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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v13-i9/17969  DOI:10.6007/IJARBSS/v13-i9/17969

Received: 05 July 2023, Revised: 08 August 2023, Accepted: 26 August 2023

Published Online: 07 September 2023

In-Text Citation: (Yonghua & Amin, 2023)

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The Relationship between Culture, Destination Loyalty and Tourist Satisfaction on STT: A Conceptual Framework

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Abstract
In the report to the 19th National Congress of China, China proposed for the first time that China's economy has shifted from a stage of rapid growth to a stage of high-quality development, and high-quality development has become a hot topic of concern in academic circles. Tourism is an important engine to promote economic and social development. Luoyang is located in Henan Province, China, has a long history and cultural resources, and is also a representative city of a famous historical and cultural city in China. Despite the abundant existing literature on destination loyalty, culture and Smart Tourism Technology(STT), there remains a research gap that the current study aims to fill. A comprehensive study specifically addressing the relationship and interplay between these variables within the context of Luoyang city has not yet been undertaken. The Study conducts a extensive literature review to review cultural factors and their relationship with destination loyalty and understand the current status of researchers on tourist satisfaction and STT. The Study aims to construct a conceptual framework of culture, Tourist Satisfaction on STT, destination loyalty and propose reasonable hypothesis.

Keywords: Luoyang City, Culture, STT, Tourist Satisfaction, Destination Loyalty

Introduction
China's economy and business landscape are heavily influenced by tourism. The nation's economic growth is greatly aided by this vital pillar. The travel and tourism industry has experienced a robust growth trajectory over the past decade, with a total revenue of approximately 6.6 trillion yuan as of 2019. This growth is evident in both the domestic and international tourism sectors, owing to China's vast array of attractions, ranging from historical sites and relics to economic hotspots and a culturally diverse number of minorities. As a result, China has become a favoured travel destination for numerous countries such as Thailand, Japan, Korea, Russia, and the UK, attracting 145 million inbound tourists in 2019 and generating nearly 36 billion U.S. dollars in revenue (Statista, 2023).
In addition, China's tourism industry offers significant employment opportunities, employing more than 28 million people directly and considerably more when it comes to indirect jobs. Communities are able to diversify their sources of employment and revenue and build up their resources through economic incentives from tourism. Both residents and visitors can benefit from infrastructure and service upgrades (UNWTO & UNDP, 2017). Heritage tourism usually focuses on local history or historical events that happened in the area and encourages education. Employment opportunities for the local population will improve as the tourism sector grows, which will have a positive effect. The average income for the whole city will increase with the financing of tourism (Lee et al., 2020; Zhao et al., 2020).

Luoyang is a city that is historically significant because it is located north of the Luohe River, a tributary of the Yellow River, in Henan Province of central China. As one of the four principal ancient capitals of China, it remains an important regional centre for politics, business and culture in the western region of Henan province. The city, which was founded in 1224, maintains much of its ancient layout, with preserved city walls, historical sites, conventional roads, and waterways, despite some damage caused by wars (Guoen, 1989). Luoyang is known around the world for its cultural and natural attractions, as well as its peonies and two significant geological parks (China Today, 2018).

Making Luoyang a global tourist attraction is one of the main priorities of the local government (Zhao & Liu, 2020). As a result, government-driven projects related to tourism
are one of the main causes of land expropriation in the city, some of which have led to the relocation of rural settlements in the city's outer suburbs. For example, one-third of Luoyang's newly constructed "New District" has been designated for tourist resorts and leisure amenities, including a sports centre, the Sui & Tang Dynasties Relics Park, museums, riverside parks, as well as supplementary amenities like visitor centres, hotels, restaurants, and shopping centres (Zhang et al., 2022). To sum up, tourism in Luoyang involves cultural heritage, which encompasses traditional or newly built destinations.

