The Moderating Role of Local Cultural Involvement and Social Media Engagement in The Relationship Between Experience and Satisfaction of Tourists in Northern Vietnam: A Quantitative Analysis Using PLS-SEM Approach

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ABSTRACT

The tourism industry in Northern Vietnam has experienced substantial growth, attracting global tourists to its unique cultural heritage and scenic landscapes. This study investigates the moderating roles of local cultural involvement and social media engagement in the relationship between tourist experience and satisfaction. Employing a quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM), data were collected from 409 tourists who visited Northern Vietnam. The findings reveal that the tourist experience significantly enhances tourist satisfaction. Local cultural involvement positively moderates this relationship, indicating that deeper cultural engagement leads to higher satisfaction levels. However, social media engagement did not show a significant moderating effect. These results provide valuable insights for tourism managers and policymakers, emphasizing the importance of enhancing tourist experiences and promoting cultural engagement to boost satisfaction. The study contributes to the theoretical understanding of tourist satisfaction and offers practical recommendations for sustainable tourism practices.

Keywords: Local cultural involvement, social media engagement, PLS-SEM, tourist experience, tourist satisfaction.

1. Introduction

The tourism industry in Northern Vietnam has experienced significant growth over the past decade, attracting tourists from various parts of the world to its unique cultural heritage and breathtaking landscapes. This region offers a rich tapestry of experiences, including historical sites, traditional festivals, and natural beauty, making it a prime destination for cultural tourism

(Nguyen, 2015). Understanding the factors contributing to tourist satisfaction is crucial for maintaining and enhancing this growth. One of the key determinants of tourist satisfaction is the overall tourism experience, which includes various aspects such as quality of service, cultural interactions, and recreational activities (Pine & Gilmore, 1998; Chen & Tsai, 2007).

Additionally, involvement in local culture and engagement with social media have emerged as significant factors that can enhance the richness of these experiences and subsequently influence tourist satisfaction (Tussyadiah & Fesenmaier, 2009; Kim & Fesenmaier, 2017).

Despite the growing body of research on tourist satisfaction, there is a notable gap in the literature concerning the moderating effects of local cultural involvement and social media engagement on the relationship between tourists' experiences and satisfaction. Previous studies have predominantly focused on the direct impact of tourist experiences on satisfaction, often overlooking how these experiences might be enhanced or altered by tourists' engagement with local culture and social media (Ayeh et al., 2013; Prebensen et al., 2014). This oversight suggests a significant gap in our understanding, as cultural involvement and social media engagement can provide deeper and more immersive experiences, potentially leading to higher satisfaction levels (Huang et al., 2010; Zeng & Gerritsen, 2014).

Given this research gap, the study seeks to address several key questions: How does the quality of tourist experience influence satisfaction in Northern Vietnam? To what extent does local cultural involvement moderate the relationship between tourist experience and satisfaction? And how does social media engagement affect this relationship? These questions are critical for uncovering the underlying dynamics contributing to tourist satisfaction and providing a more comprehensive framework that integrates these moderating factors.

The primary objective of this study is to conduct a quantitative analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) to explore the moderating roles of local cultural involvement and social media engagement in the relationship between tourist experience and satisfaction. PLS-SEM is a robust analytical method well-suited for complex models with multiple moderating variables, making it an ideal choice for this study (Hair Jr et al., 2017).

This research holds significant theoretical and practical implications. Theoretically, it aims to extend existing models of tourist satisfaction by incorporating the moderating effects of cultural involvement and social media engagement, thereby providing a more nuanced understanding of the factors that drive tourist satisfaction. Practically, the findings will offer valuable insights for tourism managers and policymakers in Northern Vietnam. By understanding how cultural involvement and social media engagement enhance tourist experiences, stakeholders can develop targeted strategies to improve satisfaction and loyalty, ultimately contributing to the sustainable

development of the tourism sector in the region (Buhalis & Law, 2008; Williams & Soutar, 2009).

2. Literature review and hypothesis development

2.1. Tourist experience

2.1.1. Definition and components of tourist experience

The tourist experience is a multifaceted concept encompassing various elements contributing to tourists' overall satisfaction. It is the sum of all perceptions, emotions, and activities a tourist encounters during their travel journey. This comprehensive experience includes both tangible and intangible aspects, such as the quality of service, interactions with locals, and personal feelings of fulfillment and enjoyment (Quan & Wang, 2004). According to Pine & Gilmore (1998), who introduced the concept of the "experience economy," experiences are distinct economic offerings that engage individuals personally, resulting in memorable events.

