Using generative artificial intelligence (ChatGPT) for travel purposes: parasocial interaction and tourists’ continuance intention

Cong Doanh Duong, Thanh Hieu Nguyen, Thi Viet Nga Ngo, Thi Thu Phuong Pham, Anh Trong Vu and Ngoc Su Dang

Abstract

Purpose – This study aims to investigate what drives tourists to continue using ChatGPT for travel purposes. This study focuses on the impact of parasocial interaction on tourists’ intention to continue using ChatGPT. It also examines how satisfaction mediates this relationship and the role of technology anxiety as a moderating factor.

Design/methodology/approach – Using a sample of 606 tourists in popular Vietnamese tourist destinations, this study used the SPSS PROCESS macro (Model 4 and Model 14) to estimate the research model.

Findings – The study found that tourists’ satisfaction and parasocial interactions positively influenced their intention to continue using ChatGPT for travel purposes. The tourists’ satisfaction was found to play a partial role in mediating the relationship between parasocial interactions and their intention to continue using ChatGPT. Technology anxiety was found to be a negative moderator of the direct effect of satisfaction and the indirect impact of parasocial interaction on this intention.

Originality/value – This study stands out as a pioneering exploration into the novel intersection of parasocial interaction, satisfaction, and technology anxiety and their influence on tourists’ intention to persist with using ChatGPT for travel-related purposes.

Keywords Technology anxiety, Satisfaction, Tourism and hospitality, Continuance usage intention, Parasocial interaction, ChatGPT

Paper type Research paper

将生成式人工智能(ChatGPT)用于旅行目的：准社会互动与游客持续意愿

摘要

目的：本研究旨在调查什么促使游客继续使用ChatGPT进行旅行。本研究重点关注准社会互动对游客继续使用ChatGPT意愿的影响。它还研究了满意度如何调节这种关系以及技术焦虑作为调节因素的作用。

设计/方法途径：本研究以越南热门旅游目的地的606名游客为样本，利用SPSS PROCESS宏（模型4和模型14）来估计研究模型。

研究结果：研究发现，游客的满意度和准社会互动对他们的继续使用ChatGPT的意愿产生了积极影响。研究发现，游客的满意度在调节准社会互动与他们继续使用ChatGPT的意愿之间的关系中发挥着部分作用。研究发现，技术焦虑是满意度的直接影响与准社会互动对此意图的间接影响的负调节因素。

原创性/价值：这项研究是对准社会互动、满意度和技术焦虑的新颖交叉点及其对游客坚持使用ChatGPT进行旅行相关目的的影响的开创性探索。

关键词：ChatGPT，准社会互动，满意度，持续使用意愿，技术焦虑，旅游和酒店业

文章类型：研究型论文

DOI 10.1108/TR-01-2024-0027

© Emerald Publishing Limited, ISSN 1660-5373 | TOURISM REVIEW
Uso de la inteligencia artificial generativa (ChatGPT) Para viajes: Interacción parasocial e intención de uso continuado de los turistas

Resumen

Propósito: Este estudio tiene como objetivo investigar qué impulsa a los turistas a seguir utilizando ChatGPT para viajar. Este estudio se centra en el impacto de la interacción parasocial en la intención de los turistas de continuar utilizando ChatGPT. También examina cómo es la satisfacción media de esta relación y el papel de la ansiedad tecnológica como factor moderador.

Diseño/metodología/enfoque: Utilizando una muestra de 606 turistas en destinos turísticos populares de Vietnam, este estudio utilizó la macro SPSS PROCESS (Modelo 4 y Modelo 14) para estimar el modelo de investigación.

Resultados: El estudio reveló que la satisfacción de los turistas y las interacciones parasociales influyen positivamente en su intención de continuar utilizando ChatGPT para viajar. La satisfacción de los turistas desempeña un papel parcial en la mediaci ón de la relación entre las interacciones parasociales y su intención de continuar utilizando ChatGPT. La ansiedad tecnológica es un moderador negativo del efecto directo de la satisfacción y del impacto indirecto de la interacción parasocial en esta intención.

Originalidad/valor: Este estudio destaca como una exploración pionera de la novedosa intersección de la interacción parasocial, la satisfacción y la ansiedad tecnológica y su influencia en la intención de los turistas de persistir en el uso de ChatGPT para fines relacionados con los viajes.

