

CUSTOMER AI INVOLVEMENT AND TOURISM EXPERIENCE VALUE: THE MEDIATING ROLE OF CUSTOMER INTERACTION

Yang Yu, XueKe Han*, BoLin Wang

School of Hospitality Management, Shanghai Business School, Shanghai 201400, China.

**Corresponding Author: XueKe Han*

Abstract: The rapid development of artificial intelligence (AI) technologies is reshaping tourism service environments and transforming how tourists participate in tourism experiences. Drawing on the perspective of service-dominant logic, this study examines how Customer AI involvement influences tourism experience value in smart tourism contexts and explores the mediating role of customer interaction. Data were collected through an online survey of tourists with recent travel experiences, resulting in 264 valid responses. Confirmatory factor analysis and hierarchical regression analysis were conducted to test the proposed hypotheses. The results show that Customer AI involvement has a significant positive effect on tourism experience value. In addition, interpersonal interaction significantly mediates the relationship between Customer AI involvement and tourism experience value, whereas the mediating role of emotional interaction is not supported. These findings suggest that tourists' engagement with AI technologies can enhance tourism experience value, partly through facilitating interpersonal communication and information exchange during tourism experiences. The study contributes to the literature by introducing the concept of Customer AI involvement into tourism experience research and by examining customer interaction as a multidimensional mechanism in AI-enabled tourism environments. The findings also provide practical implications for tourism enterprises seeking to enhance tourism experiences through the effective application of intelligent technologies.

Keywords: Customer AI involvement; Customer interaction; Tourism experience value; Service-dominant logic; Smart tourism

1 INTRODUCTION

Tourism has become an integral component of contemporary lifestyles and consumption patterns. With the continuous expansion of the tourism market, tourism products and services have become increasingly homogeneous, thereby intensifying competition among tourism enterprises. Under such circumstances, enhancing customer experience value has emerged as a crucial strategy for tourism firms seeking to establish and sustain competitive advantages, while also attracting growing scholarly attention within tourism research. Previous studies have demonstrated that tourism experiences play an important role in shaping tourists' satisfaction, emotional responses, and behavioral intentions, making experience value a core issue in the field of tourism studies [1].

Traditional marketing perspectives rooted in goods-dominant logic assume that firms are the primary creators of value, while customers mainly act as recipients and users of that value. With the expansion of service economies, however, the distinction between products and services has become increasingly blurred, and products are often regarded as vehicles for delivering services. Responding to this shift, Vargo and Lusch introduced the service-dominant logic, which emphasizes that value emerges through interactions between firms and customers rather than being produced solely by firms [2]. Within this framework, firms offer value propositions, whereas the realization of value depends on customers' participation and their integration of resources within specific usage contexts [3]. From this perspective, customers are no longer viewed as passive recipients of value but as active participants in value co-creation processes.

This theoretical perspective is particularly relevant in tourism settings. Tourism products are fundamentally experiential services whose value depends not only on the services provided by firms but also on tourists' participation, interactions, and subjective perceptions throughout the travel process. Prior research highlights that tourism experiences are highly subjective and involve emotional, cognitive, and participatory components that shape tourists' overall perceptions and memories of travel experiences [4]. Understanding how tourists participate in the co-creation of tourism experience value is therefore essential for explaining tourism consumption behavior from a service-dominant logic perspective.

Rapid advances in digital technologies are also transforming the ways tourism services are delivered. Technologies such as artificial intelligence (AI), big data analytics, intelligent recommendation systems, and digital assistants are increasingly integrated into tourism service environments, making tourism services more intelligent and technology-driven. Existing research suggests that AI-based technologies—including chatbots, recommendation systems, and service robots—are changing how tourists obtain travel information, plan itineraries, and interact with tourism service providers [5-6]. The integration of artificial intelligence and data-driven technologies also enables tourism firms to provide personalized services and real-time assistance, which improves service efficiency and enhances customer experiences [7-8].

Within technology-enabled tourism environments, tourists increasingly interact with artificial intelligence systems throughout their travel journeys. For example, intelligent systems can be used to search for travel information, design travel plans, obtain personalized recommendations, and adjust travel decisions during the trip. These interactions with AI systems are gradually becoming an integral part of the tourism experience. Prior studies suggest that AI-enabled technologies embedded in tourism services reshape the customer journey and create new forms of technology-mediated customer experiences [9-10]. Moreover, intelligent service technologies can influence tourists' perceptions, experiences, and behavioral responses in smart tourism environments [11].