The tourist experience can be broken down into several key components. The pre-trip phase includes the planning and anticipation before the trip, where tourists gather information, set expectations, and make travel arrangements (Gretzel et al., 2006). The on-site experience, the core of the tourist experience, involves the activities and interactions at the destination, such as sightseeing, dining, and engaging in cultural or recreational activities (Tung & Ritchie, 2011). Finally, the post-trip phase encompasses the recollection and sharing of experiences after the trip, often influenced by memory and social interactions, including posting on social media and recommending the destination to others (Kim, 2010). These phases collectively form the overall tourist experience, making it a dynamic and continuous process.

2.1.2. Factors influencing tourist experience

Numerous factors can influence the quality and nature of the tourist experience, making it a dynamic and subjective phenomenon. One of the most critical factors is service quality, which refers to the level of service provided by tourism businesses, such as hotels, restaurants, and tour operators. High-quality service can lead to higher satisfaction and positive word-of-mouth (Zeithaml et al., 1988). Another significant factor is cultural involvement. Active participation in local cultural activities, such as festivals, traditional crafts, and local cuisine, can significantly enhance the tourist experience by providing deeper insights and a sense of connection to the destination (Richards, 1996).

Social interactions also play a crucial role in shaping the tourist experience. Interactions with locals and other tourists can enrich the experience by offering unique perspectives and fostering

community and belonging (Tung & Ritchie, 2011). Furthermore, the attributes of the destination itself, including its natural and built environment, landscapes, landmarks, and infrastructure, directly impact the overall experience. Attractive and well-maintained destinations provide more enjoyable experiences (Chi & Qu, 2008). Emotional engagement is another vital factor, as the emotions felt during the trip, such as excitement, relaxation, and happiness, are crucial to the overall satisfaction with the tourist experience. Positive emotions often lead to memorable and satisfying experiences (Hosany & Gilbert, 2010).

Lastly, technological integration, particularly the use of social media, has become increasingly influential. Social media facilitates information sharing, enhances convenience, and enables real-time interaction with the destination and other travelers, significantly impacting the tourist experience (Zeng & Gerritsen, 2014). Understanding these components and influencing factors is essential for tourism managers and policymakers to design and deliver compelling tourist experiences. By focusing on these elements, destinations can create more meaningful and satisfying experiences for their visitors, increasing tourist satisfaction, repeat visits, and positive recommendations.

2.2. Tourist satisfaction

2.2.1. Definition and factors influencing tourist satisfaction

Tourist satisfaction is a critical measure of a destination's success and is central to the tourism industry's sustainability and growth. It is defined as the degree to which a tourist's expectations about a destination are met or exceeded during their visit (Oliver, 1980). Satisfaction encompasses various aspects of the tourist experience, including tangible and intangible elements that contribute to fulfilling the tourist's desires and needs.

Several factors influence tourist satisfaction. Service quality is one of the most significant determinants, as high-quality services in accommodations, dining, transportation, and other tourism-related facilities enhance the tourist experience (Zeithaml et al., 1988). Another essential factor is the destination image, which includes tourists' perceptions of the destination's attributes, such as natural beauty, cultural heritage, safety, and accessibility (Chi & Qu, 2008). Tourists' motivations and expectations also play a crucial role. When tourists' expectations align with their actual experiences, their satisfaction levels are typically higher (Yoon & Uysal, 2005).

Cultural elements at the destination, including local customs, traditions, and hospitality, can greatly enhance satisfaction by providing unique and enriching experiences (Crompton, 1979). Emotional responses, such as joy, excitement, and relaxation, significantly impact satisfaction, as positive emotions tend to result in more favorable evaluations of the experience (Hosany & Gilbert, 2010). Additionally, technological factors, such as reliable internet and digital amenities,

have become increasingly important in influencing tourist satisfaction, particularly in the modern digital age (Buhalis & Law, 2008).

2.2.2. Relationship between tourist experience and satisfaction

The relationship between tourist experience and satisfaction has been extensively studied in tourism literature, consistently highlighting that a positive tourist experience leads to higher satisfaction levels. Tourist experience serves as a precursor to satisfaction, with various components of the experience directly influencing how satisfied tourists feel about their trip (Chen & Tsai, 2007). For instance, when tourists engage in enjoyable activities, interact positively with locals, and receive high-quality services, their satisfaction levels tend to be higher (Tung & Ritchie, 2011).

Empirical studies have shown that specific aspects of the tourist experience, such as cultural involvement and personal interactions, significantly contribute to overall satisfaction. For example, a study by Prebensen et al. (2014) found that tourists who actively participate in local cultural activities report higher satisfaction due to the deeper connections and understanding they gain from these experiences. Similarly, Kim (2010) emphasized that memorable experiences, characterized by unique and emotionally engaging activities, strongly predict tourist satisfaction.