Nonetheless, cultural tourism is one of the fastest growing and largest global tourism markets. Many countries and regions, particularly developing countries, benefit from cultural tourism as a significant source of economic growth and overall community development (Khan et al., 2020). There are close connections between cultural heritage and cultural tourism (Noonan & Rizzo, 2017). Cultural heritage is the foundation of attraction for visitors who participate in cultural tourism. Cultural tourism not only stimulates the economy by generating tourism receipts, it also promotes public awareness, conservation and preservation of cultural heritage.

Smart tourism has been the main approach of the Chinese government's tourism development policy, and it has been a significant development in the field. Researchers and investors who are exploring innovative applications of technology in tourism have been intrigued by the policy, which was established in 2009 (Wang & Bramwell, 2012). Smart tourism, as understood in this context, is a comprehensive use of advanced technologies that aims to significantly enhance the efficiency and effectiveness of various segments of the tourism industry. This technology integration covers the wide range of management, service delivery, and marketing within the tourism ecosystem. In a nutshell, smart tourism is the use of modern technology to improve various aspects of the tourism industry, such as management, service delivery, and marketing. It is a testament to China's commitment to harnessing technology to foster sustainable and inclusive growth in its tourism sector through this strategic policy shift towards smart tourism.

Most tourists use smart technologies during their journey to obtain location requests, feedback from local restaurants or mobile payments (Pai et al., 2020). Tourists use smart technologies like destination marketing organizations (DMOs) websites, tourism apps, social media, and VR to customize, plan, and enhance their trips. It's interesting that the effective use of STT has a direct correlation with tourist satisfaction, which in turn influences destination loyalty. Torabi et al (2022) reported that those who are satisfied are 70% more likely to return to the destination and 81% more likely to recommend it to others. Hence, the effective deployment and utilization of STT play a crucial role not only in enhancing the tourist experience but also in promoting the destination's reputation and generating repeat patronage.

In conclusion, the combination of cultural heritage, government-led projects and the adoption of intelligent tourism technologies provides Luoyang with a unique opportunity to become a world-class tourism destination. However, to fully capitalize on this potential, it is essential to investigate the relationship between smart tourism technology, tourist satisfaction, and destination loyalty in the specific context of Luoyang. Understanding how STT can enhance the tourist experience, improve satisfaction levels, and ultimately foster
destination loyalty will not only benefit Luoyang but also contribute to the broader understanding of smart tourism's impact on the tourism industry. The aim of the study is to shed light on these dynamics, provide valuable insights for destination management, and further optimize the use of technology in Luoyang's tourism sector.

**Literature Review**

**Luoyang City as a Tourist Destination**

The tourism industry in Luoyang experienced a boom in 1983 due to the attraction of tourists from all over the world to Luoyang's culture and history. In 2000, the Longmen caves in the city of Luoyang were recognized by UNESCO as a World Cultural Heritage Site (Lu, 2017).

Based on the literature search, Wang and co-researchers studied the relationship between the development of cities in Luoyang city and tourists' perception of the destination image (Wang et al., 2020). Furthermore, previous studies have revealed that enhancing the destination image of Luoyang city in the blog will enhance the attraction of tourists (Wang et al., 2019). According to another study, the textile intangible cultural heritage in Luoyang did not have a significant impact on the tourist attraction (Zhao & Dai, 2019).

On a more micro level, a study by Liu et al. (2020) explored the role of specific tourist sites in Luoyang, like the Longmen Grottoes, in fostering destination loyalty. The preservation and presentation of historical artifacts have been suggested by their research to have a direct impact on tourists' perceptions and loyalty to the destination. Moreover, a recent study by Zhang and Cai (2022) has brought to light the role of STT in enhancing destination loyalty. They found a positive correlation between STT, tourism satisfaction and destination loyalty, indicating that innovative technological approaches may be a way of promoting destination loyalty in Luoyang.