The degree to which tourists engage with artificial intelligence technologies may therefore represent an important factor influencing tourism experiences. Unlike traditional studies that focus on customers' resource investments such as time, effort, and knowledge, Customer AI involvement emphasizes customers' active engagement with artificial intelligence systems during service use. This includes the extent to which customers utilize AI functions, accept AI-generated recommendations, and continuously interact with intelligent systems throughout the service process. Such involvement reflects customers' active roles in intelligent service environments and highlights a new form of value co-creation emerging from human-AI interaction. Previous studies suggest that interactions with AI-powered service systems may stimulate customers' cognitive, emotional, and behavioral engagement, which subsequently influences their experience perceptions and loyalty outcomes [12-14].

Despite growing attention to customer participation and value co-creation in tourism research, relatively limited attention has been paid to how tourists participate in value co-creation through interactions with artificial intelligence systems. In particular, the concept of Customer AI involvement and its role in shaping tourism experience value remain insufficiently explored in tourism research. At the same time, interactions among customers and interactions between customers and tourism firms continue to play an important role in value co-creation processes. Examining customer interaction within AI-enabled tourism service environments is therefore necessary.

To address these research gaps, this study draws on the service-dominant logic framework and conceptualizes Customer AI involvement as the core independent variable. A research model is developed to examine the relationships among Customer AI involvement, customer interaction, and tourism experience value. Through empirical analysis, this study investigates how Customer AI involvement influences tourism experience value. The findings are expected to extend the application of service-dominant logic in intelligent tourism contexts and provide practical insights for tourism firms seeking to utilize artificial intelligence technologies to enhance customer experiences and optimize value co-creation processes.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Tourism Experience Value

Tourism experience has long been recognized as a central concept in tourism research. Compared with traditional product consumption, tourism consumption is inherently experiential and involves tourists' emotional responses, cognitive evaluations, and situational interactions throughout the travel process. From the perspective of the experience economy, tourism consumption emphasizes memorable and meaningful experiences that emerge through individuals' participation in service activities [15]. Consequently, tourism experience value is generally understood as tourists' overall evaluation of the benefits derived from their travel experiences [4]. Previous studies indicate that tourism experiences are complex and multidimensional phenomena shaped by tourists' perceptions, emotions, and interactions during the travel process [16]. Tourism experiences therefore emerge not only from the services provided by tourism firms but also from tourists' interactions with service providers, other tourists, and the broader tourism environment. These interactions occur across multiple touchpoints throughout the customer journey and jointly shape tourists' overall experience perceptions [5].

With the rapid development of digital technologies, the role of technology in shaping tourism experiences has received increasing scholarly attention. Smart tourism technologies such as mobile applications, artificial intelligence systems, and digital platforms have become important tools for enhancing tourism experiences and improving service efficiency [11]. These technologies enable tourists to access real-time information, receive personalized recommendations, and interact with tourism services more effectively. In particular, artificial intelligence technologies are increasingly embedded in tourism service environments. AI-enabled systems such as chatbots, recommendation algorithms, and service robots allow tourists to obtain travel information, plan itineraries, and receive customized services in real time [6]. Technology-enabled tourism environments also facilitate the co-creation of tourism experiences by enabling new forms of interaction between tourists and digital systems [17]. Recent research further suggests that artificial intelligence-enabled technologies transform customer experiences across the tourism journey by introducing new forms of interaction between tourists and intelligent systems [10]. Consequently, tourism experiences are increasingly co-created through interactions between tourists and intelligent service technologies.

2.2 Artificial Intelligence in Tourism Service Environments

The rapid development of artificial intelligence and related digital technologies has significantly transformed the tourism industry. In recent years, technologies such as artificial intelligence, big data analytics, and robotics have been widely integrated into tourism service systems, contributing to the emergence of smart tourism environments. These technologies enable tourism firms to collect and analyse large volumes of customer data, deliver personalised services,