Moreover, social media engagement has been identified as a crucial factor in enhancing tourist experiences and satisfaction. Tussyadiah & Fesenmaier (2009) found that tourists who actively share their experiences on social media tend to reflect more positively on their trips, leading to higher satisfaction. This engagement allows tourists to relive their experiences and helps them connect with a broader community, reinforcing positive feelings about their trip.

2.3. Local culture and tourist engagement

2.3.1. Definition and role of local cultural involvement in tourist experience

Local cultural involvement refers to tourists' active participation and engagement in a destination's cultural activities, traditions, and customs. This can include participating in local festivals, visiting historical sites, experiencing traditional arts and crafts, and sampling local cuisine. Local cultural involvement enriches the tourist experience by providing deeper insights and a more authentic connection to the destination (Richards, 1996). Such involvement allows tourists to understand the local way of life better, thereby enhancing their overall travel experience.

The role of local cultural involvement in the tourist experience is multifaceted. It is an educational opportunity, allowing tourists to learn about and appreciate different cultures and

fostering emotional connections and personal growth. Engaging in local culture can lead to a sense of belonging and a more immersive travel experience, which is often more memorable and satisfying (McKercher & Du Cros, 2002). Additionally, local cultural involvement can contribute to preserving and promoting cultural heritage, as tourists' interest and participation can provide economic support for local communities and cultural institutions (Timothy & Boyd, 2003).

2.3.2. Studies on the impact of local culture on tourist satisfaction

Numerous studies have explored the impact of local cultural involvement on tourist satisfaction, consistently highlighting its positive influence. Research indicates that tourists who actively engage with the local culture tend to report higher satisfaction levels due to the unique and enriching experiences they gain (Kim & Ritchie, 2014). For instance, a study by Reisinger & Turner (2012) found that cultural interactions and participation in local traditions significantly enhance tourists' perceptions of a destination and their overall satisfaction.

Another study by Cohen (1979) emphasized that cultural involvement provides tourists with meaningful and authentic experiences crucial for their overall satisfaction. The research suggested that tourists participating in cultural activities feel more connected to the destination, resulting in a more fulfilling and enjoyable experience. Similarly, a study by Pizam et al. (1978) showed that cultural experiences positively influence tourists' satisfaction by meeting their desires for novelty, learning, and personal enrichment.

Moreover, recent research has highlighted the importance of cultural authenticity in shaping tourist satisfaction. Tourists often seek authentic experiences that reflect the true essence of the destination's culture. Studies by MacCannell (1973) and Ning Wang (1999) argue that authenticity in cultural experiences can significantly enhance satisfaction, as tourists perceive these experiences as genuine and unique. This authenticity creates a deeper emotional connection and a sense of fulfillment, contributing to higher satisfaction levels.

2.4. Social media engagement

2.4.1. Definition and role of social media engagement in tourism

Social media engagement in tourism refers to the active participation of tourists in sharing, commenting, and interacting with content related to their travel experiences on social media platforms. This includes posting photos and videos, writing reviews, sharing travel tips, and engaging with other users' content. Social media has revolutionized how people plan, experience, and reflect on their travels, creating a more interconnected and interactive travel experience (Munar & Jacobsen, 2014).

The role of social media engagement in tourism is multifaceted. First, it serves as a powerful tool for information dissemination and inspiration. Tourists use social media to gather information about destinations, read reviews, and get recommendations, which can influence their travel decisions and expectations (Xiang & Gretzel, 2010). During the trip, social media allows tourists to share real-time updates and connect with friends and family, enhancing their experience through social interaction and feedback (Bruce, 1987). After the trip, social media provides a platform for tourists to share their experiences, which helps create lasting memories and influences future travelers (Pop et al., 2022).

2.4.2. Studies on the impact of social media on tourist experience and satisfaction

Numerous studies have explored the impact of social media on tourist experience and satisfaction, consistently highlighting its significant influence. Research by Yoo & Gretzel (2011) found that social media engagement enhances the overall travel experience by providing tourists with opportunities to share their experiences and receive immediate feedback, which can enhance their sense of satisfaction and fulfillment. Similarly, a study by Phuong et al. (2022) indicated that social media interactions during travel can positively affect tourists' emotional experiences, leading to higher satisfaction levels.

Another significant aspect of social media is its role in creating and sharing user-generated content (UGC). UGC, such as reviews, ratings, and travel blogs, significantly influences tourists' perceptions and expectations of a destination (Ayeh et al., 2013). Tourists rely on this content for authentic insights and recommendations, which can shape their travel experiences and satisfaction. A study by Munar & Jacobsen (2014) highlighted that tourists who actively engage with UGC have more informed and enjoyable experiences, as they are better prepared and more aware of what to expect.