**Destination loyalty as Dependent Variable**

Destination loyalty is an important component in promotion since it is the most accurate predictor of post-visit behavior. Due to loyal clients' less price sensitive nature and higher willingness to spend, the cost of serving this type of tourist is lower. They also operate as informal information channels that connect networks of friends and other possible travellers to a region (Lau & McKercher, 2004; Oliver, 1999; Oppermann, 2000; Reichheld & Sasser, 1990; Shoemaker & Lewis, 1999). It is necessary to treat them as distinct customers, acknowledge their opinions, and assign less work to resolve any problems that arise during the partnership (Cosso-Silva et al., 2019). Past loyalty to the location is an important characteristic that has a significant impact on future behavior. Destination loyalty among tourists will influence whether or not a destination is recommended for a visit (Meleddu et al., 2015). Other studies obtained a result that was similar. For example, according to Shirazi et al. (2013), higher destination loyalty had a direct impact on revisit intention and an indirect impact on marketing strategies. Based on their study, tourists who enjoyed their stay in a tourist destination were more likely to return and recommend it to friends, family and other visitors.

Importantly, the tourism sector's income is significantly increased by such frequent revisit behavior, which contributes significantly to a country's Gross Domestic Product (GDP). The economic impact of destination loyalty can be seen in the United States, where tourism has contributed up to 7.8% to GDP (US Travel Association, 2019). It is crucial to acknowledge that
negative experiences, such as with smart city information infrastructure, could discourage tourists from revisiting or recommending a site (Azis et al., 2020). Therefore, understanding the drivers of destination loyalty is critical to driving informed destination marketing improvements.

Tourist Satisfaction
A positive relationship exists between tourist satisfaction and destination loyalty (Rameshet al., 2021). Literature research in tourism indicates that a destination's ability to satisfy visitors is a critical factor in selecting a location. If visitors are pleased with their trip to a location, they are more likely to recommend it to others or return to it themselves.

For the majority of service companies, tourist satisfaction has become a major topic (Yoo, C. et al., 2017). Kim (2017) conducted a structural analysis of the relevant variables and found empirical evidence to support a positive association, giving us a basis to strengthen the conclusions made in this study. Visitor pleasure was found to explain a significant portion of all the variations in their structural design, according to Wu et al (2022) examination of aesthetic experience criteria for tourist contentment. When Rasoolimanesh et al (2022) looked into how well tourist satisfaction measures destination loyalty, they found a strong and encouraging similarity. This is because when tourists are satisfied with their trips or travels, the good experience will encourage them to revisit next time (Yudistira Nugraha & Astuty, 2022). Chi & Qu (2008) observed that tourist satisfaction has a positive impact on destination loyalty in Arkansas, United States.

The use of STT
The purpose of STT is to enhance the travel experience, which is a subset of Information Communication Technologies (ICT). These can include applications like augmented reality for enriched on-site experiences, mobile apps for booking and navigation, and IoT devices for improved personalization and convenieince (Buhalis & Amaranggana, 2015).

Research has shown that STT usage can have a significant impact on destination retention. For instance, Neuhofer et al (2012) discovered that using STT effectively enhances the tourist experience, which in turn leads to increased destination loyalty. Li et al (2019) found that the adoption of STT can enhance destination loyalty by improving service quality and tourist satisfaction. However, the influence of STT on destination loyalty may vary depending on individual technological proficiency, accessibility, and cultural attitudes towards technology use (Gretzel et al., 2015). Furthermore, the proper implementation of STT necessitates a balanced approach to respect tourists' privacy and data security.

Tourist Satisfaction on STT as Mediating Variable
Tourism is a sociological, ethnic, and economical phenomenon that involves people travelling to places outside of their typical surroundings for personal or business reasons, with cultural immersion as the main objective. Smart tourism is characterized by human-oriented, green, scientific and technological innovation in tourism services by applying information technologies, such as cloud computing, networking and high-speed communication technology (Yalçinkaya et al., 2018). Smart is a term used to describe things that are intelligent, environmentally friendly, sustainable, integrated, and pervasive, such as smartphones, smart TVs, and smart autos (Um & Chung, 2021). The word "smart" has been
used to describe tourism in light of the significant advancements made possible by the integration of integrated technology, real-time data, and physical infrastructure into a single complex ecosystem resembling a city.