and improve service efficiency across different stages of the customer journey [7]. Artificial intelligence technologies have been applied across various tourism service settings, including intelligent booking systems, conversational chatbots, virtual assistants, recommendation engines, and service robots [18]. Through these technologies, tourism organisations can automate certain service processes while maintaining interactive communication with customers. Recent studies also suggest that generative artificial intelligence and advanced digital platforms are increasingly used to support travel planning, information search, and personalised service delivery in tourism and hospitality contexts [19]. In tourism service environments, AI-enabled service encounters represent a new form of interaction between customers and service systems. Unlike traditional service encounters that rely primarily on human employees, artificial intelligence technologies now participate in service delivery alongside human staff and digital platforms. This transformation reshapes the structure of service encounters and introduces new interaction dynamics between customers and intelligent systems [6]. Moreover, the integration of intelligent technologies into tourism services reflects the broader digital transformation associated with Industry 4.0, which is fundamentally changing how tourism firms interact with customers and design service experiences [20]. As intelligent technologies become increasingly embedded in tourism services, tourists interact with AI systems throughout the travel process. Tourists may rely on AI-powered tools to search for travel information, plan itineraries, obtain personalised recommendations, and receive real-time assistance during their trips. These interactions not only support tourists' decision-making processes but also enhance their overall tourism experiences [21-22]. Consequently, understanding how tourists engage with artificial intelligence technologies has become an important research issue in tourism and hospitality studies.

2.3 Customer AI Involvement and Tourism Experience Value

Customer AI involvement refers to the extent to which customers interact with and utilize artificial intelligence technologies during service consumption. In tourism service environments, tourists may engage with AI systems to obtain travel information, receive personalized recommendations, communicate with intelligent service agents, and adjust their travel plans throughout the travel journey. Customer AI involvement is conceptually related to constructs such as customer engagement, technology readiness, and self-service participation. However, the present study primarily conceptualizes Customer AI involvement as tourists' active participation and interaction within AI-enabled tourism services. Compared with technology readiness, which reflects individuals' general predisposition toward technology adoption, Customer AI involvement emphasizes context-specific interaction behaviors during tourism experiences. With the rapid development of smart tourism technologies, AI-based systems such as chatbots, recommendation engines, and service robots have increasingly been integrated into tourism service processes, enabling tourists to interact with intelligent service systems across multiple stages of the travel experience [6, 8].

From the perspective of service-dominant logic, customers are regarded as important participants in value co-creation processes. Rather than being passive recipients of services, customers actively integrate their knowledge, preferences, and experiences into service systems and participate in shaping service outcomes. Within this framework, operant resources such as knowledge and skills are considered key sources of value creation and competitive advantage [2]. In tourism contexts, the value of tourism experiences emerges not only from the services provided by tourism firms but also from tourists' participation and interactions throughout the travel process.

In AI-enabled tourism environments, customer participation increasingly occurs through interactions with intelligent technologies. When tourists actively engage with AI systems, they are able to obtain more personalized and timely services that better match their individual preferences. For instance, AI-based recommendation systems can assist tourists in planning travel routes, accessing destination information, and adjusting travel arrangements in real time. These technology-enabled interactions allow tourists to participate more actively in tourism service processes and enhance the personalization and responsiveness of tourism services [11, 22]. Prior studies also suggest that interactions with AI systems can stimulate customers' cognitive and behavioral engagement and improve perceived service experiences [13-14]. Moreover, AI-enabled service environments allow tourists to co-create value through continuous interactions with intelligent systems, which may enhance their perceptions of convenience, enjoyment, and overall tourism experience value [14, 23]. Therefore, the following hypothesis is proposed.

H1: Customer AI involvement positively influences tourism experience value.

2.4 The Mediating Role of Customer Interaction

2.4.1 The mediating role of interpersonal interaction

Interpersonal interaction refers to communication and information exchange among customers within a service environment. In tourism contexts, interactions among tourists often involve sharing travel information, exchanging experiences, and discussing travel recommendations. Such interactions allow tourists to obtain useful knowledge and perspectives from other travelers, which may influence their perceptions and evaluations of tourism experiences.

Previous studies suggest that interpersonal interaction plays an important role in shaping customer experiences and value co-creation processes. Through communication and information exchange, customers can share knowledge, develop social connections, and jointly participate in service experiences [24-25]. Interactions among customers have also been found to facilitate learning and enhance customers' perceptions of service experiences. In digital environments, interpersonal interaction among users can significantly influence their decision-making processes and behavioral responses [26-27].

In technology-enabled tourism environments, interpersonal interaction may also be stimulated through the use of intelligent technologies. When tourists interact with artificial intelligence systems, such as intelligent recommendation systems or digital travel assistants, they may share AI-generated suggestions or discuss travel experiences with other tourists. These interactions can promote communication and social engagement among tourists, thereby facilitating knowledge exchange and collaborative participation in tourism experiences [13-14]. Accordingly, interpersonal interaction may serve as an important mechanism through which customer AI involvement influences tourism experience value.