Moreover, social media engagement can enhance tourists' sense of community and belonging. By interacting with other travelers and locals on social media, tourists can build connections and share experiences, contributing to a more enriched and satisfying travel experience (Wang et al., 2012). This sense of belonging and shared experience often translates into higher satisfaction, as tourists feel more connected and supported during their travels.

3. Methodology

3.1. Research design

3.1.1. Research model and hypotheses

The research model for this study aims to examine the moderating roles of local cultural involvement and social media engagement in the relationship between tourist experience and

satisfaction. The conceptual framework is grounded in the existing literature, which highlights the importance of these factors in enhancing the tourist experience and satisfaction (Kim et al., 2012; Kim & Ritchie, 2014; Munar & Jacobsen, 2014). (see Fig. 1). Based on the literature review and the mentioned references through the previous subsections, the objectives of the current study can be achieved by testing the following hypotheses:

H1: Tourist experience positively influences tourist satisfaction.

H2: Local cultural involvement positively moderates the relationship between tourist experience and tourist satisfaction.

H3: Social media engagement positively moderates the relationship between tourist experience and tourist satisfaction

Fig. 1. The conceptual model
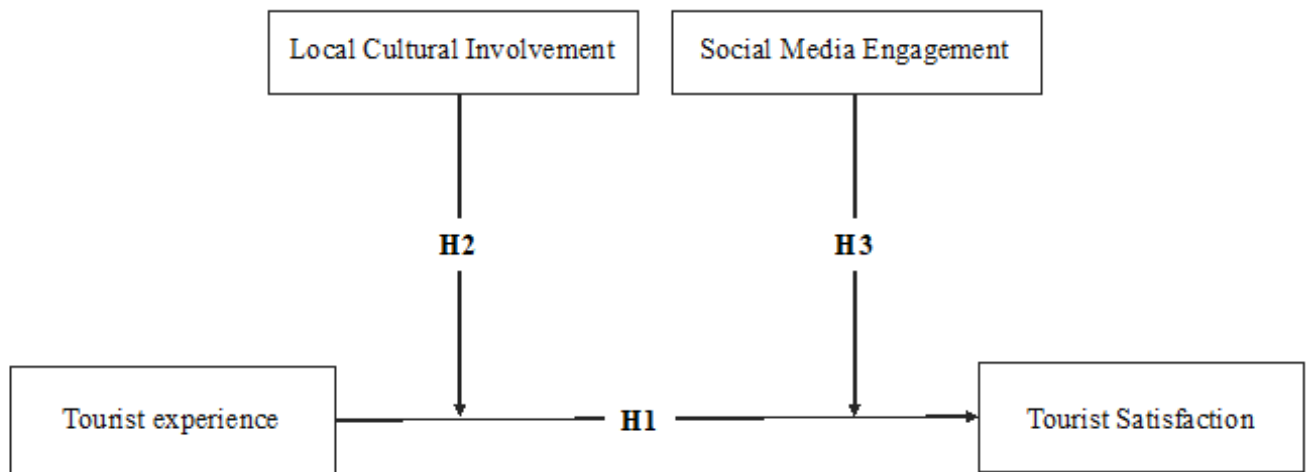
3.1.2. Measures

We selected scales from different studies to measure the variables in the research model. Specifically, for the tourist experience with 5 items adapted from (Kim et al., 2012), we slightly adjusted some items to ensure they fit the context of this study, an example of which is " Overall, I am satisfied with my travel experience in Vietnam." The 4 items to measure tourist satisfaction were adapted from (Oliver, 1980; Chi & Qu, 2008) with a slightly modified, an example of which is " I would recommend Vietnam to others." Local cultural involvement with 4 items was adapted from (Richards, 1996). Social media engagement with 4 items was modified based on (Munar & Jacobsen, 2014), an example of which is " I posted reviews and feedback about my trip to Vietnam on social media".

Table 1. Measurement scales

Construct	Items	References
Tourist experience	TE1. Overall, I am satisfied with my travel experience in Vietnam TE2. My travel experience in Vietnam was memorable. TE3. My travel experience was novel and different from my routine. TE4. My travel experience in Vietnam was exciting. TE5. My travel experience in Vietnam provided opportunities for learning and self-development.	Adapted from (Kim et al., 2012)
Tourist Satisfaction	TS1. Overall, I am satisfied with my visit to Vietnam. TS2. The trip to Vietnam met my expectations. TS3. I would recommend Vietnam to others. TS4. I am likely to revisit Vietnam in the future.	Adapted from (Oliver, 1980; Chi & Qu, 2008)
Local Cultural Involvement	LCI1. I participated in Vietnamese local festivals during my visit. LCI2. I engaged with Vietnamese local traditions and customs. LCI3. I learned about the Vietnamese local culture and history. LCI4. I interacted with Vietnamese local people and communities.	adapted from (Richards, 1996)
Social Media Engagement	SME1. I shared my travel experiences to Vietnam on social media. SME2. I engaged with travel-related content on social media (e.g., likes, comments, shares). SME3. Social media influenced my travel decisions and	Modified based on (Munar & Jacobsen, 2014),

activities.