Smart tourism also has influence on destination loyalty, as the adoption of STT is able to improve the experience of the tourists, increasing tourist satisfaction which eventually leads to higher destination loyalty in Indonesia (Azis et al., 2020). Smart tourism encompasses artificial intelligence services that assist tourists during their journey, which can improve their satisfaction and loyalty to destinations (Phaosathianpan & Leelasantitham, 2021). Among the main factor to influence tourist satisfaction in using STT are informativeness, accessibility, interactivity, personalization and security (Todua & Urotadze, 2021).

In the current era, technology plays a crucial role as it can access wide-ranging information, and most tourists possess a smart phone. Therefore, an international study involved Singapore, Malaysia, Indonesia dan Brunei Darussalam found out that STT usage influence destination loyalty via pleasant tourist experience as the mediating variable (Yudistira Nugraha & Astuty, 2022). Another factor, the informativeness of STT was suggested to have a higher influence on destination loyalty through a mediating factor of tourist satisfaction (Ng et al., 2022). As an initiative to promote heritage sites, such as Luoyang City, has been integrated with STT to enhance tourists’ experience and convenience (Huyan & Li, 2021).

**Culture Factor as Independent Variable**
In the context of tourism, the significance of cultural experiences cannot be underestimated as they contribute to the distinctive appeal of a destination and constitute an integral part of the overall travel experience (Richards, 2018). Tourist perceptions and attitudes are influenced by the cultural attributes of a destination, which are crucial in shaping destination choice and loyalty (Zhao & Liu, 2020). These are the key distinguishing features that distinguish one destination from another, often being the basis for a destination’s unique selling proposition. By providing tourists with rich, authentic, and memorable cultural experiences, destinations can enhance their attractiveness, stimulating tourist satisfaction, and fostering destination loyalty (Yang & Wall, 2021; Yoon & Uysal, 2005).

Historical sites have a cultural significance for the local population, which can be interesting for culturally sensitive tourists to study and visit (Esfehani & Albrecht, 2018). The conservation of historical places has been adapted to a reuse approach while maintaining their authenticity to attract tourists (Chong & Balasingam, 2019). For instance, the heritage sites in Musi Riverside Palembang were preserved and proved to attract more tourists after the preservation works (Lussetyowati, 2015).

In addition, local hospitality is also one of the factors that influence tourist loyalty when opting for a beach holiday (Sangpikul, 2018). Helpful and friendly local people provide good culture as a representation of their religion, lifestyle and fundamental values (Noypayak, 2009). Cultural experience can lead to memorable tourism experiences, which can improve destination loyalty (Chen & Rahman, 2018). This result is achieved by promoting tourist engagement to connect a deeper level of commitment and interest among tourists (Taheri et al., 2014).
The experience influences the perception of the destination after a visit. Through behavioural intention and emotional attachment, this cultural experience will have a significant impact on someone's destination-loyalty intention (Jamaludin et al., 2018). Those who possess good experiences and engagement will return to their destination (Jamaludin et al., 2018). The reason for this is that psychological adaptation can be influenced by sociocultural adaptation, which can impact a tourist's intention towards the destination (Graham & Markowitz, 2011; Sam et al., 2006). In order to improve the cultural immersion of tourists, some countries, such as Germany, have organized festivals to promote awareness and attract more tourists (Stankova & Vassenska, 2015).

In short, cultural tourism can be explained in terms of the preservation of heritage sites, the conviviality of local people and personal experience in immersing the local culture during the visit. By providing rich, authentic and immersive cultural experiences, destinations can not only increase their appeal, but also boost tourist satisfaction and loyalty. However, these factors have been examined in different populations and destinations, which could yield different results (Vengesayi et al., 2009). Therefore, understanding the factors underlying the cultural aspect is essential to influence destination fidelity to Luoyang.

