Effects of AI ChatGPT on travelers’ travel decision-making

Jeong Hyun Kim, Jungkeun Kim, Seongseop (Sam) Kim and Tadesse Bekele Hailu

Abstract

Purpose – This paper aims to investigate travelers’ intentions to use ChatGPT and the influential factors affecting their decision-making.

Design/methodology/approach – Four studies were conducted to test three hypotheses. Four groups of respondents totaling 593 (Study 1), 337 (Study 2), 374 (Study 3), and 385 (Study 4) survey participants were used for data analyses.

Findings – Overall, the findings confirmed the impacts of technology usage experience and ChatGPT’s mistakes and provided additional information on travelers’ intentions to use ChatGPT. The four hypotheses were supported.

Originality/value – The findings can help researchers and industry to understand travelers’ intentions to use ChatGPT and their responses to its functions.

Keywords ChatGPT, Travel decision, Usage experience, ChatGPT mistake, Generative AI

Paper type Research paper

人工智能 ChatGPT 对旅行者出行决策的影响

摘要

研究目的：这项研究调查了旅行者使用ChatGPT的意图，以及影响其决策的重要因素。

设计/方法/步骤：通过进行四项研究来验证三个假设。四组受访者总共593名（研究1）、337名（研究2）、374名（研究3）和385名（研究4）参与了数据分析。

研究结果：总体而言，研究结果证实了技术使用经验的影响，ChatGPT的错误，并提供了有关旅行者使用ChatGPT意图的更多信息，四个假设均得到了支持。

独创性/价值：研究结果可以帮助研究人员和业界了解旅行者使用ChatGPT的意图，以及他们对其功能的反应。

关键词 ChatGPT、旅行决策、使用经验、ChatGPT错误、生成式AI

文章类型 研究型论文

Impacto de IA ChatGPT en el proceso de decisión de viaje de los viajeros

Resumen

Objetivo: Este trabajo investiga la intención de los viajeros en el uso de ChatGPT y su influencia en el proceso de decisión de viaje de los viajeros.

Diseño/Metodología/Enfoque: Se han desarrollado cuatro estudios para probar tres hipótesis. Cuatro grupos de participantes: 593 (Estudio 1), 337 (Estudio 2), 374 (Estudio 3) y 385 (Estudio 4) participantes respondieron la encuesta y sus respuestas utilizadas para el análisis de datos.

Resultados: En resumen, los resultados confirman el impacto de la experiencia de uso de la tecnología, los errores de ChatGPT, proveyendo información adicional sobre la intención de uso de ChatGPT por los viajeros. Las cuatro hipótesis de investigación fueron aceptadas.

Originalidad/Importancia: Los resultados pueden ser útiles para la academia y la industria sobre la comprensión en la intención de uso de ChatGPT, tanto por los viajeros, como sus respuestas sobre su función.

Palabras clave ChatGPT, Decisión de viaje, Experiencia de uso, Errores de ChatGPT, IA generativa

Tipo de papel Trabajo de investigación

DOI 10.1108/TR-07-2023-0489

© Emerald Publishing Limited, ISSN 1660-5373

Revised 16 August 2023
Received 11 July 2023
22 August 2023
Accepted 22 August 2023

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1. Introduction

ChatGPT is one of the transformative artificial intelligence (AI) technologies designed to generate text that closely resembles human-produced text, applicable across various contexts (Emrullah and Alper, 2023). Salah et al. (2023) noted that ChatGPT has revolutionized how people interact with entertainment and information. It streamlines frontline customer service and enhances efficiency and productivity in back-of-house operations (Carvalho and Ivanov, 2023). Consequently, the advent of ChatGPT has brought a paradigm shift in how users acquire information and use it for their own purposes.

A study exploring the use of ChatGPT for health-care queries found that trust significantly predicts users’ adoption of ChatGPT. It suggests that companies and policymakers should focus on building transparency and trust in the development and use of chatbots (Choudhury and Shamszare, 2023). Paul and Dennis (2023) observed that ChatGPT can improve customer service, customer engagement, shopping and personalization, communication practices and social interaction, cost-effectiveness, marketing designs and insights into consumer behavior. However, there are also pitfalls such as misinformation, lack of context, privacy concerns, ethical considerations and legal and ethical challenges (Mich and Garigliano, 2023).

As ChatGPT is newly emerging, its effects on the tourism industry have not been actively investigated. Therefore, this study aimed to examine the impacts of technology usage experience, ChatGPT’s mistakes and additional information on travelers’ intention to use ChatGPT in a travel setting. More specifically, this study involved three objectives. First, this study attempted to predict whether technology usage experience plays a crucial role in shaping the intention to use ChatGPT. Second, it examined the impact of ChatGPT’s mistakes on travelers’ intentions to use ChatGPT. Third, it tested whether the valence of additional information about ChatGPT influenced travelers’ intentions to use the technology.