SME4. I posted reviews and feedback about my trip on social media.

3.1.2. PLS-SEM approach and rationale for its use

This study employs PLS-SEM to test the proposed hypotheses and evaluate the research model. PLS-SEM is a variance-based structural equation modeling technique widely used for complex predictive models and exploratory research (Hair Jr et al., 2017). This method is particularly suitable for this study for several reasons.

Firstly, PLS-SEM is highly effective in handling complex models with multiple constructs and indicators, making it ideal for examining the moderating effects of local cultural involvement and social media engagement within the tourist experience-satisfaction relationship (Chin, 1998). The flexibility of PLS-SEM in modeling formative and reflective constructs allows for a comprehensive analysis of the multidimensional nature of tourist experiences and satisfaction (Hair et al., 2012).

Secondly, PLS-SEM does not require a large sample size to obtain reliable results, which is advantageous given the potential limitations in data collection within the context of Northern Vietnam's tourism sector (Henseler et al., 2009). This method also effectively handles non-normal data distributions, making it robust for analyzing real-world tourism data that may not always follow a normal distribution (Hair Jr et al., 2017).

Lastly, PLS-SEM provides detailed insights into the relationships between variables, including the strength and significance of direct and indirect effects. This capability is crucial for understanding the nuanced roles of local cultural involvement and social media engagement in moderating the impact of tourist experience on satisfaction (Hair Jr et al., 2017).

3.2. Sample and data collection

3.2.1. Sample characteristics

The sample for this study comprises tourists who have visited Northern Vietnam within the past 12 months. A purposive sampling method ensures that participants have recent and relevant regional experiences. The target sample size is approximately **400** respondents, which is considered adequate for applying PLS-SEM, as it provides sufficient statistical power and robustness for the analysis (Hair Jr et al., 2017).

The selection criteria for participants include: (1) being at least 18 years old, (2) having visited Northern Vietnam as a tourist within the last year, and (3) being willing to provide detailed information about their travel experiences, cultural involvement, and social media engagement. These criteria ensure that the sample consists of individuals who can accurately recall and reflect on their experiences, contributing to the reliability and validity of the data collected.

3.2.2. Data collection methods

Data is collected through a structured survey to gather comprehensive information on the tourist experience, satisfaction, local cultural involvement, and social media engagement. The survey includes quantitative and qualitative questions to capture a broad range of data.

The quantitative part of the survey employs a Likert scale (ranging from 1 to 5, where 1 represents "strongly disagree" and 5 represents "strongly agree") to measure various constructs. These constructs include the quality of the tourist experience, satisfaction levels, degree of involvement in local cultural activities, and extent of social media engagement. This scale is chosen for its effectiveness in capturing the intensity of respondents' attitudes and perceptions (Joshi et al., 2015).

The qualitative part of the survey includes open-ended questions that allow respondents to provide more detailed insights into their experiences and interactions. This qualitative data is valuable for understanding the context and nuances of tourists' experiences that may not be fully captured by the quantitative measures.

Surveys are distributed online and in person to ensure a diverse and representative sample. Online surveys are disseminated through social media platforms, travel forums, and tourism websites, targeting tourists who have shared their experiences online. In-person surveys are conducted at popular tourist spots in Northern Vietnam, such as Hanoi, Ha Long Bay, and Sapa, ensuring that a wide range of tourists are included in the study.

In addition to the survey, semi-structured interviews are conducted with a smaller subset of respondents (approximately 30 participants) to gain deeper insights into their cultural involvement and social media engagement. These interviews help to triangulate the survey data and provide richer, more detailed information that enhances the overall analysis (Creswell & Clark, 2017).

The data collection process spans three months to ensure an adequate response rate and comprehensive coverage of the target population. Following ethical research practices, all participants are assured of the confidentiality and anonymity of their responses.

4. Results

The author employed SmartPLS4 to implement PLS-SEM. The study performed a two-step process to conduct SEM. The first step involves evaluating the general measurement reliability and validity, and the second involves evaluating the structural model and hypotheses.