H2: Interpersonal interaction mediates the relationship between customer AI involvement and tourism experience value.

2.4.2 The mediating role of emotional interaction

Interaction in value co-creation processes involves not only information exchange but also emotional connections among service actors. Emotional interaction refers to the affective responses and emotional bonds that customers develop when interacting with service providers, other customers, or service systems during the consumption process. In tourism contexts, emotional responses are considered an essential component of the tourism experience because travel activities often involve affective reactions and subjective feelings generated throughout the travel journey. Previous studies have shown that tourists frequently experience emotions such as joy, love, and positive surprise during tourism experiences, and these emotions play an important role in shaping tourists' overall evaluations of their experiences [4, 28].

With the rapid development of digital technologies, artificial intelligence has increasingly become embedded in tourism service environments. AI-enabled technologies such as intelligent recommendation systems, virtual assistants, and service robots allow tourists to interact with service systems in real time. These technologies can provide personalized suggestions, instant responses, and interactive communication during the service process, which may stimulate customers' emotional engagement with tourism services. Prior research suggests that interactive technologies can enhance customers' emotional involvement and engagement by creating more immersive and responsive service experiences [13-14].

When tourists experience positive emotional interactions during tourism services, they are more likely to develop favorable perceptions of their overall tourism experiences. Emotional engagement generated through interactions with intelligent technologies may therefore enhance tourists' evaluations of tourism experiences and strengthen the value co-creation process. Accordingly, customer AI involvement may indirectly enhance tourism experience value by fostering emotional interaction during the tourism experience.

H3: Emotional interaction mediates the relationship between customer AI involvement and tourism experience value.

Based on the hypotheses developed above, Figure 1 presents the theoretical model of this study, depicting how Customer AI involvement influences tourism experience value through the mediating roles of interpersonal interaction and emotional interaction.

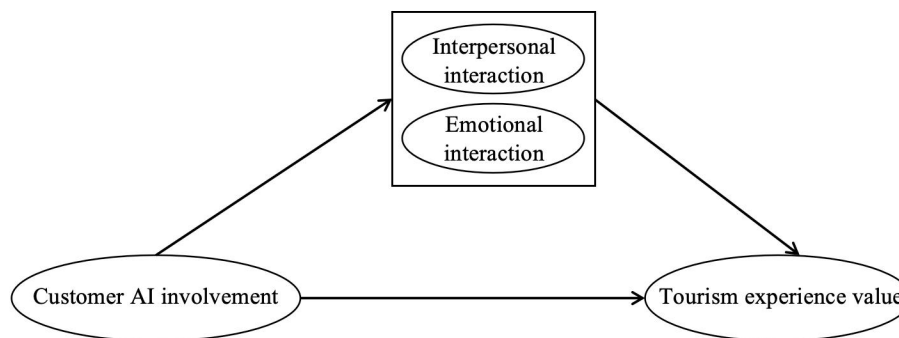


Figure 1 The Theoretical Model of This Study

3 RESEARCH DESIGN

3.1 Measurement of Variables

All constructs in this study were measured using a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The measurement items were adapted from established scales in prior studies and slightly modified to fit the tourism context to ensure the reliability and validity of the constructs.

Customer AI involvement was measured using four items developed for this study, drawing on prior literature on customer engagement with technology-enabled services and artificial intelligence interactions [12, 14]. The scale reflects the extent to which tourists interact with and utilize AI technologies during tourism service consumption.

Customer interaction was conceptualized as a multidimensional construct consisting of interpersonal interaction and emotional interaction. Drawing on prior studies on customer interaction and social commerce [26-27, 29], three items were developed to measure interpersonal interaction, reflecting the extent to which tourists exchange information and communicate with other tourists or service staff during the tourism experience. In addition, emotional interaction was measured using three items developed for this study, with reference to prior work on emotional contagion and customer

engagement in tourism contexts [25, 30]. These items were designed to capture the emotional connection and affective involvement that may emerge through interactions among tourists and service providers during the tourism experience. Tourism experience value was measured using four items adapted from established scales developed by Kim et al. and Franke and Shah [4, 31]. These items capture tourists' overall perceived value derived from their tourism experiences. In addition, several control variables were included in the analysis to improve the robustness of the results, including travel duration, travel expenditure, and overall travel evaluation. Prior to the formal survey, the questionnaire was reviewed by several experienced tourism practitioners to ensure content validity. A pilot test was also conducted, and minor revisions were made to several measurement items based on feedback. The finalized questionnaire was then used for the formal survey.