Palabras clave ChatGPT, Interacción parasocial, Satisfacción, Intención de uso continuado, Ansiedad tecnológica, Turismo y hotelería

Tipo de papel Trabajo de investigación

1. Introduction

ChatGPT stands out as a revolutionary artificial intelligence (AI) technology crafted to produce text closely resembling content generated by humans, with applicability across diverse contexts (Dwivedi et al., 2023). One area where ChatGPT has shown its potential for transformation is the hospitality and tourism industry, as it is used to provide superior travel-related information (Law et al., 2023). ChatGPT provides valuable assistance to tourists seeking to make informed decisions about their itinerary. This includes guidance on selecting destinations, routes, modes of transportation, accommodation and pricing considerations (Wong et al., 2023; Chon and Hao, 2024).

AI-powered chatbots such as ChatGPT have demonstrated their value in the hospitality and tourism industry (Gursoy et al., 2023; Buhalis et al., 2024). They have the capacity to offer round-the-clock interactive customer service, addressing typical guest inquiries, delivering tailored recommendations, promotions and support, managing uncomplicated booking inquiries (Bulchand-Gidumal et al., 2023) as well as facilitating personalized and context-aware user experiences (Buhalis et al., 2022). However, there is a lack of empirical research focusing on their application in travel-related activities for tourists (Kim et al., 2023). While existing research recognizes the importance of understanding initial AI adoption and acceptance (Solomovich and Abraham, 2024, Wong et al., 2023), minimal attention has been given to tourists’ satisfaction and their CI (continuance intention) to use ChatGPT in the travel context (Pham et al., 2024). The user-level CI to use a service is a crucial behavior that has been examined in numerous studies within the field of information systems (Pereira and Tam, 2021). Therefore, to fully realize ChatGPT’s potential, it is crucial to understand not only initial adoption but also user satisfaction and continued usage over time. Ghesh et al. (2023) also point out the current limitation in exploring the psychological effects of interactions with AI technologies, including emotional development and resulting behavioral intentions. This research gap is particularly notable given the potential impact of Generative AI on the travel industry.

Parasocial interaction (PSI) Theory explains the complex dynamics of individuals forming psychological connections with media figures, even when genuine, two-way interpersonal interaction is lacking (Shen et al., 2022). This theory has served as a foundational framework within the realms of media studies, communication and psychology. In the tourism field, previous studies have highlighted the importance of PSI in inducing behavioral intention (Bi et al., 2021). However, no prior study has used this
theory to explain tourists’ continued use of ChatGPT for travel purposes. As users increasingly engage with AI during travel, PSI Theory offers insights into how individuals form parasocial connections with ChatGPT, influencing their perceptions, emotional attachments and the decision to persist with using it for travel-related information.

To gain novel insights into the factors driving tourists to continue using ChatGPT for future travel activities, this study expands the PSI theory by integrating satisfaction and technology anxiety (TA). Satisfaction mediates the impact of PSI on the CI to use ChatGPT, while TA acts as a moderating variable. Satisfaction is a pivotal factor in determining the experience of users and their inclination to continue using a specific technology (Pereira and Tam, 2021). Through an analysis of satisfaction, this study can discern the direct and indirect impacts of parasocial connections established with ChatGPT on users’ decision-making processes. As the use of AI-driven technologies in travel continues to grow, it is essential to understand users’ concerns and worries about these technologies (Pham et al., 2024). This study, therefore, investigates how individuals’ existing TAs affect their perceptions and interactions with ChatGPT. By incorporating TA into the PSI framework, this study can observe whether it strengthens or weakens the impact of parasocial connections on users’ satisfaction and their willingness to continue using ChatGPT. This approach enables us to capture the nuanced relationship between users’ psychological tendencies and their interaction with AI-powered travel assistance.

This study makes significant contributions to both theoretical and practical aspects of the current hospitality and tourism literature. It distinguishes itself as one of the earliest initiatives to apply the PSI theory in explaining tourists’ CI to use ChatGPT for travel purposes. This research also sheds light on how tourists’ engagement and connection with ChatGPT shape their CI to use it for travel purposes. Furthermore, the study addresses a gap in the AI literature, as it delves into the specific influence of user satisfaction on the CI to use ChatGPT for travel, an aspect under-explored in existing research. Finally, this study is pioneering because it illustrates the negative moderating impact of TA on the relationship between PSI, satisfaction, and the CI to use ChatGPT for travel purposes. From a practical perspective, the results of the study can assist professionals and marketers in augmenting the satisfaction and holistic experiences of tourists by capitalizing on the advantages presented by ChatGPT within the domain of hospitality and tourism.