Through an investigation of the novel phenomenon of Generative AI in the context of tourism and travel, this paper makes several significant theoretical contributions. First, despite researchers emphasizing the importance of comprehending the impact of Generative AI on travel decision-making (Carvalho and Ivanov, 2023; Gursoy et al., 2023), empirical investigations in this area remain limited. As far as our knowledge extends, this research stands as one of the initial empirical studies. Particularly, aligning with Gursoy et al. (2023), we incorporate both the positive and negative aspects of ChatGPT in the context of travel decision-making. Second, we also ascertain that the previous experience with ChatGPT constitutes a crucial factor in understanding the future intention to use ChatGPT in travel decisions. We furthermore offer empirical evidence that this influence is explicable through the perceptions of the technology’s utility and ease of use, as outlined by the technology acceptance model (TAM) (Davis, 1989). Lastly, our findings indicate that the presentation of negative quality information about ChatGPT, as opposed to neutral information, does not significantly diminish future intentions, as evidenced in Study 4. This empirical discovery offers preliminary substantiation for the concerns raised by researchers regarding the potential risks (Carvalho and Ivanov, 2023) or challenges/threats (Gursoy et al., 2023) associated with ChatGPT.

2. Literature review

2.1 Artificial intelligence and chatbots in tourism decision-making

AI is progressively revolutionizing services by performing various innovative tasks, but it also threatens the current job market by disrupting various industries (Huang and Rust, 2018). The travel and tourism industries have begun incorporating AI, robots and service automation in the form of delivery robots, chatbots, conveyor restaurants, robot concierges, self-service information kiosks and more (Ivanov and Webster, 2017). Robots, self-service kiosks and AI software technologies are considered valuable assets for travel, tourism and
hospitality companies (Kao and Huang, 2023; Martin et al., 2020). Therefore, tourism and hospitality companies may be motivated to invest in these technologies if they improve financial performance by reducing costs, generating revenues, enhancing competitiveness and guest experience and providing value for users.

The acceptance of chatbots is also increasing. Ukpabi et al. (2019) stated that the hotel and restaurant industries could benefit directly from using chatbots. Studies have shown that chatbots are used to enhance pre-arrival experiences by allowing users to book rooms and other amenities and to provide relevant information through chat (Ukpabi et al., 2019). In the case of Saudi Arabia, Alotaibi et al. (2020) discovered that customers found chatbots provided quick responses, effective interaction, engagement and an enjoyable experience. The study concluded that chatbots are highly applicable for tourism purposes. However, users may still prefer high-touch or human-delivered services over high-tech service delivery processes and may refuse to accept the technology (Ivanov and Webster, 2017). In addition, cost, culture, technical issues and organizational size can pose challenges to the use of chatbots (Ukpabi et al., 2018). For instance, Leung and Wen (2020) found that customers’ preference for restaurant orders was lower for chatbots compared to phone or online orders, especially in complex ordering situations.

2.2 ChatGPT and its influence on tourism decision-making

ChatGPT has emerged as a technology that enhances customer experiences in the tourism and hospitality industry by providing travelers with engaging, personalized and cost-effective services. In addition, it enables companies to gather recommendations and feedback from travelers, thereby improving their services continuously. However, studies investigating the application of ChatGPT in this industry have identified specific criticisms and concerns. These include accuracy issues, deficiencies in critical thinking capabilities and concerns regarding the privacy and security of user data (Ali et al., 2023). Moreover, if ChatGPT is misused, it can adversely affect the learning environment and objectives (Cano et al., 2023).

Several attributes of ChatGPT have influenced tourists to use this technology. It provides personalized information and suggestions about tourism products, enables tourists to design personalized itineraries and simplifies travel planning by allowing verbal communication of needs, requirements and preferences such as special needs, time and budget constraints, and dietary restrictions (Carvalho and Ivanov, 2023). However, the use of ChatGPT also comes with certain risks, including overreliance on its output, loss of human connection, potential job displacement and cybersecurity issues.

Carvalho and Ivanov (2023) highlighted the negative consequences of ChatGPT on human resources, leading to job losses due to automation. Mich and Garigliano (2023) have identified limitations and risks associated with ChatGPT, such as its inability to fully understand the context of conversations, potential inaccuracies in the information provided, lack of transparency in the input used by the system, the absence of rational and comprehensive explanations for its output, the absence of moral views and the rapid spread of misinformation.

3. Theoretical predictions

3.1 The role of experience with ChatGPT

We expect that travelers’ experiences of using ChatGPT will significantly influence their intentions to use ChatGPT for future travel. This expectation is based on several related theories. First, the TAM (Davis, 1989) emphasizes the importance of perceived usefulness and perceived ease of use as factors for accepting new technology. Therefore, it is reasonable to predict that travelers who have experience with ChatGPT will find it easier to
interact with the system in future, resulting in a higher intention to use it for making travel decisions.

McKnight et al. (2002) also emphasized the significance of familiarity and trust in adopting new technologies. When travelers have prior experience using ChatGPT, they develop a sense of familiarity, increasing their confidence in relying on ChatGPT for travel-related information and recommendations in the future. Finally, Karahanna et al. (1999) highlighted the role of perceived user control as an essential factor in accepting new technology. With prior experience using ChatGPT, travelers can better understand how to effectively interact with the chatbot, resulting in a greater sense of control over using ChatGPT. This higher perceived user control empowers travelers and enhances their intention to use ChatGPT for future travel planning. These findings led to the following hypothesis:

\[ H1. \] Travelers will have a higher intention to use ChatGPT for future travel when they have (vs do not have) experience using ChatGPT.