3.2 Data Collection

Data for this study were collected through an online survey platform, Wenjuanxing (<https://www.wjx.cn>). The survey was conducted between December 2025 and January 2026. Prior to the survey, screening criteria were established to ensure that respondents met the requirements for participation. Specifically, participants were required to have taken at least one leisure trip and purchased tourism-related products or services within the past one or two years.

A total of 320 questionnaires were distributed, and 298 responses were collected. After data cleaning, questionnaires completed in less than 60 seconds or displaying clear response patterns were removed. Finally, 264 valid questionnaires were retained for subsequent analysis, resulting in a valid response rate of 82.5%. The demographic characteristics of the respondents are presented in Table 1. Overall, the sample structure is broadly consistent with the demographic characteristics of tourists in the Chinese tourism market.

Table 1 Demographic Characteristics of Respondents

Category	Group	Sample Size	Percentage (%)
Gender	Male	230	87.1
	Female	34	12.9
Age	Below 30	113	42.8
	30-40	117	44.3
	41-45	29	11.0
	46-55	4	1.5
	Above 56	1	0.4
	Below college	15	5.7
Education Level	College diploma	45	17.0
	Bachelor's degree	170	64.4
	Master's degree	25	9.5
	Doctoral degree	9	3.4
Years of Work Experience	0-5 years	91	34.5
	5-10 years	81	30.7
	10-15 years	59	22.3
	15-20 years	57	10.2
	More than 20 years	6	2.3

4 DATA ANALYSIS AND RESULTS

4.1 Reliability and Validity Analysis

Before conducting the formal data analysis, Harman's single-factor test was conducted using principal component analysis (PCA) with all measurement items included in the analysis to assess the potential issue of common method bias. The results showed that the first unrotated factor accounted for 30.715% of the total variance, which is below the recommended threshold of 50%. Therefore, common method bias is unlikely to be a serious concern in this study.

Before testing the hypotheses, a confirmatory factor analysis (CFA) was conducted using LISREL 8.70 to examine the measurement model. The results are presented in Table 2. The standardized factor loadings of all measurement items were significantly higher than the commonly accepted threshold of 0.45, and all corresponding t-values exceeded 1.96, indicating that the measurement items adequately represent their respective constructs.

In addition, both the absolute fit indices and incremental fit indices indicated a satisfactory model fit. Specifically, the model fit indices were as follows: $\chi^2(71) = 154.96$ ($p = 0.000$), $\chi^2/df = 2.18$, RMSEA = 0.065, NFI = 0.94, NNFI = 0.96, CFI = 0.97, IFI = 0.97, RFI = 0.92, and GFI = 0.93. These values meet the recommended standards, suggesting that the measurement model demonstrates a good fit with the data.

Table 2 Measurement Items and Results of Confirmatory Factor Analysis

Construct	Measurement Items	Factor Loading	t-value	Cronbach's alpha
Customer AI	I actively use AI-related functions during tourism service consumption.	0.79	14.22	0.850

Construct	Measurement Items	Factor Loading	t-value	Cronbach's alpha	
involvement	I often adjust my travel decisions based on recommendations provided by AI systems.	0.73	12.91	0.908	
	AI systems play an important role in my tourism experience.	0.76	13.60		
	I am willing to spend time interacting with AI systems.	0.80	14.53		
	I often share travel ideas and receive responses from others.	0.86	15.94		
Interpersonal interaction	I frequently participate in discussions with other tourists and help each other.	0.85	15.70		
	I often communicate with other tourists about travel experiences.	0.75	13.52		
	I often have emotional exchanges with service staff and other tourists.	0.86	16.99		
Emotional interaction	I invest emotional effort when discussing tourism-related topics with others.	0.91	18.52		0.852
	Interactions with other tourists and service staff make us feel happy.	0.85	16.77		
	I gained a strong sense of accomplishment during my tourism experience.	0.78	14.38		
Tourism experience value	Traveling brought me great enjoyment.	0.78	14.34	0.876	
	Overall, this tourism experience was valuable to me.	0.82	15.51		
	The tourism experience was worthwhile for me.	0.83	15.84		
Model Fit Indices	$\chi^2(71)=154.96(p=0.000)$, $\chi^2/df=2.18$, RMSEA=0.065, NFI=0.94, NNFI=0.96, CFI=0.97, IFI=0.97, RFI=0.92, GFI=0.93				

Reliability was assessed using internal consistency indicators. Specifically, Cronbach's alpha and composite reliability (CR) were used to evaluate the reliability of each construct. The results show that the Cronbach's alpha values and CR values of all variables exceed the commonly accepted threshold of 0.70, indicating satisfactory internal consistency reliability.