2. Literature review and hypothesis development

2.1 ChatGPT and travel activities

Advancements in AI and the expanding prevalence of immersive information environments open the door to novel online information sources with distinctive capabilities (Wong et al., 2023). A good example of this is ChatGPT, which provides instant and personalized information coupled with recommendations for tourist attractions and travel destinations (Carvalho and Ivanov, 2023). ChatGPT can function as a “digital secretary or assistant” for tourists throughout their pre-trip, en-route and post-trip travel experience (Wong et al., 2023).

In the pre-trip phase, ChatGPT can assist with efficient trip planning by offering personalized destination recommendations based on tourist preferences and feedback (Gursoy et al., 2023). Its advanced capabilities also ensure cost-effective options for a seamless and enjoyable travel experience (Carvalho and Ivanov, 2023; Wong et al., 2023). During the en-route stage, ChatGPT provides real-time assistance and information. It offers round-the-clock communication in multiple languages and personalized suggestions by memorizing previous interactions (Wong et al., 2023). It aids in overcoming language and cultural barriers by accurately translating local customs and expressions (Hack-Polay et al., 2022) and enhancing cultural understanding in unfamiliar environments (Wong et al., 2023). In the post-trip stage, ChatGPT serves as a valuable tool that enables travelers to easily share their experiences by generating text resembling human expression (Wach et al., 2023). This facilitates effortless
creation of social media posts, hotel reviews and detailed travelogues (Wong et al., 2023), particularly beneficial for those wishing to share their journey effortlessly with others.

2.2 Theoretical background: parasocial interaction theory

PSI theory was introduced by Horton and Wohl (1956), and it serves as a foundational framework within the realms of media studies, communication and psychology. This theoretical construct delves into the intricate dynamics of individuals’ psychological connections with media personalities, such as celebrities (Sakib et al., 2020), television characters or virtual entities, despite the absence of genuine interpersonal interaction (Lim and Lee, 2023). The essence of PSI lies in establishing one-sided, asymmetrical relationships, wherein viewers cultivate perceptions of companionship and connection with mediated figures. Through PSI, consumers establish a sense of connection with digital entities, believing that they are actively involved in a meaningful and two-way conversation (Labrecque, 2014). As these PSI relationships progress, there is a potential for consumers to transcend the boundaries of mediated interaction, reaching a point where they consider these digital agents as actual friends (Labrecque, 2014). This theory has far-reaching implications for understanding the socioemotional impact of media consumption, exploring perceived interactivity, and dissecting the emotional attachments to digital entities.

In the context of using ChatGPT for travel purposes, PSI emerges as a significant psychological phenomenon shaping users’ experience and engagement. In this context, PSI refers to the illusionary mediated experience wherein users establish a sense of interpersonal connection with the AI language model, perceiving it as a conversational companion. When using ChatGPT for travel, users may form parasocial relationships with ChatGPT. Through PSI, users develop a cognitive and emotional attachment to ChatGPT akin to an interpersonal relationship, creating a nuanced and immersive experience in travel planning and decision making.

In this comprehensive study, PSI theory stands as the cornerstone, offering an indispensable lens through which we explore the CI of tourists using ChatGPT for travel purposes. As users increasingly immerse themselves in AI-driven tools throughout their travel experiences, PSI theory emerges as a guiding framework, providing a nuanced understanding of how individuals establish parasocial connections with ChatGPT. These connections, as informed by PSI theory, extend beyond mere technological interactions, significantly influencing users’ perceptions, emotional attachments and, crucially, their decision to continue using ChatGPT for obtaining travel-related information.

2.3 Parasocial interaction and satisfaction

Satisfaction can be elucidated as the appraisal of one’s experience of using a product or service (Sann et al., 2023). This evaluative judgment is contingent upon the individual undergoing the service, with the crux of satisfaction depending on the quality of the customer’s experience with the service provided. Determinants of satisfaction are inherently subjective, rooted in the customer’s perception of the service’s quality and their overall experience.

Previous studies indicated that deriving pleasure from interactions with media personalities is a psychological consequence of PSI (Choi et al., 2019). This connection leads individuals to perceive media personas as friends, enhancing their overall satisfaction and enjoyment of the media content experience. Therefore, PSI dynamics significantly influence emotional responses, contributing to heightened satisfaction and pleasure in media viewing (Han and Yang, 2018).