3.2 The mediating role of perceived usefulness and perceived ease of use

In the previous comprehensive studies on theories used to examine consumers’ behavioral intention to adopt technology, the TAM is the dominant theory (Lai, 2017; Quan et al., 2023). Even though there are variations in different TAM models, perceived ease of use and perceived usefulness act as predictors of actual use of technologies. Tavitiyaman et al. (2022) found that educational level and past experience had an interactive effect on the perceived usefulness of hotel technologies in terms of offering precise information and facilitating communication across different languages. Quan et al. (2023) found that perceived usefulness and perceived ease of use contributed to explaining attitudes to mobile payments and cryptocurrency payments. Perceived usefulness and ease of use after experiencing new technology thus enhance intention to keep using the new technology because the attributes can reduce perceived risks in situations involving less human service provision and increased online, mobile, AI or robot service (Chua et al., 2023):

\[ H2a. \] The effect of previous experience on the intention to use ChatGPT for travel decision-making tasks will be mediated by perceived usefulness.

\[ H2b. \] The effect of previous experience on the intention to use ChatGPT for travel decision-making tasks will be mediated by perceived ease of use.

3.3 The effect of exposure to ChatGPT’s mistakes

Travelers may exhibit a lower intention to use ChatGPT for future travel if they are exposed to mistakes made by ChatGPT. This expectation is grounded in the concept of trust, which plays a vital role in adopting new technology (Carvalho and Ivanov, 2023). According to Mayer et al. (1995), trust consists of three key components: ability, integrity and benevolence. Ability refers to the perceived competence of the technology provider, integrity pertains to the perceived honesty and fairness of the provider and benevolence encompasses perceived goodwill and concern for the user’s welfare.

When travelers encounter mistakes made by ChatGPT, their perception of the chatbot’s ability and integrity may be negatively influenced, reducing their trust in the system. This erosion of trust can subsequently lead to a reduced intention to use ChatGPT for future travel. Previous research has consistently demonstrated that trust in technology is a significant predictor of users’ intentions to adopt and use new technology (Şecilmiş et al., 2022). It is therefore reasonable to anticipate that exposure to ChatGPT’s mistakes may undermine travelers’ trust in the system, ultimately resulting in a lower intention to use ChatGPT for future travel. These findings led to the development of \( H3:\)
H3. Travelers will have a lower intention to use ChatGPT for future travel when they are exposed (vs not exposed) to ChatGPT’s mistakes.

3.4 The impact of additional information about ChatGPT

Even though there is positive news about ChatGPT, there have also been negative reports about it. For instance, concerns have been raised that ChatGPT is not always accurate and can potentially cause real-world harm. In addition, criticisms have emerged surrounding OpenAI’s employment practices, including hiring Kenyan workers at less than $2/h to address the toxicity of ChatGPT (Perrigo, 2023). There have also been discussions about the significant amount of electricity consumed by OpenAI to enhance ChatGPT’s performance (Tomlinson et al., 2023). Lastly, allegations have been made that OpenAI has used advanced plagiarism techniques to improve the capabilities of ChatGPT (Salah et al., 2023).

Travelers are likely to have a lower intention to use ChatGPT for future travel when they are exposed to the negative information described above, compared to positive information. This expectation is supported by the theory of information adoption and diffusion, specifically the concept of perceived information quality. Perceived information quality refers to individuals’ subjective evaluations of the credibility, accuracy and usefulness of the information they receive (Flanagin and Metzger, 2001). When travelers are exposed to negative information about ChatGPT, such as quality issues or ethical concerns such as labor or energy issues, it reduces their perception of the system’s quality. Negative information creates a less favorable impression, leading to decreased trust and confidence in ChatGPT as a reliable and valuable tool for travel-related assistance.

In addition, the theory of social influence, specifically the principle of social proof, can play a role in shaping travelers’ intentions. Social proof suggests that individuals tend to rely on others’ actions and opinions as a basis for their own decisions (Cialdini, 1984). Therefore, when travelers are exposed to positive (vs negative) information about ChatGPT, it creates a perception that ChatGPT is widely accepted and used. This social proof effect can influence travelers to have a higher intention to use ChatGPT, as they perceive it as a popular and desirable choice based on others’ positive experiences. The following hypothesis was proposed:

H4. Travelers will have a higher intention to use ChatGPT for future travel when they are exposed to positive (vs negative) information regarding ChatGPT.

3.5 Overview of empirical studies

To examine the four main hypotheses relating to causal relationships, we used experiments and surveys, following the approach taken in previous studies (Kim et al., 2022; Park et al., 2021). To ensure control over country-specific factors, the participants were exclusively recruited from the USA. We also used Amazon MTurk as the key recruiting source, as the validity of using MTurk is well established in tourism and travel research (Lu et al., 2022). In addition, no participants were asked to participate in multiple studies to maintain independence and prevent potential biases. A total of four empirical studies were conducted from late February to July 2023. The overall theoretical framework and empirical studies are shown in Figure 1, providing a visual representation of the research design and the relationship between the variables under investigation.

4. Study 1

In this study, we empirically tested the impact of experience of using ChatGPT on intention to use ChatGPT in future travel. We expected a positive effect of previous experience with ChatGPT. We also anticipated that direct usage experience would be important in adopting
new technology, whereas mere knowledge of the new technology would not be sufficient. To test this additional prediction, we measured both usage experience and familiarity with ChatGPT.

4.1 Empirical method

Participants were 593 US adults (average age = 41.27, SD = 12.77, 318 females) recruited from the Amazon MTurk online panel, with normal payment. Participants were first provided with basic information about ChatGPT, such as it being a chatbot powered by machine learning. They were then asked to rate their usage of ChatGPT for various tasks, including travel-focused tasks (e.g. travel option searches) and travel-related tasks (e.g. weather information searches, emergency assistance and language translation), using a 7-point scale (1 = not at all, 7 = very much).