Convergent validity was examined using the average variance extracted (AVE). The results indicate that all AVE values exceed the threshold of 0.50, suggesting that convergent validity is established.

Descriptive statistics and correlations among the key variables are presented in Table 3.

Table 3 Descriptive Statistics and Correlation Matrix

	Mean	SD	CR	AVE	1	2	3	4	5	6	7
1. Customer AI involvement	6.123	0.750	0.854	0.594	0.771						
Interpersonal interaction	5.621	0.927	0.861	0.675	0.315**	0.822					
3. Emotional interaction	5.982	0.714	0.906	0.763	0.040	-0.036	0.952				
4. Tourism experience value	5.482	1.303	0.879	0.645	0.158*	0.344**	-0.046	0.938			
5. Travel duration	2.21	0.994	-	-	-0.104	-0.066	0.164**	-0.140*	-		
Travel expenditure	2.08	1.050	-	-	0.141*	-0.001	0.096	-0.010	0.387**	-	
Overall travel evaluation	4.02	0.520	-	-	0.097	-0.040	-0.037	0.121	0.088	0.068	-

Note: * $p < 0.05$, ** $p < 0.01$ (two-tailed); Pearson correlations are reported in the lower triangle. The square roots of AVE are shown on the diagonal for the latent constructs.

Discriminant validity was assessed by comparing the square root of AVE with the Pearson correlation coefficients among constructs. As shown in Table 3, the square root of AVE for each construct is greater than its correlations with other constructs, indicating satisfactory discriminant validity. Overall, the results demonstrate that the measurement model has acceptable reliability and validity.

4.2 Direct Effect Test

To examine the direct relationship between Customer AI involvement and tourism experience value, regression analysis was conducted with Customer AI involvement as the independent variable and tourism experience value as the dependent variable. The results are shown in Table 4.

Table 4 Results of Direct Effect Test

IV	Tourism Experience Value		
IV	(Model 1)		
DV	β	t	VIF
Customer AI involvement	0.131	2.084*	1.063
Control Variables			
Travel duration	-0.141	-2.100*	1.220
Travel expenditure	0.012	0.183	1.221
Overall travel evaluation	0.120	1.954	1.020
Model Statistics			
R2	0.055		

IV	Tourism Experience Value (Model 1)
Adjusted R2	0.040
F value	3.706**

Note: * $p < 0.05$, ** $p < 0.01$.

The results indicate that Customer AI involvement has a significant and positive effect on tourism experience value ($\beta = 0.131$, $p < 0.05$). Therefore, Hypothesis 1 is supported.

4.3 Mediation Effect Test

To test the mediation hypotheses, this study adopted the hierarchical regression approach suggested by Baron and Kenny [32]. The relationships among Customer AI involvement, interpersonal interaction, emotional interaction, and tourism experience value were examined through several regression models.

The testing procedure followed three main steps. First, the direct effect between the independent variable and the dependent variable was tested. As reported in the previous section, the regression coefficient between Customer AI involvement and tourism experience value was significant ($\beta = 0.131$, $p < 0.05$).

Second, regression analyses were conducted to examine the relationships between the independent variable and the mediators, as well as between the mediators and the dependent variable. As shown in Table 5, the regression coefficient of Customer AI involvement on interpersonal interaction was significant ($\beta = 0.327$, $p < 0.001$), and the regression coefficient of interpersonal interaction on tourism experience value was also significant ($\beta = 0.342$, $p < 0.001$).