Regarding respondents' characteristics, 45.2% were male, and 54,8% were female. Most respondents were between the ages of 25-34 (41.3%). Concerning the education level in the dataset, the highest is high school/college (43%), and the lowest is postgraduate degree (26.4%). Table 2.

Table 2. Sample characteristics (n=409)

Characteristics	Categories	Frequency	Percentage (%)
Gender	Male	185	45.2
	Female	224	54.8
Age	18-24	99	24.2
	25-34	169	41.3
	35-44	63	15.4
	45-54	55	13.4
	55 and above	23	5.6
Education	High school / College	176	43
	Undergraduate degree	125	30.6
	Postgraduate degree	108	26.4

4.1. Measurement model

Evaluate the measurement model using SmartPLS4 based on the following contents: quality of observed variables (outer loading), scale reliability, convergence, and discriminant (Hair et al., 2013). The author checked the external load, according to which TE5 (outer loading = 0.678), and SME4 (outer loading = 0.631) are both less than 0.7, not ensuring quality. (Bagozzi & Yi, 1988; Hair Jr et al., 2017), After removing these two variables from the model and retesting, the

results of all indicators met the condition >0.7 (see Table 2). Composite reliability (CR) >0.7 is an appropriate threshold (Henseler & Sarstedt, 2013). Cronbach alpha >0.7 is an appropriate level (DeVellis & Thorpe, 2021). The author considered the average variance extracted index AVE (Average Variance Extracted) to evaluate convergence. Hock et al. (2010) state that a scale achieves convergent validity if the AVE is 0.5 or higher. The test results showed that AVE was> 0.5, so the observed variables met the convergence threshold. To evaluate discrimination, the author considers two indices: the Fornell-Larcker criterion (Fornell & Bookstein, 1982) and the correlation index HTMT (Heterotrait-Monotrait Ratio of Correlations) needs to be < 0. 85 (Henseler & Sarstedt, 2013), the test results all satisfy the conditions, and the scales are differentiated. Details are presented in Table 3 and Table 4

Table 3. Result of evaluating the measurement model

Factor	Code of items	Outer loading	VIF	Alpha	CR	AVE
Local Cultural Involvement	LCI1	0.938	4.118	0.946	0.962	0.860
	LCI2	0.923	4.005			
	LCI3	0.927	4.284			
	LCI4	0.922	4.105			
Social Media Engagement	SME1	0.931	3.876	0.878	0.926	0.742
	SME2	0.921	3.921			
	SME3	0.925	3.783			
	SME4*	0.631	1.330			
Tourist experience	TE1	0.911	3.743	0.940	0.941	0.848
	TE2	0.916	3.853			
	TE3	0.922	4.151			
	TE4	0.917	3.895			
	TE5*	0.678	1.535			
Tourist	TS1	0.910	3.446	0.920	0.943	0.763

Satisfaction	TS2	0.920	3.660
	TS3	0.925	3.944
	TS4	0.928	4.253

χ^2 = 318.500, SRMR=0.041, NFI=0.949

* Variables were eliminated due to outer loading factor < 0.7

Table 4. The measurements' discriminant validity

| Fornell-Larcker criterion	LCI	SME	TS	TE		
LCI	0.928					
SME	-0.343	0.938				
Tourist Satisfaction (TS)	-0.222	0.311	0.921			
Tourist experience (TE)	-0.19	0.302	0.614	0.922		
HTMT Criterion	LCI	SME	TS	TE	SME x TE	LCI x TE
LCI						
SME	0.362					
Tourist Satisfaction (TS)	0.23	0.329				
Tourist experience (TE)	0.197	0.321	0.652			
SME x Tourist experience (TE)	0.035	0.061	0.05	0.08		
LCI x Tourist experience (TE)	0.03	0.035	0.187	0.196	0.535	

4.2. Structural model

Evaluate the structural model using SmartPLS4 based on the following coefficients: Variance exaggeration factor VIF evaluates multicollinearity (Rogerson, 2019). Impact coefficient and significance of path impact levels (Hair et al., 2013). The R^2 coefficient evaluates the level of explanation of the factors on tourist satisfaction and considers the squared f^2 coefficient to determine whether the impact of each factor is strong or weak (Cohen, 1988; Hair et al., 2013).