Subsequently, participants were asked about their previous experience using ChatGPT, with two options (Have you used ChatGPT? 1 = yes, 2 = no), and their prior knowledge of ChatGPT (Have you heard of ChatGPT? 1 = yes, 2 = no).

Finally, participants provided demographic information, including annual income (1 = $0–$10,000, 2 = $10,001–$20,000, …, 15 = $140,001 or above), gender, age and frequency of travel (for domestic and overseas, 1 = not at all frequently, 7 = very frequently, \( r = 0.472, p < 0.001 \)).

4.2 Results and discussion

Of the 593 participants, 174 (29.3%) had previous experience using ChatGPT, while 419 (70.7%) did not. In addition, 450 participants (75.9%) had heard of ChatGPT previously, while 143 (24.1%) had not. We conducted a one-way ANOVA to compare participants with and without previous experience using ChatGPT. For the travel option search, we found a
significant effect of previous experience \( F(1, 591) = 21.18, p < 0.001, \eta^2 = 0.035 \). In addition, the intention to use ChatGPT for travel options was higher among those with previous experience \( (M_{\text{experience}} = 4.23, \text{SD} = 1.89) \) compared to those without experience \( (M_{\text{no experience}} = 3.42, \text{SD} = 1.96) \). Similar results were found for other travel-related tasks: weather information search \( F(1, 591) = 7.65, p = 0.006, \eta^2 = 0.013; M_{\text{experience}} = 3.79, \text{SD} = 2.02 \text{ vs } M_{\text{no experience}} = 3.28, \text{SD} = 2.03 \); emergency assistance \( F(1, 591) = 23.01, p < 0.001, \eta^2 = 0.037; M_{\text{experience}} = 3.27, \text{SD} = 2.07 \text{ vs } M_{\text{no experience}} = 2.48, \text{SD} = 1.72 \); and language translation \( F(1, 591) = 24.14, p < 0.001, \eta^2 = 0.039; M_{\text{experience}} = 4.59, \text{SD} = 1.79 \text{ vs } M_{\text{no experience}} = 3.73, \text{SD} = 2.00 \), as shown in Figure 2.

Next, we conducted a similar analysis comparing participants who had heard of ChatGPT with those who had not. For travel option searches, the effect of prior knowledge was not significant \( F(1, 591) = 0.64, p = 0.423, \eta^2 = 0.001 \). The intention to use ChatGPT for travel options did not differ based on participants’ prior knowledge \( (M_{\text{knowledge}} = 3.67, \text{SD} = 1.98 \text{ vs } M_{\text{no knowledge}} = 3.78, \text{SD} = 1.96) \). Similar nonsignificant results were found for other travel-related tasks: weather information search \( F(1, 591) = 1.80, p = 0.180, \eta^2 = 0.003; M_{\text{experience}} = 3.37, \text{SD} = 2.07 \text{ vs } M_{\text{no experience}} = 3.63, \text{SD} = 1.95 \); emergency assistance \( F(1, 591) = 0.62, p = 0.432, \eta^2 = 0.001; M_{\text{experience}} = 2.68, \text{SD} = 1.87 \text{ vs } M_{\text{no experience}} = 2.82, \text{SD} = 1.82 \); and language translation \( F(1, 591) = 2.50, p = 0.115, \eta^2 = 0.004; M_{\text{experience}} = 4.06, \text{SD} = 2.00 \text{ vs } M_{\text{no experience}} = 3.76, \text{SD} = 1.93 \).

Finally, to investigate the influence of other factors, including demographic background, we conducted a regression analysis with the dependent variable being the intention to use ChatGPT in a travel option search and independent variables being usage experience, income, age, gender and frequency of travel. The overall model was significant \( F(5, 587) = 13.15, p < 0.001 \). Specifically, the frequency of travel had a positive and significant effect on the intention to use ChatGPT in travel option searches \( \beta = 0.261, t = 6.18, p < 0.001 \), while the other demographic variables were not significant predictors (income: \( \beta = 0.011, t = 0.27, p = 0.789 \), age: \( \beta = -0.016, t = 0.40, p = 0.691 \), and gender: \( \beta = 0.056, t = 1.39, p = 0.165 \)). Usage experience remained a significant predictor of the intention to use ChatGPT in travel option searches \( \beta = 0.133, t = 3.21, p = 0.001 \).

![Figure 2 Results of Study 1](image-url)

**Notes:** Error bars represent the standard error

**Source:** Created by authors
In summary, we found that previous usage experience was a critical factor in increasing the intention to use ChatGPT in future travel situations. Simple knowledge of ChatGPT did not have the same impact. We also observed that the positive effect of previous usage experience on future intention was independent of participants’ demographic variables.

5. Study 2

In this study, we replicated the previous study and tested mediation hypotheses (i.e. $H1a$ and $H1b$). We expected a positive effect of previous experience with ChatGPT would be mediated by the perceived usefulness and ease of use.

5.1 Empirical method

Participants were 337 US adults (average age = 42.1 years, SD = 13.5, 167 females) recruited from the Amazon MTurk online panel, with normal payment. The overall procedure was similar to that of Study 1, with a few exceptions. Participants were first asked about their previous experience using ChatGPT (Have you used ChatGPT? 1 = yes, 2 = no).