For the purposes of this study, satisfaction is defined as the positive attitude and emotional responses of users toward their ChatGPT travel experiences. When individuals use ChatGPT for travel purposes, they may develop a parasocial connection with the AI system. If users perceive ChatGPT as a reliable and enjoyable companion in their travel-related
interactions, a sense of intimacy and comfort analogous to friendship may emerge. This parasocial bond has the potential to significantly influence affective responses and attitudes toward their experience with ChatGPT in the context of travel. Because of this parasocial relationship, users may find greater satisfaction in their interaction with ChatGPT for travel purposes. Hence, *H1* is formulated as follows:

\[ \text{H1. PSI positively affects users' satisfaction with using ChatGPT for traveling.} \]

### 2.4 Parasocial interaction and continuance intention to use ChatGPT for travel purposes

Horton and Wohl (1956) argued that individuals engaged in PSI tend to actively contribute to the illusion by wholeheartedly believing in it and reciprocating the perceived sincerity of the persona with a sense of loyalty. In the context of using ChatGPT for travel purposes, as users immerse themselves in PSIs with ChatGPT, they are likely to contribute to the illusion of sincerity and reliability. The positive emotional responses and belief in ChatGPT’s sincerity cultivated through PSI foster sustained commitment and loyalty, influencing users to engage with it as their preferred travel tool. The relationship between PSI and CI has been proven in previous studies. For example, Lee and Lee (2017) observed a positive correlation between PSI and brands among customers, increasing their CI to use a certain brand. A study conducted by Lee and Park (2022) discovered that PSI between consumers and chatbots on shopping websites played a crucial role in fostering an enhanced CI to visit these websites. The following hypothesis is proposed:

\[ \text{H2. PSI positively affects users' CI to use ChatGPT for traveling.} \]

Previous studies also indicated that CI is strongly related to satisfaction (Han and Yang, 2018, Pereira and Tam, 2021). This study argues that users’ CI to use ChatGPT for traveling is significantly affected by their satisfaction with ChatGPT. Indeed, Bhattacherjee (2001) showed that users’ CIs to use information systems are fundamentally shaped by their satisfaction with prior experiences of IS use. Therefore, when individuals feel satisfied with their previous experience of using ChatGPT for travel-related activities, they are more likely to use it to obtain travel-related information next time they travel. The connection between satisfaction and CI has been established in various contexts in previous studies. Pereira and Tam (2021) proved that satisfaction is an essential predictor of the usage CI of video-on-demand services. Han and Yang (2018) also reported that satisfaction significantly influences CI to use intelligent personal assistants. The following hypothesis is proposed:

\[ \text{H3. Satisfaction positively affects users' CI to use ChatGPT for traveling.} \]

### 2.5 The indirect effect of parasocial interaction on users’ intention to continue using ChatGPT for traveling

Based on the strong correlation of satisfaction for both PSI and CI, as discussed above, satisfaction may mediate the effect of PSI on the users’ CI to use ChatGPT for traveling purposes. PSI, characterized in this case by the development of pseudo-social relationships with ChatGPT, is posited to exert an impact on user satisfaction, subsequently influencing CI. As users engage in PSI with ChatGPT during travel-related activities, the emotional bond and perceived sincerity may contribute to heightened satisfaction levels (Han and Yang, 2018). This satisfaction, in turn, becomes a pivotal mediator, linking the influence of PSI to users’ CI. The more satisfied users are with their experiences and the perceived value of ChatGPT in the travel context, the greater the likelihood that they will express a CI to use the ChatGPT system for future travel-related interactions. The following hypothesis is proposed:

\[ \text{H4. Satisfaction mediates the effect of PSI on users’ CI to use ChatGPT for traveling.} \]
2.6 The moderating effect of technology anxiety

TA is characterized by the degree to which users encounter emotions of fear and unease when engaging with a specific technology (Pillai and Sivathanu, 2020). These emotions often stem from a lack of familiarity and heightened challenges in navigating a new technology. It can deter users from interacting with it and foster resistance toward its utilization (Maduku et al., 2023).

