% reported CNY 2,001–5,000. In travel mode, 25.55% traveled with friends, and over 20% traveled as family with children.

Table 2. Frequency Analysis Results

Item	Category	Frequency	Percent (%)	Cumulative (%)
Gender	Male	196	61.06	61.06
	Female	125	38.94	100.0
Age	Under 18	32	9.97	9.97
	18–25	96	29.91	39.88
	26–35	78	24.3	64.17
	36–45	68	21.18	85.36
	46–55	32	9.97	95.33
	55+	15	4.67	100.0
Highest Education	High school or below	52	16.2	16.2
	Junior college	106	33.02	49.22
	Bachelor's	131	40.81	90.03
	Master's or above	32	9.97	100.0
Occupation	Student	50	15.58	15.58
	Enterprise employee	128	39.88	55.45
	Government/public institution	103	32.09	87.54
	Retired	14	4.36	91.9
	Other	26	8.1	100.0
Monthly Income	Below 2,000	51	15.89	15.89
	2,001–5,000	161	50.16	66.04
	5,001–8,000	70	21.81	87.85

Item	Category	Frequency	Percent (%)	Cumulative (%)
	Above 8,000	39	12.15	100.0
Travel Mode	Solo	57	17.76	17.76
	Family with children	71	22.12	39.88
	With friends	82	25.55	65.42
	Organized by employer	56	17.45	82.87
	Study tour	46	14.33	97.2
	Other	9	2.8	100.0
Total		321	100.0	100.0

4.2. Reliability Analysis

Table 3. Reliability Analysis (Cronbach's α)

Construct	Cronbach's α
Exhibits & Display Design (S1)	0.818
Educational & Cultural Experience (S2)	0.739
Environment & Service Quality (S3)	0.704
Affective Experience (O1)	0.762
Cognitive Experience (O2)	0.735
Perceived Value (O3)	0.701
Recommendation Intention (R)	0.758
Overall scale α	0.953

All Cronbach's α coefficients exceeded 0.70, and the overall scale α was 0.953, indicating good reliability and suitability for further analysis.

4.3. Validity Analysis

4.3.1. KMO and Bartlett's Test

Table 4. KMO and Bartlett's Test

Measure	Value
KMO	0.967
Bartlett's Test of Sphericity: Approx. Chi-square	3962.559
df	231
p-value	0.000

The KMO value (0.967) exceeded 0.80, indicating that the data were highly suitable for factor extraction. Bartlett's test was significant ($p < 0.05$), suggesting significant correlations among variables and supporting further analysis.

4.3.2. Exploratory Factor Analysis

Table 5. Total Variance Explained (Excerpt)

Factor	Eigenvalue	Pre-rotation Variance (%)	Cumulative (%)	Rotated Variance (%)	Rotated Cumulative (%)
1	11.143	50.650	50.650	12.575	12.575
2	0.911	4.139	54.790	11.509	24.084
3	0.808	3.672	58.461	10.767	34.851
4	0.729	3.313	61.775	10.363	45.214
5	0.710	3.226	65.001	8.902	54.117
6	0.661	3.006	68.006	8.722	62.839
7	0.638	2.899	70.905	8.056	70.895

Table 6. Rotated Component Matrix (Loadings > 0.40 shown)

Item	F1	F2	F3	F4	F5	F6	F7
Exhibit layout is clear and easy to navigate.	0.720						
Exhibit labels are accurate and easy to understand.	0.768						
Interactive facilities increase my interest.	0.552						
Interpretive services enhance knowledge acquisition.		0.538					
Educational activities are attractive.		0.616					
Environment is clean; facilities are well maintained.			0.577				
Staff are friendly and professional.			0.560				
Tour routes are well planned to avoid crowding.			0.540				
I feel strong patriotic emotions during the visit.				0.525			
I admire the navy's contributions.				0.546			
I have a deeper understanding of national defense security.				0.681			
The museum stimulates my interest in naval history.					0.582		

Item	F1	F2	F3	F4	F5	F6	F7
I proactively search for more related knowledge.					0.609		
The museum helps me form an overall understanding.					0.431		
Time and money spent are worthwhile.						0.692	
The museum provides a unique cultural experience.						0.809	
I plan to visit the museum again.							0.675

Seven factors were extracted. Their rotated variance explained was 12.575%, 11.509%, 10.767%, 10.363%, 8.902%, 8.722%, and 8.056%, respectively, with a cumulative explained variance of 70.895% after rotation (Varimax).