Then, participants were requested to rate their usage of ChatGPT for six travel decision-making tasks, such as selecting an optimal travel itinerary considering personal preferences and time limitations. Appendix 1 shows the operationalization of the measurement items (Cronbach’s $\alpha = 0.973$). Then, they were asked to rate perceived usefulness with a 3-item assessment (“ChatGPT makes travel-related decisions more quickly,” “ChatGPT increases performance in travel decision-making” and “ChatGPT increases the effectiveness of travel decision-making,” ‘Cronbach’s $\alpha = 0.916$) and perceived ease of use with a 3-item assessment (“ChatGPT is easy to use,” “ChatGPT provides clear and understandable experience” and “ChatGPT is easy to learn,” Cronbach’s $\alpha = 0.874$) on a 7-point scale (1 = strongly disagree, 7 = strongly agree) based on Adams et al. (1992).

5.2 Results and discussion

Of the 337 participants, 185 (54.9%) had previous experience using ChatGPT, while 152 (45.1%) did not. We conducted a one-way ANOVA to compare participants with and without previous experience using ChatGPT. The intention to use ChatGPT for travel options was higher among those with previous experience ($M_{\text{experience}} = 3.87, SD = 1.77$) compared to those without experience ($M_{\text{no experience}} = 3.42, SD = 1.96; F(1, 335) = 35.73, p < 0.001, $\eta^2 = 0.096$), as shown in Figure 3.

Perceived usefulness was also higher among those with previous experience ($M_{\text{experience}} = 4.76, SD = 1.39$) compared to those without experience [$M_{\text{no experience}} = 4.40, SD = 1.44; F(1, 335) = 5.33, p = 0.022, \eta^2 = 0.016$]. Finally, perceived ease of use was higher among those with previous experience ($M_{\text{experience}} = 5.63, SD = 1.08$) compared to those without experience ($M_{\text{no experience}} = 4.68, SD = 1.27; F(1, 335) = 55.54, p < 0.001, $\eta^2 = 0.142$), as shown in Figure 3.

Next, we conducted a mediation analysis to test $H1a$ and $H1b$. First, the mediation analysis with perceived usefulness (experience [1: no experience, 2: experience] $\rightarrow$ perceived usefulness $\rightarrow$ intention to use ChatGPT in travel tasks) was conducted with Hayes’ macro method (model #4 with 5,000 bootstrapping). The result showed a significant indirect effect ($a \times b = 0.272$, 95% confidence interval $[CI] = [0.030, 0.516]$), and the direct effect was also significant ($c' = 0.915$, 95% CI $= [0.597, 1.232]$), supporting $H1a$. Second, the results of the mediation analysis with easy-to-use (experience [1: no experience, 2: experience] $\rightarrow$ perceived ease of use $\rightarrow$ intention to use ChatGPT in travel tasks) was also significant in that indirect effect was significant ($a \times b = 0.524$, 95% CI $= [0.347, 0.726]$), and the direct effect was also significant ($c' = 0.662$, 95% CI $= [0.267, 1.057]$), supporting $H1b$. 
In summary, we replicated the previous study, showing that previous experience of using ChatGPT in implementing other tasks was a critical factor in increasing the future intention to use ChatGPT in travel decision-making. We also found that the perceived usefulness and perceived ease of use were a critical underlying mechanism for the observed effect.

6. Study 3

In this study, we examined the impact of the experience of using ChatGPT (H1) and exposure to ChatGPT’s mistakes (H2) on the intention to use ChatGPT in future travel.

6.1 Empirical method

Participants were 374 US adults (average age = 42.75, SD = 13.01, 212 females) recruited from the Amazon MTurk online panel with normal payment. In this study, participants were randomly assigned to one of two experimental conditions (exposure to ChatGPT mistakes: present vs absent) in a between-subjects design.

Participants were instructed to imagine that they planned to travel to the North Island of New Zealand [1] and used ChatGPT to receive recommendations for places to visit in the North Island. In the mistake absent condition, participants were provided with a list of 20 possible destinations in the North Island of New Zealand. Participants in the mistake present condition were also given a list of 20 destinations. However, one of the recommended places (Lake Tekapo) was actually located in the South Island of New Zealand, as shown in Figure 4.

Afterward, participants were asked to rate how much they would use ChatGPT for various travel tasks, including eight specific travel tasks (e.g. choosing between different types of accommodations such as hotels, hostels or vacation rentals; see Appendix 1 for the full measurement, Cronbach’s α = 0.963). Participants’ previous experience of using ChatGPT was measured using the same scale as in Study 1.

6.2 Results and discussion

Of the 374 participants, 114 (30.5%) had previous experience using ChatGPT, while 260 (69.5%) did not. We conducted a 2 (exposure to ChatGPT mistake) × 2 (usage experience)
ANOVA to assess intention to use ChatGPT for various travel activities. The main effect of usage experience was significant \( F(1, 370) = 29.93, p < 0.001, \eta^2 = 0.075 \). This indicates that the intention to use ChatGPT for travel was higher for those who had previous experience using ChatGPT \( (M_{\text{experience}} = 3.79, SD = 1.87) \) compared to those who did not.