This study argues that TA may moderate the impact of satisfaction on CI to use ChatGPT for travel purposes, influencing the strength of this relationship. In this context, individuals with high TA might experience heightened apprehension even if they are generally satisfied with their prior interactions. These uncertainties or fears related to technology could mitigate the positive effect of satisfaction on their CI in the future. TA stands as a noteworthy psychological obstacle that can influence tourists’ perceptions and interactions with AI-driven travel assistance tools (Rahmani et al., 2023), including platforms like ChatGPT (Wach et al., 2023). Conversely, when individuals have low levels of TA, they exhibit a reduced sense of fear, discomfort, or apprehension associated with technology use. As a result, their satisfaction with the ChatGPT experience becomes a more influential and direct driver of their CI to use this technology for travel-related activities (Pham et al., 2024):

\[ H5. \] TA negatively moderates the effect of satisfaction on users’ CI to use ChatGPT for traveling.

Suppose that TA moderates the relationship between satisfaction and the user’s CI to use ChatGPT for travel purposes. In that case, it is reasonable to assume that TA could conditionally impact the strength of the indirect connection between PSI and CI via satisfaction. This means that the influence of satisfaction derived from a positive PSI on CI (the mediation impact) might be subject to moderation by TA, resulting in mediated moderating effects.

TA serves as a dampening factor that conditions the strength of the connection between PSI and CI. When technological anxiety is high, users may encounter heightened discomfort or apprehension (Maduku et al., 2023). This diminishes satisfaction’s potency as a motivator for CI. Consequently, the indirect effect of PSI on CI via satisfaction decreases under the influence of TA (Figure 1):

\[ H6. \] TA negatively moderates the indirect effect of satisfaction on users’ CI to use ChatGPT for traveling via satisfaction.

Figure 1 Hypothesized model

![Figure 1](image.png)

Source: Author’s own proposition
3. Methods

3.1 Sampling and method

This study used a systematic sampling method to gather data. During six weeks from June 15th to July 30th, 2023, teams of well-prepared researchers, with three assistants per team, engaged with tourists at popular tourist destinations in Vietnam. These locations included Ha Long Bay, Cat Ba, Hue, Da Nang and Nha Trang, which are known for their high tourist numbers. The process of collecting data involved the administration of paper-based surveys, which began each day at 9 a.m. on sites such as scenic spots, ticket counters, popular scenic areas and sandy beaches. The research focused on the specific group of tourists who had used ChatGPT for travel-related purposes as its target population.

To collect data, we first used mobile apps such as “Random Balls” to generate a random number (referred to as “n”) within the range of 1 to 10. Next, the nth tourist leaving the site was chosen as the first respondent. Following that, every tenth tourist leaving the site was approached to participate in the survey. The tourists were asked about their usage of ChatGPT for travel purposes and their willingness to participate in the survey. Those who consented were then given a brief overview of the research’s objective and provided with a questionnaire. In instances where the chosen tourists had either not used ChatGPT for sourcing travel-related information or declined to engage, the research assistants awaited the arrival of the subsequent tenth tourist. Over six weeks, a total of 683 questionnaires were handed out. Finally, 606 questionnaires were used for subsequent analysis after excluding incomplete questionnaires. The demographic characteristics of the respondents are detailed in Table 1.

3.2 Measurement

This study used multi-item scales that have been proven to be reliable in previous research. Continuance usage intention was measured by four items adapted from Balakrishnan et al. (2022) and Li and Wang (2023). The satisfaction variable was assessed by four items adapted from Baabdullah et al. (2022). PSI was measured by five items adapted from Li and Wang (2023) and TA was measured by three items adapted from Maduku et al. (2023).

All items were evaluated using a five-point Likert-type scale, ranging from strongly disagree to strongly agree. To ensure inclusivity and to accommodate the linguistic diversity of the participant pool, the questionnaire was thoughtfully prepared in both Vietnamese and English. This approach aimed to accommodate the linguistic preferences of our diverse participant group, which included both Vietnamese individuals and foreign tourists.

<table>
<thead>
<tr>
<th>Table 1 Respondents’ demographic profile</th>
</tr>
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<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
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<tr>
<td>Age</td>
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<tr>
<td>Education</td>
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<tr>
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</tbody>
</table>

Note: n = 606
Source: Authors’ elaborations based on the research data
3.3 Data analysis method

To assess the research model, Cronbach’s alpha and confirmation factor analysis (CFA) were initially conducted to test the reliability and validity of all scales. The SPSS PROCESS macro developed by Hayes (2018) was used to scrutinize the indirect impact of PSI on CI via satisfaction and the moderating effect of TA. This study used Model 4 of Hayes’ PROCESS macro to examine the mediation effects of satisfaction, and Model 14 was applied to investigate the moderation effect of TA. Using 5,000 random samplings, this study applied the bootstrapping technique with 95% confidence intervals to estimate the statistical significance of associations in both Model 4 and Model 14.