Table 5 Mediation Effect Test Results

	Interpersonal Interaction (Model 2)			Emotional Interaction (Model 3)			Tourism Experience Value (Model 4)			Tourism Experience Value (Model 5)		
	β	t	VIF	β	t	VIF	β	t	VIF	β	t	VIF
Step 2: Independent Variable $\rightarrow$ Mediator / Mediator $\rightarrow$ Dependent Variable												
Customer AI involvement	0.327	5.352***	1.063	0.060	0.937	1.063						
Interpersonal interaction							0.342	5.894***	1.007			
Emotional interaction							-0.007	-0.121	1.033			
Step 3: Independent Variable + Mediators $\rightarrow$ Dependent Variable												
Customer AI involvement										0.022	0.348	1.189
Interpersonal interaction										0.335	5.463***	1.122
Emotional interaction										-0.009	-0.144	1.038
Control Variables												
Travel duration	-0.011	-0.171	1.220	0.164	2.407*	1.220	-0.140	-2.209*	1.208	-0.136	-2.108**	1.247
Travel expenditure	-0.047	-0.725	1.221	0.033	0.478	1.221	0.033	0.524	1.178	0.029	0.445	1.224
Overall travel evaluation	-0.068	-1.133	1.020	-0.059	-0.951	1.020	0.145	2.494*	1.014	0.143	2.428**	1.029
Model Statistics												
R2		0.107			0.035			0.155			0.156	
Adjusted R2		0.093			0.020			0.139			0.136	
F value		7.623***			2.293			9.297***			7.741***	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Third, the independent variable and mediators were simultaneously entered into the regression model predicting tourism experience value. The results show that when interpersonal interaction was included in the regression model, the effect of Customer AI involvement on tourism experience value became insignificant ($\beta = 0.022$, $p > 0.05$), while interpersonal interaction remained significant ($\beta = 0.335$, $p < 0.001$), indicating a significant mediating effect of interpersonal interaction. Therefore, Hypothesis 2 is supported, and interpersonal interaction plays a full mediating role in the relationship between Customer AI involvement and tourism experience value.

However, the mediating effect of emotional interaction was not supported. Specifically, the regression coefficient of Customer AI involvement on emotional interaction was not significant ($\beta = 0.060$, $p > 0.05$), and the regression coefficient of emotional interaction on tourism experience value was also not significant ($\beta = -0.007$, $p > 0.05$). Therefore, Hypothesis 3 is not supported.

In addition, the variance inflation factor (VIF) values in all regression models were well below the commonly accepted threshold, indicating that multicollinearity is not a serious concern in this study.

Furthermore, to verify the robustness of the mediation results, we employed the bootstrap method to test the indirect effects. The results in Table 6 showed that the mediating effect of interpersonal interaction between Customer AI involvement and tourism experience value was significant. Specifically, the indirect effect value was 0.150, and the 95% bootstrap confidence interval was [0.079, 0.242], excluding zero, indicating that interpersonal interaction plays a significant mediating role.

In contrast, the mediating effect of emotional interaction was not significant. The indirect effect value was -0.001, and the 95% bootstrap confidence interval was [-0.016, 0.013], which included zero, suggesting that emotional interaction did not mediate the relationship between Customer AI involvement and tourism experience value.

Moreover, after introducing the mediators into the regression model, the direct effect of Customer AI involvement on tourism experience value became non-significant ($\beta = 0.022$, $p > 0.05$), indicating that interpersonal interaction exerted a full mediating effect between Customer AI involvement and tourism experience value.

Table 6 Bootstrap Mediation Effect Test Results

Path	Indirect Effect	Boot SE	95% CI
Customer AI involvement → Emotional interaction → Tourism experience value	-0.001	0.007	[-0.016, 0.013]
Customer AI involvement → Interpersonal interaction → Tourism experience value	0.15	0.042	[0.079, 0.242]

Note: Bootstrap confidence intervals excluding zero indicate significant mediation effects.

5 CONCLUSION AND IMPLICATIONS

5.1 Research Conclusions

This study examines the mechanism through which Customer AI involvement influences tourism experience value in smart tourism contexts. Based on the perspective of service-dominant logic, a research framework was developed to explore the relationships among Customer AI involvement, customer interaction, and tourism experience value. Using survey data collected from 264 tourists, the proposed hypotheses were empirically tested.

The findings first confirm that customer interaction can be conceptualized as a multidimensional construct consisting of interpersonal interaction and emotional interaction. The measurement model demonstrates satisfactory reliability and validity, indicating that the two-dimensional structure appropriately captures the interaction processes experienced by tourists during tourism service consumption.

The empirical results further show that Customer AI involvement has a significant positive effect on tourism experience value. This finding suggests that when tourists actively interact with and utilize artificial intelligence technologies during tourism activities, they are more likely to obtain personalized information, improve decision-making efficiency, and participate more actively in tourism services. As a result, their perceived tourism experience value is enhanced.