**Notes:** (a) Mistake absent condition; (b) mistake present condition

**Source:** Created by author
have experience \((M_{no\ experience} = 2.77, SD = 1.59)\), supporting \(H1\) and successfully replicating Study 1. In addition, the main effect of incorrect information was also significant \([F(1, 370) = 5.77, p = 0.017, \eta^2 = 0.015]\) in that the intention to use ChatGPT for travel was lower for those who were exposed to the mistake in ChatGPT’s recommendations \((M\_mistake\ present = 2.90, SD = 1.72)\) compared to those who were not exposed to the mistake \((M\_mistake\ absent = 3.27, SD = 1.74)\), supporting \(H3\). However, the interaction effect was not significant \([F(1, 370) = 0.83, p = 0.364, \eta^2 = 0.002]\). The detailed pattern is illustrated in Figure 5.

7. Study 4

In the previous studies, we tested the first three hypotheses, \(H1–H3\). In this study, we examined the impact of positive (vs negative) information about ChatGPT on the intention to use ChatGPT in future travel (\(H4\)). Our prediction was that the intention to use ChatGPT in future travel would be higher when travelers were exposed to positive (vs negative) information about ChatGPT. In this study, we used the priming method to expose participants to different information, based on previous literature (Kim et al., 2022).

7.1 Empirical method

Participants were 385 US adults (average age = 41.3 years, SD = 12.9, 196 females) recruited from the Amazon MTurk online panel for the normal payment. In this study, participants were randomly assigned to one of six experimental conditions (control vs positive vs negative I vs negative II vs negative III vs negative IV) in a between-subjects design.

Participants were first asked to read a newspaper article. In the control condition, participants read an article about food, titled “The secret to making perfect fried chicken and waffles.” Participants in the other conditions were exposed to an article about ChatGPT. While the first paragraph of the article was the same for all participants, the rest of the article and the titles varied across the experimental conditions. Specifically, participants in the positive condition were exposed to an article titled “ChatGPT is the most advanced AI model in existence.” Participants in the four negative conditions were exposed to different

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**Figure 5** Results of Study 3

![Results of Study 3](image_url)

**Note:** Error bars represent the standard error

**Source:** Created by authors

TOURISM REVIEW
negative issues about ChatGPT, each with its own title, such as “ChatGPT isn’t always right and can cause real-world harm. [negative I – quality issue],” “OpenAI hired Kenyan workers at less than $2/hour to decrease the toxicity of ChatGPT. [negative II – labor issue],” “OpenAI spent a significant amount of electricity to boost the performance of ChatGPT. [negative III – energy issue]” and “OpenAI used advanced plagiarism to boost the performance of ChatGPT. [negative IV – plagiarism issue].” The full articles can be found in Appendix 2.

Afterward, participants were asked to rate their usage of ChatGPT for various travel tasks with the same measure applied in Study 2 (Cronbach’s $\alpha = 0.970$).

### 7.2 Results and discussion

First, we conducted a one-way ANOVA to examine the intention to use ChatGPT for various travel activities. The analysis revealed a significant main effect of usage experience [$F(5, 379) = 6.76, p < 0.001, \eta^2 = 0.082$]. Participants in the positive condition demonstrated a higher intention to use ChatGPT ($M_{\text{positive}} = 4.70, SD = 1.54$) compared to participants in each of the negative conditions ($M_{\text{negative I}} = 3.23, SD = 1.81$, contrast $F(1, 379) = 19.06, p < 0.001, \eta^2 = 0.048$; $M_{\text{negative II}} = 3.00, SD = 1.89$, contrast $F(1, 379) = 25.54, p < 0.001, \eta^2 = 0.063$; $M_{\text{negative III}} = 3.59, SD = 1.87$, contrast $F(1, 379) = 11.03, p < 0.001, \eta^2 = 0.028$; $M_{\text{negative IV}} = 3.28, SD = 1.88$, contrast $F(1, 379) = 18.24, p < 0.001, \eta^2 = 0.046$), supporting $H_3$. In addition, participants in the positive condition exhibited a higher intention to use ChatGPT ($M_{\text{positive}} = 4.70, SD = 1.54$) compared to those in the control condition ($M_{\text{control}} = 3.23, SD = 1.81$, contrast $F(1, 379) = 22.39, p < 0.001, \eta^2 = 0.056$), as shown in Figure 6.

Further analysis indicated that the intention to use ChatGPT was not significantly different between the control and the four negative conditions, respectively (all $p$-values > 0.152).

In summary, we found supporting empirical evidence for $H_3$, indicating that the intention to use ChatGPT was higher when travelers were exposed to positive information compared to negative information, including quality or ethical issues. However, our findings showed no significant difference between the control and negative information conditions. This suggests that the observed effect was primarily driven by exposure to positive information, while exposure to negative information had minimal impact.

### 8. Discussion and implications

#### 8.1 Discussion

This research investigated three hypotheses relating to travelers’ intentions to use ChatGPT for future travel. The findings of Studies 1, 2 and 3 provided support for $H_1$, indicating that travelers expressed a higher intention to use ChatGPT when they had previous experience using it. This suggests that familiarity and firsthand usage positively influence travelers’ intention to rely on ChatGPT for future travel arrangements. Study 2 additionally provided empirical evidence of the mediation roles of perceived usefulness and ease of use. Study 3 indicated that travelers had a lower intention to use ChatGPT when they were exposed to mistakes made by the system, such as providing inaccurate information. This finding suggests that negative experiences or system performance errors can negatively impact travelers’ trust and willingness to use ChatGPT in their future travel plans. The results of Study 4 supported $H_4$, showing that the intention to use ChatGPT was higher when travelers were exposed to positive information about the system compared to negative information.