4. Results

4.1 Reliability and validity of the measurement

Table 2 shows the mean, standard deviation, reliability, and validity of all constructs. The calculated Cronbach’s alpha values are above 0.8, surpassing the recommended threshold of 0.7 (Hair et al., 1998) and indicating robust reliability. However, the CFA results showed that outer loadings of item CI2, “I will always try to use ChatGPT in my daily life,” and PI5, “ChatGPT makes me feel comfortable as if I am with a friend,” were lower than the suggested 0.7 thresholds, at 0.369 and 0.194, respectively (Hair et al., 2020). These two items were removed, and CFA was re-performed. The results of the second analysis showed that the outer loadings of all items exceeded 0.5. The AVE and CR values of the scales surpassed the cut-off values of 0.7 and 0.5, respectively (as presented in Table 2), confirming the validity of all the constructs (Hair et al., 2020).

4.2 Hypothesis testing

The results on the mediating effect are presented in Table 3. The results show that PSI significantly and positively affects satisfaction ($\beta = 0.396$, $p < 0.001$) and CI ($\beta = 0.308$, $p = 0.009 < 0.01$), lending support to H1 and H2. The results also show that satisfaction has a significant and positive effect on user’s CI to use ChatGPT for travel purposes ($\beta = 0.281$, $p < 0.001$). Thus, H3 was supported by the data. In terms of the mediation effect, the bootstrap CI for the indirect impact of PSI on continuance usage intention ($\beta = 0.112; LLCI = 0.069; ULCI = 0.163; SE = 0.024$) is consistently positioned above 0. This precise positioning above 0 within the CI underscores the statistical significance of the indirect effect (Hayes, 2018). When satisfaction was inserted in the nexus between PSI and continuance usage intention, the direct impact of PSI on the users’ CI to use ChatGPT for travel purposes was still significant ($\beta = 0.196, p < 0.001$). The relationship between PSI and continuance usage intention was partially mediated by satisfaction, which lent support to H4.

Regarding the moderating influence of TA, as presented in Table 4, the results reveal that TA significantly and negatively moderates the effect of user’s satisfaction and their intentions to continue using ChatGPT for travel purposes ($\beta_{ST-TA-CI} = -0.155, p < 0.001$).

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Scale items and convergent validity analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Mean</td>
</tr>
<tr>
<td>Continuance usage intention</td>
<td>3.436</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3.531</td>
</tr>
<tr>
<td>Parasocial interaction</td>
<td>3.532</td>
</tr>
<tr>
<td>Technology anxiety</td>
<td>3.593</td>
</tr>
</tbody>
</table>

Notes: $n = 606; \alpha = $ Cronbach’s alpha  
Source: Authors’ elaborations based on the research data
The results of the conditional effects analyses indicate that satisfaction’s impact on user’s continuance usage intention is positive and statistically significant across three levels of TA. Nevertheless, this effect diminishes as the level of TA increases. The impact of satisfaction on continuance usage intention is strongest when users have low TA (MTA – 1S.D; \( b = 0.315, p < 0.001; \ SE = 0.039; 95\% \ CI [0.236; 0.392]\)). This effect diminishes when TA is average (MTA; \( b = 0.212, p < 0.001; \ SE = 0.037; 95\% \ CI [0.139; 0.284]\)) and further reduces when users have high TA (MTA + 1S.D; \( b = 0.110, p = 0.025 < 0.05; \ SE = 0.049; 95\% \ CI [0.013; 0.206]\)). Thus, H5 was supported by the data set. Figure 2 depicts the plot illustrating the conditional impact of TA on the association between satisfaction and continuance usage intention.