Using Varimax rotation, all items exhibited communalities above 0.40, indicating strong associations with the extracted factors and effective information extraction.

4.4. Correlation Analysis

Table 7. Correlations Among Dimensions (Pearson)

	S1	S2	S3	O1	O2	O3	R
S1 Exhibits & Display	1						
S2 Educational & Cultural	0.793**	1					
S3 Environment & Service	0.739**	0.759**	1				
O1 Affective	0.732**	0.749**	0.752**	1			
O2 Cognitive	0.725**	0.766**	0.760**	0.748**	1		
O3 Perceived Value	0.704**	0.753**	0.732**	0.714**	0.754**	1	
R Recommendation	0.690**	0.706**	0.731**	0.739**	0.738**	0.728**	1

All correlations among the six dimensions (S1–S3, O1–O3) and recommendation intention were positive and significant, indicating that improvements in experience dimensions were associated with higher psychological responses and stronger recommendation intention.

4.5. Regression Analysis

After regression analysis was performed using data analysis software, the results are shown as follows.

Table 8. Regression Results (DV = Affective Experience, n = 321)

Predictor	B	SE	Beta	t	p	VIF	Tolerance
Constant	0.363	0.131	-	2.780	0.006	-	-
S1 Exhibits & Display	0.251	0.060	0.242	4.215	0.000	3.059	0.327
S2 Educational & Cultural	0.297	0.061	0.288	4.850	0.000	3.274	0.305
S3 Environment & Service	0.367	0.056	0.355	6.604	0.000	2.682	0.373
R^2	0.659						
Adj. R^2	0.656						
F	F(3,317)=204.282, p=0.000						
D-W	2.021						

Table 9. Regression Results (DV = Cognitive Experience, n = 321)

Predictor	B	SE	Beta	t	p	VIF	Tolerance
Constant	0.189	0.130	-	1.455	0.147	-	-
S1 Exhibits & Display	0.192	0.059	0.182	3.244	0.001	3.059	0.327
S2 Educational & Cultural	0.365	0.061	0.348	5.988	0.000	3.274	0.305
S3 Environment & Service	0.380	0.055	0.361	6.854	0.000	2.682	0.373
R^2	0.673						
Adj. R^2	0.670						
F	F(3,317)=217.278, p=0.000						
D-W	1.892						

Table 10. Regression Results (DV = Perceived Value, n = 321)

Predictor	B	SE	Beta	t	p	VIF	Tolerance
Constant	0.478	0.129	-	3.696	0.000	-	-
S1 Exhibits & Display	0.167	0.059	0.168	2.832	0.005	3.059	0.327
S2 Educational & Cultural	0.371	0.061	0.374	6.102	0.000	3.274	0.305
S3 Environment & Service	0.323	0.055	0.324	5.849	0.000	2.682	0.373

Predictor	B	SE	Beta	t	p	VIF	Tolerance
R^2	0.637						
Adj. R^2	0.633						
F	F(3,317)=185.218, p=0.000						
D-W	1.920						

Table 11. Regression Results (DV = Recommendation Intention, n = 321)

Predictor	B	SE	Beta	t	p	VIF	Tolerance
Constant	0.315	0.130	-	2.416	0.016	-	-
O1 Affective Experience	0.328	0.053	0.329	6.212	0.000	2.573	0.389
O2 Cognitive Experience	0.274	0.055	0.279	4.945	0.000	2.929	0.341
O3 Perceived Value	0.295	0.056	0.283	5.292	0.000	2.632	0.380
R^2	0.655						
Adj. R^2	0.652						
F	F(3,317)=200.832, p=0.000						
D-W	1.954						

Table 12. Regression Results (DV = Recommendation Intention, n = 321)

Predictor	B	SE	Beta	t	p	VIF	Tolerance
Constant	0.420	0.141	-	2.975	0.003	-	-
S1 Exhibits & Display	0.212	0.064	0.205	3.301	0.001	3.059	0.327
S2 Educational & Cultural	0.252	0.066	0.244	3.803	0.000	3.274	0.305
S3 Environment & Service	0.408	0.060	0.394	6.791	0.000	2.682	0.373
R^2	0.602						
Adj. R^2	0.598						
F	F(3,317)=159.516, p=0.000						
D-W	2.032						

4.6. Summary of Hypothesis Testing

The final results of each hypothesis are presented in the figure below. All path results are statistically significant.