#### 8.2 Theoretical implications

This study’s findings support the notion that prior experience with ChatGPT plays a crucial role in shaping travelers’ intention to use the system in the future. The findings align with
those of most studies that tested the adaptability of theories or models pertaining to new technology adoption (Carvalho and Ivanov, 2023; Quan et al., 2023; Tavitiyaman et al., 2022) even though this study did not adopt the TAM totally, in that user experience and familiarity significantly facilitated travelers’ perceptions of a new technology’s usefulness and ease of use, which are important in the new technology diffusion process.

Positive experiences with ChatGPT likely contribute to increased confidence, creating trust and leading to a higher intention to be loyal to the new technology for future travel demands. The results correspond to those of previous studies (Chua et al., 2023; Kim et al., 2021; Kim et al., 2023b; Quan et al., 2023; Ukpabi et al., 2019), which explained consumers’ attitudes and behavioral intentions in the process of accepting a new technology. Even though consumers tend to feel fearful about adopting a new technology, they easily and gradually accept it through continuous experience and learning. Consequently, this study confirmed the existing theories pertinent to new technology acceptance or adoption models in the context of ChatGPT.

The results of Study 1 indicated that previous usage experience is a critical factor in increasing the intention to use ChatGPT in future travel situations, while simple knowledge of ChatGPT does not have the same impact. Based on this finding, we can infer the importance of “Learning by Doing” (Jovanovic and Nyarko, 1996) in new technology acceptance. When individuals actively engage with technology, such as using ChatGPT for other purposes, they develop a sense of familiarity and confidence in its operation. This familiarity reduces uncertainties and perceived barriers, making the system more accessible and comfortable to use. In contrast, mere knowledge or awareness of ChatGPT.

Note: Error bars represent the standard error
Source: Created by authors
without actual usage lacks the experiential aspect and the associated benefits of familiarity and learning, thereby diminishing its impact on the intention to use. Finally, the study findings indicated that exposure to mistakes made by ChatGPT has a negative impact on travelers’ intention to use the system for future travel. This aligns with theories of trust and perceived reliability, as users may perceive the system as less trustworthy or unreliable when encountering errors or mistakes. However, it is essential to note that the study did not find a significant negative effect when participants were exposed to negative news about ChatGPT, because normally consumers are more sensitive to negative news than positive news according to the effects of news shock (Kim and Wong, 2006). This suggests that users may differentiate between the system’s overall reputation and its actual performance, giving more weight to their personal experiences and the system’s reliability in their decision-making process.

8.3 Practical and managerial implications

This research also has important practical implications for practitioners. First, the study highlights the significance of user experience with ChatGPT in shaping travelers’ intention to use the system for future travel. Therefore, developers and service providers must ensure a positive and seamless user experience. This can be achieved by continually improving the system’s functionality, responsiveness and accuracy and by providing clear instructions and user-friendly interfaces. By prioritizing user experience, developers can enhance users’ perceptions of ChatGPT’s usefulness and encourage continued adoption.

Second, the study underscores the negative impact of exposure to mistakes made by ChatGPT on travelers’ intentions to use the system. To address this issue, it is essential to invest in improving the reliability of the system and implementing effective error-handling mechanisms. Developers should conduct rigorous testing and quality assurance processes to minimize the occurrence of errors. Because data and information continue to change, there is a need to update them and delete wrong information. When errors occur, the system should provide clear and transparent explanations and appropriate corrective measures to restore users’ trust and confidence in AI-based chatbots (Kim et al., 2021). In addition, the system needs to offer messages on credibility of information to the users, such as “Because of this technology’s early stage of development, please regard the generated information as a useful form of assistance in your decision making, rather than totally relying on it.” A frank communication message can mitigate distrust in the new technology adoption process and encourage mutual understanding between technology-related stakeholders.

Third, recently, Kim et al. (2023a) found that travelers accept a relatively large number of suggestions, such as 70 options, from ChatGPT, and the negative effect of choice overload was significantly reduced in the ChatGPT recommendation compared to traditional Online Travel Agency recommendations. Alongside this finding, this research also suggests an optimistic perspective on adopting ChatGPT in future decision-making, such as observing a limited impact of negative information on the adoption of new technology. These findings imply that practitioners should actively consider adopting ChatGPT in their travel and hospitality businesses.

Finally, the study showed that positive information about ChatGPT has a significant influence on travelers’ intention to use the system. Service providers and marketers should leverage this finding by highlighting the system’s strengths through various communication channels, focusing on its accuracy, efficiency and positive user experiences. Incorporating user testimonials and success stories can further enhance the positive image of ChatGPT and build trust among potential users. By strategically promoting positive aspects, service providers can create a favorable perception of ChatGPT and increase its adoption rate among travelers.
In summary, these practical implications highlight the importance of focusing on user experience, system reliability, ease of use, usefulness and positive messaging to optimize the adoption and use of ChatGPT for future travel. Implementing these strategies can contribute to enhanced user satisfaction, increased trust and broader acceptance of AI-based travel assistance systems. Because ChatGPT is a newly emerging technology, it is vulnerable to mistakes and/or wrong information. Therefore, the AI chatbot can serve as an assistant in travel decision-making rather than being used as a travel agent with whom consumers can communicate. However, most experts show a consensus on the notion that a chatbot will be seen as closer to human decision-makers if more powerful and accurate AI-based data or information is provided. The results of this study contribute to predicting the roles of AI ChatGPT that will be more popular with travel end users.