### Table 3: Direct and indirect effect analysis

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B (coef)</th>
<th>SE</th>
<th>p</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasocial interaction (X)</td>
<td>0.396</td>
<td>0.042</td>
<td>0.000</td>
<td>0.313</td>
<td>0.480</td>
</tr>
<tr>
<td>Total effect</td>
<td>0.308</td>
<td>0.041</td>
<td>0.000</td>
<td>0.228</td>
<td>0.388</td>
</tr>
<tr>
<td>Direct effects</td>
<td>0.196</td>
<td>0.042</td>
<td>0.000</td>
<td>0.114</td>
<td>0.278</td>
</tr>
<tr>
<td>Satisfaction (M)</td>
<td>0.281</td>
<td>0.037</td>
<td>0.000</td>
<td>0.208</td>
<td>0.355</td>
</tr>
<tr>
<td>Boot indirect effect</td>
<td>0.112</td>
<td>0.024</td>
<td>0.000</td>
<td>0.069</td>
<td>0.163</td>
</tr>
</tbody>
</table>

**Notes:** \( n = 606; ^{*}{*}{*} p < 0.001 \)

**Source:** Authors’ elaborations based on the research data

### Table 4: Moderated mediation analyses

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B (coef)</th>
<th>SE</th>
<th>p</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasocial interaction (X)</td>
<td>0.109</td>
<td>0.042</td>
<td>0.009</td>
<td>0.027</td>
<td>0.191</td>
</tr>
<tr>
<td>Satisfaction (M)</td>
<td>0.769</td>
<td>0.134</td>
<td>0.000</td>
<td>0.506</td>
<td>1.033</td>
</tr>
<tr>
<td>Moderate effect</td>
<td>–0.155</td>
<td>0.038</td>
<td>0.000</td>
<td>–0.230</td>
<td>–0.080</td>
</tr>
<tr>
<td>Total R²</td>
<td>0.247</td>
<td>49.297**</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Indices of moderated mediation**

<table>
<thead>
<tr>
<th>Index of moderated mediation</th>
<th>B (coef)</th>
<th>SE</th>
<th>p</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditional indirect effects of parasocial interaction (X) on continuance usage intention (Y) at the values of technology anxiety (moderator): Z = M ± S.D.</td>
<td>–0.061</td>
<td>0.016</td>
<td>–0.094</td>
<td>–0.028</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** \( n = 606; ^{*}{*}{*} p < 0.001 \)

**Source:** Authors’ elaborations based on the research data
The results of the moderated mediation effect are also presented in Table 4, which indicates that TA acts as a negative moderator in the indirect impact of PSI on user’s continuance usage intention via satisfaction ($\beta = -0.061; SE = 0.024; 95\% CI [-0.094; -0.028])$. The 95\% bootstrap CI for the index of moderated mediation excludes the zero value. This signifies the significance of moderated mediation, providing support for $H6$. The indirect effect of PSI on continuance usage intention through satisfaction is strong when users have low TA ($M_{TA} - 1S.D$, $b = 0.125; SE = 0.022; 95\% CI [0.084; 0.172]$). This indirect effect decreases when users have an average level of TA ($M_{TA}, b = 0.084, SE = 0.019; 95\% CI [0.049; 0.126]$), and it is even lower when users’ TA is high ($M_{TA} + 1S.D$, $b = 0.043, SE = 0.021; 95\% CI [0.063; 0.091]$). The results of hypothesis testing is summarized in Figure 3.

5. Discussion

With a sample of 606 tourists in popular Vietnamese tourist destinations, this study investigates the effect of PSI on tourists’ CI to use ChatGPT for travel purposes. The
research also examines the role of satisfaction as a mediator and the role of TA as a moderator in the relationship between PSI and CI.

The findings of this study showed that PSI positively affects user satisfaction (H1), which is in line with prior studies (Han and Yang, 2018; Choi et al., 2019). This empirical evidence suggests that users experience enhanced satisfaction when engaging in PSIs with ChatGPT during travel-related interactions. PSIs, characterized by users forming quasi-social connections with an artificial entity, appear to contribute positively to the overall user experience. Users may derive a sense of connection, engagement, or personalization from these interactions, influencing their satisfaction perception.

This study also found that PSI positively and directly influences the CI to use ChatGPT for travel purposes (H2). This result is consistent with previous studies, confirming the positive relationship between PSI and CI in the AI context (Youn and Jin, 2021; Tsai et al., 2021). This finding shows that as users feel more socially connected to ChatGPT, they are more likely to continue using the system for travel-related tasks.

The critical role of satisfaction in shaping user CI to use ChatGPT is also highlighted for travel purposes (H3). This finding is in line with prior studies in the AI context (Maduku et al., 2023; Ashfaq et al., 2020). These collective findings affirm that users are more likely to persistently use specific technologies such as ChatGPT in the travel sector when their experience with the technology results in a sense of satisfaction.