Table 13. Hypothesis Testing Results

Hypothesis	Result
H1a: Exhibits & display design positively affects affective experience.	Supported
H1b: Educational & cultural value positively affects affective experience.	Supported
H1c: Environment & service quality positively affects affective experience.	Supported
H1d: Exhibits & display design positively affects cognitive experience.	Supported
H1e: Educational & cultural value positively affects cognitive experience.	Supported
H1f: Environment & service quality positively affects cognitive experience.	Supported
H1g: Exhibits & display design positively affects perceived value.	Supported
H2h: Educational & cultural value positively affects perceived value.	Supported
H3i: Environment & service quality positively affects perceived value.	Supported
H2a: Affective experience positively affects recommendation intention.	Supported
H2b: Cognitive experience positively affects recommendation intention.	Supported
H2c: Perceived value positively affects recommendation intention.	Supported
H3a: Exhibits & display design positively affects recommendation intention.	Supported
H3b: Educational & cultural value positively affects recommendation intention.	Supported
H3c: Environment & service quality positively affects recommendation intention.	Supported

5. Conclusions and Future Directions

5.1. Conclusions

This study used the PLA Naval Museum as a case and, grounded in the S-O-R framework, examined how museum tourism experience influences visitors' recommendation intentions. Based on questionnaire data and empirical analyses, the study clarifies the links between experience stimuli, visitors' internal psychological states, and recommendation-related behavioral intentions, providing evidence for enhancing experience design and communication effectiveness in military-themed museums.

The results indicate that stimulus factors—including exhibits and display design, educational and cultural value, and environment and service quality—significantly influence recommendation intention through affective experience, cognitive experience, and perceived value. This confirms the applicability of S-O-R theory in museum tourism and highlights the distinctive pathways of military museums: strengthening patriotic emotional resonance and military-cultural cognition contributes to differentiated experiential value and, in turn, recommendation intention.

5.2. Limitations

Despite its contributions, this study has limitations. First, the analysis is based on a single case, and the generalizability of findings should be verified across other museum types. Second, the sample was mainly collected through on-site surveys; geographical and demographic constraints may affect

representativeness. Third, mediators were limited to affective experience, cognitive experience, and perceived value, while other psychological constructs (e.g., emotional attachment) were not included. Fourth, the study used cross-sectional data, which cannot capture dynamic changes in experience and intentions over time.

5.3. Future Research Directions

Future studies may expand cases across regions and museum types to identify commonalities and differences, especially comparing red-themed museums with commercial or comprehensive museums. Researchers may enrich variable dimensions by adding constructs such as emotional attachment and cultural identity, and incorporate moderators such as involvement and prior travel experience. Methodologically, mixed methods can deepen insights: longitudinal panel data can examine dynamics, while qualitative interviews and grounded theory can reveal deeper psychological logic. Advanced SEM approaches can further validate constructs and model robustness. In practice, future work can explore how exhibit innovation, technology-enabled interaction, and strengthened red-cultural narratives enhance satisfaction and identification, and how differentiated experience programs can be designed for different visitor segments.

Author Contribution

Pengcheng Wang (First author): Conceptualization, Methodology, Formal analysis, Writing—original draft.

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All authors have read and agreed to the published version of the manuscript.

Compliance with Ethical Standards

Statement: Participation in the survey was voluntary. Informed consent was obtained from all participants prior to completion. Responses were collected anonymously, and no personally identifiable information was recorded.

Funding

This work was supported by the **Shandong Federation of Social Science Circles (SFSSC)** under the **2024 Humanities and Social Sciences Cooperative Research Project** (Grant No. **24H165(Z)**), titled *Mechanisms of Industry–Education Integration between Local Universities and the Culture and Tourism Industry*.

The funder had no role in the study design; data collection, analysis, or interpretation; manuscript preparation; or the decision to submit the paper for publication.

Competing Interest declaration

The author declare that, to their knowledge, they have no financial, personal, or professional relationships that could be construed as a potential competing interest regarding the work described in this manuscript.

Acknowledgments

None

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