Research Gap and Justification for the Current Study
Firstly, although individual research studies have been conducted that investigate the effects of cultural immersion and STT on destination loyalty, the exploration of all these variables within a single study is relatively uncharted. This gap is particularly noticeable when considering the specific context of Luoyang city, a city with unique characteristics and dynamics that may influence how these variables interact and influence destination loyalty. It is thus essential to consider all these factors collectively, to provide a more holistic understanding of their interactions and combined impact on destination loyalty. Secondly, the role of tourist satisfaction has often been viewed as an endpoint or a result of the various factors such as culture and STT. However, its potential to act as a mediating variable that moderates the relationship between these factors and destination loyalty is less explored. Furthermore, the advent of STT presents a novel area where its impact on tourist satisfaction, and subsequently destination loyalty, is not thoroughly studied. As the adoption of STT in the tourism industry continues to increase, understanding its influence on tourist satisfaction and destination loyalty becomes imperative.

Lastly, while it's widely acknowledged that STT can enhance tourist experience and satisfaction, its specific role and influence on destination loyalty, especially in the context of Luoyang city, have not been sufficiently investigated. As STT becomes increasingly integrated into the tourism industry, understanding its specific effects on destination loyalty in different contexts becomes essential for planning and decision-making processes in tourism management and promotion.

Research Framework and Hypothesis
As stated by literature review, cultural aspect of Luoyang and its scenic environment are among the factors influencing tourist’s attraction. Moreover, the implementation of STT in Luoyang is considerably good. In previous discussion, it had proved that destination loyalty will be influenced by tourist satisfaction, culture, environment and sociodemographic. While there is still a research gap that has been identified regarding how cultural factors influence destination loyalty and tourist satisfaction on STT in Luoyang city. Tourist satisfaction on STT
in Luoyang city is not explored, remaining as a question to be answered. However, other variables like the cultural factor will be combined to understand their effect on destination loyalty in the city of Luoyang City. Therefore, this study aims to relate the culture, tourist’s satisfaction on STT and destination loyalty in Luoyang city. The conceptual framework of this study is summarized as shown in Figure 2.1. In this framework, independent variable (Culture) influences both Tourist Satisfaction on STT (H1) and Destination Loyalty directly (H2). Tourist Satisfaction on STT also has a direct effect on Destination Loyalty (H4). Additionally, Tourist Satisfaction on STT mediates the relationship between each independent variable and Destination Loyalty (H3).

![Figure 3: Conceptual framework](image)

**Research hypotheses of this work are outlined as below**

H1: Cultural factors experienced by tourists in Luoyang city have a significant impact on their satisfaction on STT.

H2: Cultural factors experienced by tourists in Luoyang city have a significant impact on their destination loyalty.

H3: Tourist satisfaction on STT mediates the relationship between Cultural factors and destination loyalty in Luoyang city.

H4: Tourists' satisfaction on STT in Luoyang city has a significant positive impact on their destination loyalty.

**Conclusion**

In order to improve tourism sector in Luoyang city, it is important to study the main factors affecting destination loyalty of the tourist so that market player can implement suitable strategy. There is limited study regarding the contributor of destination loyalty in Luoyang city. A large number of literature shows that it is vital to analyse the requirement and focus of tourists when travelling, from the aspect of cultural immersion. The literature may provide fundamental data to understand the relationship between culture and destination loyalty, but it will not represent the real scenario in Luoyang city. With that, examination on the relationship between the variables provide this empirical data. And this Study proposed tourist satisfaction on STT is very important because current technology usage by tourist had been heavily increased and it have potential to act as mediating variable between independent and dependent variables.

In light of these considerations, this study formulates a conceptual framework delineating the impact of cultural elements and visitor satisfaction with STT on destination loyalty. The proposed framework not only contributes to the theoretical understanding of these
relationships but also holds practical implications for the field of tourism and cultural management. By acknowledging the central role of culture in fostering destination loyalty, stakeholders, including policymakers, destination managers, and cultural institutions, can strategize ways to capitalize on cultural assets for enhancing the overall tourist experience. By leveraging destination loyalty as a marketing tool to spotlight Luoyang city, this research equips the government and market players with the necessary knowledge to orchestrate well-informed promotional efforts. Ultimately, armed with an understanding of the factors engendering loyalty among visitors to Luoyang, the government can orchestrate targeted initiatives, thus amplifying tourist footfall and augmenting the tourism revenue of Luoyang city.

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