In addition, the results indicate that interpersonal interaction plays a significant mediating role in the relationship between Customer AI involvement and tourism experience value. This suggests that the use of AI technologies may stimulate communication and information exchange among tourists as well as between tourists and service providers, which further contributes to the co-creation of tourism experience value. However, the mediating role of emotional interaction is not statistically supported. This result suggests that different dimensions of customer interaction may exert varying levels of influence in AI-enabled tourism contexts. One possible explanation is that current AI-enabled tourism services mainly facilitate functional interactions and information exchange rather than deep emotional connections among participants. Therefore, compared with emotional interaction, tourists may place greater emphasis on interaction efficiency, information accessibility, and practical service support when engaging with AI-enabled tourism services.

5.2 Implications

5.2.1 Theoretical contributions

This study offers several implications for the existing literature.

First, within the context of tourism marketing and smart tourism development, the study introduces the concept of Customer AI involvement into literature on tourism experience value and further examines it through the lens of service-dominant logic. Based on the framework proposed by Vargo and Lusch (Vargo and Lusch, 2004; Vargo and Lusch, 2008), the study develops a research model incorporating operant resource participation, value co-creation interaction, and value outcome generation. The findings provide additional empirical evidence regarding how tourists' participation in AI-enabled tourism services is associated with tourism experience value. Compared with prior studies that mainly focus on specific dimensions of service-dominant logic or particular tourism settings, the present study adopts a relatively integrated perspective to examine the value co-creation process in smart tourism environments.

Second, the study conceptualizes customer interaction as a multidimensional construct consisting of interpersonal interaction and emotional interaction and examines their mediating roles in the relationship between Customer AI involvement and tourism experience value. The empirical findings suggest that interpersonal interaction plays a significant mediating role, whereas the mediating role of emotional interaction is not supported. These findings provide further empirical support for understanding the mechanisms through which value co-creation may occur in smart tourism contexts.

5.2.2 Practical implications

The findings of this study also provide several practical implications for tourism enterprises in the context of smart tourism development.

First, the results indicate that Customer AI involvement has a significant influence on tourism experience value. This finding highlights the increasing importance of interactions between tourists and AI systems in shaping tourism experiences in smart tourism environments. Tourism enterprises should therefore strengthen the application of intelligent technologies, such as AI-based recommendation systems, virtual tour guides, and intelligent customer service platforms, in order to encourage tourists to actively participate in tourism services and improve overall tourism experience value.

Second, the results show that interpersonal interaction plays a significant mediating role between Customer AI involvement and tourism experience value. This suggests that even in highly digitalized tourism environments, interpersonal communication among tourists as well as between tourists and service providers remains important. Tourism enterprises should therefore not only invest in smart technologies but also create opportunities and platforms that facilitate interaction among tourists. For instance, online tourism communities, social media platforms, and discussion forums can be developed to encourage the sharing of travel experiences and discussions related to the use of AI services. In addition, offline activities such as themed events or interactive programs may further promote communication among tourists and contribute to richer tourism experiences.

Third, although emotional interaction does not demonstrate a significant mediating effect in this study, emotional experiences remain an important factor influencing customer satisfaction and loyalty in the experience economy. Tourism enterprises may therefore place greater emphasis on designing emotionally engaging tourism services, such as personalized services, immersive tourism scenarios, and more responsive communication with tourists. These efforts may help strengthen emotional connections with tourists and further enhance tourism experience value.

5.3 Limitations and Future Research

Despite its contributions, this study has several limitations that provide directions for future research.

First, with the rapid development of self-service technologies (SSTs) and artificial intelligence technologies, tourists increasingly interact with intelligent systems throughout their tourism experiences. Future research may further explore whether human–AI interaction can be conceptualized as an additional dimension of customer interaction and examine its role in tourism experience value co-creation.

Second, this study relies on cross-sectional data. However, variables such as Customer AI involvement, customer interaction, and tourism experience value may exhibit dynamic characteristics over time. The use of cross-sectional data may therefore limit the ability to capture the dynamic relationships among these variables and may also raise potential concerns regarding common method variance. Future research could employ longitudinal data or experimental research designs to further examine the causal relationships among these variables and enhance the robustness of the findings.

Third, although this study focuses on the relationships among Customer AI involvement, customer interaction, and tourism experience value, tourists' experience formation in smart tourism contexts may also be influenced by other contextual and psychological factors. Future research may incorporate additional variables to further explore the complex mechanisms underlying tourism experience value co-creation.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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