First, the author evaluated multicollinearity through the VIF coefficient of the observed variables. The resulting VIF coefficient ranged from SME4=1.330 to LCI3=4.284, all of which satisfied the condition <5 (see Table 2). There is no multicollinearity phenomenon (Rogerson, 2019). Next, using the bootstrapping command on SmartPLS4 with 1000 bootstrap samples, the p-value results of all relationships are <0.05, the hypotheses H1 (p=0.000<0.05) and H2 (p=0.013<0.05) are accepted, and H3 (p=0.254>0.05) was rejected (Hair et al., 2013), the path relationship TE $\to$ TS with a standardized impact coefficient (Path coefficients) = 0.547, the path moderate relationship of LCI with TE and TS is 0.106. The author continued to consider the R^2 coefficient. The results of the factors explained 40.7% of the variation in tourist satisfaction (R^2 = 0.407). Considering the values of the coefficient f^2, only the relationship between TE $\to$ TS (f^2 = 0.437>0.15) is high (Cohen, 1988), which means the high impact of the tourist experience on tourist satisfaction. The moderating impact of LCI on the relationship between TE and TS is quite small (f^2 = 0.013<0.15). Details are presented in Table 5.

Table 5. The hypotheses test results.

Hypothesis	Path coefficients	Std. Dev.	t	p	f^2	Test Results
H1: TE $\to$ TS	0.547	0.049	11.097	0.000	0.437	Supported
H2: LCI_x_TE $\to$ TS	0.106	0.049	2.151	0.031	0.013	Supported
H3: SME_x_TE $\to$ TS	0.063	0.055	1.141	0.254	0.005	Rejected

Fig. 2. The results of hypothesis testing
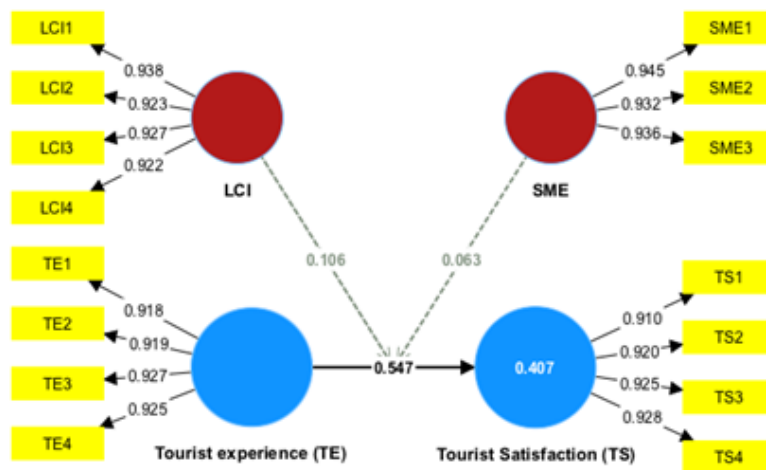
5. Discussion and implications

5.1. Research Findings and Hypotheses Analysis

This section discusses the study's key findings, providing detailed insights into verifying each hypothesis and interpreting the results within the context of existing literature.

Hypothesis H1: Tourist experience positively influences tourist satisfaction.

The results support hypothesis H1, demonstrating a significant positive relationship between tourist experience and tourist satisfaction ($\beta = 0.547$, $p < 0.01$). This finding is consistent with previous research indicating that a high-quality tourist experience leads to higher satisfaction levels (Chen & Tsai, 2007; Tung & Ritchie, 2011). The significant impact of tourist experience on satisfaction highlights the importance of providing memorable and enjoyable experiences. Key aspects contributing to this relationship include the novelty, excitement, and learning opportunities associated with the tourist experience. The positive coefficient indicates that enhancing the quality of tourist experiences through better service quality, engaging activities, and meaningful interactions can significantly boost tourist satisfaction.

Hypothesis H2: Local cultural involvement positively moderates the relationship between tourist experience and tourist satisfaction.

Hypothesis H2 is also supported by the significant moderating effect of local cultural involvement on the relationship between tourist experience and satisfaction ($\beta = 0.106$, $p < 0.05$). This suggests that tourists who actively engage with the local culture, such as participating in festivals, learning about traditions, and interacting with locals, tend to experience higher satisfaction levels. This finding aligns with the work of Richards (1996) and McKercher & Du Cros (2002), who emphasized cultural involvement's enriching and educational benefits. The positive moderation indicates that cultural engagement enhances the tourist experience by providing deeper insights and a stronger connection to the destination, leading to greater satisfaction.

Hypothesis H3: Social media engagement positively moderates the relationship between tourist experience and tourist satisfaction.

Contrary to expectations, hypothesis H3 is not supported. The analysis shows an insignificant moderating effect of social media engagement on the relationship between tourist experience and satisfaction ($\beta = 0.063$, $p > 0.05$). This result suggests that while social media engagement is valuable for sharing experiences and obtaining feedback, it does not significantly enhance the impact of the tourist experience on satisfaction in this context. This finding diverges from some

studies highlighting social media's positive effects on tourist satisfaction (Yoo & Gretzel, 2011; Munar & Jacobsen, 2014). The insignificant result may be due to several factors, including the varying ways tourists use social media or potential differences in the perceived value of social media interactions. It is possible that while social media facilitates information sharing and community building, it may not directly amplify the satisfaction derived from the actual tourist experience.