In addition to its direct influence, this study revealed a noteworthy indirect pathway through which PSI positively impacts users’ CI to use ChatGPT for travel purposes (H4). The study identified satisfaction as a mediating factor in this relationship. This finding underscores the multifaceted nature of the user experience, highlighting the interplay between PSI, user satisfaction and the subsequent decision to continue engagement.

This study found that TA emerges as a significant moderator in the direct effects of satisfaction on users’ CI to use ChatGPT for travel (H5) and the indirect effects of PSI on users’ CI to use ChatGPT for travel purposes via satisfaction (H6). This indicates that the positive impact of user satisfaction on the CI to use is contingent upon TA levels. High TA users are less likely to continue using ChatGPT for travel despite high satisfaction. The indirect impact of PSI on a user’s CI to use ChatGPT for travel through satisfaction is also contingent upon TA levels. The positive impact of PSIs with ChatGPT on continuance usage intention via greater satisfaction is diminished when users have high TA.

6. Conclusion

6.1 Theoretical contributions

The present study contributes to the current literature as follows. Although ChatGPT is seen as an effective tool for delivering tailored suggestions to travelers (Dwivedi et al., 2023), our knowledge of the factors influencing tourists’ CI to use ChatGPT for travel purposes still remains constrained. This study attained novel insights into the hospitality and tourism literature by exploring the factors that drive tourists to continue to use ChatGPT for their future travel activities. This study is also pioneering by applying the PSI theory to explain tourists’ CI to use ChatGPT for travel purposes. It contributes to the current understanding of tourists’ interactions and relationships with ChatGPT during travel activities. By delving into this under-explored domain, this study enriches our understanding of how tourists’ engagement and connection with ChatGPT influence their CI to use ChatGPT for their travel purposes. There is limited understanding of how user satisfaction specifically contributes to an increase in CI to use ChatGPT for travel purposes (Pham et al., 2024). This study has enhanced existing knowledge by elucidating the connection between tourists’ satisfaction with the purposes offered by ChatGPT and their CI to employ ChatGPT for their future travel activities. Finally, the current study is one of the first attempts to illustrate the negative
moderation impact of TA on the relation between PSI, satisfaction and the CI to use ChatGPT for travel purposes.

6.2 Practical implication

The positive effect of PSIs on tourists’ satisfaction and their CI to use ChatGPT for travel activities carries significant practical implications for the design and utilization of conversational AI in the travel industry. This finding underscores the critical need to enhance user engagement by devising interfaces that facilitate a profound sense of connection and interaction. Implementing features that emulate human-like conversational elements, such as personalized responses and emotional intelligence, stands out as a pivotal strategy to augment user satisfaction and extend the duration of AI tool usage. The understanding of PSIs necessitates a more nuanced approach to conversational design, aligning the AI tool with users’ social expectations to forge a more positive and enduring relationship. Emphasizing transparency, reliability and trustworthiness in the design and communication of ChatGPT becomes paramount to building satisfaction, a key factor influencing user CIs.

This study reveals that TA could negatively affect the direct effect of satisfaction and the indirect effect of PSI on CI to use ChatGPT of ChatGPT for travel purposes. Therefore, for commercial enterprises, recognizing and actively mitigating TA is not just a recommendation but a strategic necessity. Developers and service providers should focus on refining technology, and implementing user education programs, transparent communication strategies and robust support mechanisms to foster user confidence. A collaborative approach involving researchers, developers, and industry stakeholders is crucial to navigating these challenges successfully, ensuring the effective integration of AI technologies into commercial enterprises and unlocking their full potential.

6.3 Limitations and direction for further research

While this study offers valuable theoretical and practical insights, it has limitations and suggests avenues for further research. The data collection period of six weeks may not have captured seasonal variations in tourism patterns, affecting the assessment of CI with ChatGPT. Future studies should extend observation periods to account for seasonal influences (Limazie and Woni, 2024). The identified impact of TA on user satisfaction and CIs underscores its critical relevance for future research. Addressing this challenge requires an in-depth exploration of the causes of TA, encompassing privacy concerns, perceived lack of control and uncertainties about AI functionalities. Future research endeavors should prioritize unraveling these intricate factors to inform targeted interventions.

References


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