5.2. Implications

5.2.1. Theoretical implications

This study makes significant theoretical contributions to understanding tourist experience and satisfaction. It reinforces the critical role that tourist experiences play in determining satisfaction levels, as highlighted in previous studies (Chen & Tsai, 2007; Tung & Ritchie, 2011). By employing PLS-SEM, this research provides empirical evidence that a positive tourist experience significantly enhances tourist satisfaction. This finding is consistent with existing literature but extends the understanding by incorporating the moderating effects of local cultural involvement and social media engagement.

The study also contributes to the theory by highlighting the importance of local cultural involvement in enhancing tourist satisfaction. It shows that local cultural involvement positively moderates the relationship between tourist experience and satisfaction, suggesting that tourists who engage deeply with the local culture will likely have a more satisfying experience. This finding aligns with the work of Richards (1996) and McKercher & Du Cros (2002), who emphasized cultural involvement's educational and emotional benefits.

Furthermore, this research explores the role of social media engagement, which, although not supported as a significant moderator in this study, opens avenues for future research. The insignificant moderating effect of social media engagement on the relationship between tourist experience and satisfaction suggests that while it is valuable, its role may be more complex and warrants further investigation. Previous studies have shown varying impacts of social media on tourism behavior (Yoo & Gretzel, 2011; Munar & Jacobsen, 2014), indicating that other mediating or moderating variables might influence this relationship.

5.2.2. Managerial implications

From a managerial perspective, the findings of this study offer several practical recommendations for tourism managers and policymakers in Northern Vietnam. Firstly, enhancing the overall tourist experience should be a priority. This includes improving service quality, providing diverse and engaging activities, and ensuring that tourists feel valued and

satisfied. Training staff to offer exceptional service and developing attractions that highlight the uniqueness of Northern Vietnam can significantly enhance tourist experiences and satisfaction.

Tourism managers should also focus on promoting local cultural involvement. Encouraging tourists to participate in local festivals, engage with traditional crafts, and interact with local communities can increase satisfaction. Marketing strategies should emphasize the authenticity and richness of the local culture, positioning Northern Vietnam as a destination that offers unique and enriching cultural experiences.

Additionally, while social media engagement did not show a significant moderating effect in this study, its role in the overall tourist experience cannot be ignored. Tourism managers should continue to leverage social media platforms for marketing and engagement, encouraging tourists to share their experiences and interact with content related to Northern Vietnam. Providing incentives for social media engagement, such as photo contests or sharing promotions, can help enhance the visibility and attractiveness of the destination.

6. Limitations and conclusion

5.3.1. Limitations

Despite its contributions, this study has several limitations. Methodologically, using self-reported surveys may introduce bias, as respondents might overstate their satisfaction or cultural involvement. Future research could employ longitudinal studies to track changes in tourist satisfaction over time and use a mixed methods approach to gain deeper insights.

The sample is limited to tourists who visited Northern Vietnam, which may affect the generalizability of the findings to other regions. Future research could include a more diverse sample from different geographical areas to validate the findings. Additionally, the study's cross-sectional nature limits the ability to infer causality. Longitudinal studies could provide more robust evidence of the causal relationships between tourist experience, satisfaction, and moderating variables.

Finally, the study found that social media engagement did not significantly moderate the relationship between tourist experience and satisfaction. Future research should explore other potential moderators or mediators, such as tourist motivations, expectations, or personality traits, to better understand the role of social media in the tourism experience.

5.3.2. Conclusion

In conclusion, this study underscores the importance of enhancing the tourist experience to increase tourist satisfaction in Northern Vietnam. It highlights the significant moderating role of

local cultural involvement, suggesting that deeper engagement with local culture can lead to more satisfying tourist experiences. Although the moderating effect of social media engagement was not significant, the study opens avenues for future research to explore its complex role further.

The findings provide valuable insights for tourism managers and policymakers. They emphasize the need for high-quality service, rich cultural interactions, and effective social media use in marketing strategies. By focusing on these areas, Northern Vietnam can enhance its appeal as a tourist destination, leading to higher satisfaction, repeat visits, and positive word-of-mouth.

This research contributes to the theoretical understanding of tourist satisfaction and offers practical recommendations for developing sustainable tourism practices that benefit tourists and local communities. Future studies should continue to explore the dynamic interactions between tourist experience, satisfaction, cultural involvement, and social media engagement to build a more comprehensive understanding of the factors driving tourist behavior.

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