8.4 Limitations and directions for future study

Among several limitations, this study investigated the role of ChatGPT in travel decision-making soon after ChatGPT’s introduction. Therefore, the long-term effects of using ChatGPT in travel decision-making remain unknown until such information is available. Future research should focus on longitudinal studies to examine the sustained impact of ChatGPT on travelers’ decision-making processes and travel experiences over an extended period. Second, in this study, we determined the behavioral intention to use ChatGPT in a travel decision-making process. Further empirical studies are required to confirm the results of this study by assessing actual behaviors objectively, using observation data or secondary data. In addition, in-depth interviews with travelers who have used ChatGPT for their travel decision would help to verify our findings. Third, this study examined customers’ trust or belief in ChatGPT’s performance. Future studies need to test whether the results differ with moderating variables such as such as sensation-seeking (Park et al., 2021), new technology perception (Giroux et al., 2022) and cognitive styles such as mindfulness (Errmann et al., 2021). Finally, even though we used several underlying mechanisms in theorizing, we did not provide direct empirical evidence for them. Future studies need to measure the mediators and conduct mediation analysis to support the theoretical arguments (Kim et al., 2023c).

Note

1. We chose New Zealand as a visiting destination because it is an unfamiliar, yet realistic place for US travelers to visit. Participants rated New Zealand as a less familiar destination (M = 2.36 out of 7-point scale [1 = not at all familiar, 7 = very familiar] vs “4.” t (373) = −17.19, p < 0.001, but the scenario was highly realistic (M = 5.26 out of 7-point scale [1 = highly unrealistic, 7 = highly realistic] vs “4.”, t(373) = 18.02, p < 0.001).

References


Further reading


Appendix 1. Measurement of dependent variables

Studies 2 and 4

1. Choosing the best travel itinerary based on preferences and time constraints.
2. Deciding on a suitable accommodation option based on budget and location.
3. Selecting the best mode of transportation for getting around during the trip.
4. Deciding on which attractions and landmarks to visit during the trip.
5. Deciding on a suitable travel budget and finding ways to save money during the trip.
6. Deciding on the best time to travel based on weather, peak seasons and local events.

Study 3

1. Choosing between different types of accommodations, such as hotels, hostels or vacation rentals.
2. Deciding on a destination, such as a tropical beach, a city with historical landmarks or a mountain resort.
3. Selecting a mode of transportation, such as flying, driving or taking a train.
4. Choosing the duration of the trip, such as a weekend getaway or a two-week vacation.
5. Deciding on a budget for the trip, including how much to spend on transportation, lodging, food and activities.
6. Selecting activities to do while traveling, such as sightseeing, outdoor recreation or cultural events.
7. Choosing when to travel, considering factors such as weather, peak tourist seasons and holiday schedules.
8. Deciding whether to travel solo, with a partner, or as part of a group tour.

Source: Created by authors

Appendix 2. Newspaper articles for study 3

News article for the control condition

The secret to making perfect fried chicken and waffles.

Fried chicken and waffles. When made well, they’re foods that are delicious on their own but even better paired together. To make great chicken and waffles, executive chef Todd Phillips uses high-quality Poulet Rouge chicken, brined for 24 h, and a wet batter made with beer and creole seasoning.

He fries the chicken in a cast-iron Dutch oven, emphasizing the importance of the cooking vessel for flavor. Phillips also makes savory waffles with cheddar and chive and emphasizes the importance of using fresh eggs and a hot waffle iron to achieve a crispy outer layer. He tops the dish with a generous pour of bourbon maple syrup and cracked pepper cream gravy to balance the moisture from the chicken.

News article for the positive condition

ChatGPT is the most advanced AI model in existence.

Since its release in late November by OpenAI, ChatGPT, a chatbot powered by machine learning, has been experiencing a surge in popularity. Its advanced writing abilities have impressed millions of users who have used the app for various purposes, including writing news articles and songs.

According to a recent news report, ChatGPT is an AI model developed by OpenAI to facilitate various types of interactions with users, such as engaging in dialogues, providing responses to follow-up questions, acknowledging errors, challenging incorrect assumptions and declining inappropriate requests. ChatGPT is an AI that is more advanced than any other in terms of its level of development.
News article for the negative I – quality condition

ChatGPT isn’t always right and can cause real-world harm.

Since its release in late November by OpenAI, ChatGPT, a chatbot powered by machine learning, has been experiencing a surge in popularity. Its advanced writing abilities have impressed millions of users who have used the app for various purposes, including writing news articles and songs.

However, the narrative of triumph does not solely revolve around the brilliance of Silicon Valley. According to a recent news report, OpenAI trained ChatGPT to generate sentences by selecting the most probable “token” to follow each word. As a result, ChatGPT arrives at responses through a series of educated guesses, which contributes to its ability to argue for incorrect answers with conviction. This poses a significant risk of causing harm in the real world, such as providing erroneous medical guidance.

News article for the negative II – labor issue condition

OpenAI hired Kenyan workers at less than $2/h to decrease the toxicity of ChatGPT.

Since its release in late November by OpenAI, ChatGPT, a chatbot powered by machine learning, has been experiencing a surge in popularity. Its advanced writing abilities have impressed millions of users who have used the app for various purposes, including writing news articles and songs.

However, the narrative of triumph does not solely revolve around the brilliance of Silicon Valley. According to a recent news report, OpenAI used the services of Kenyan workers who were paid less than $2 per hour to help improve the safety of its chatbot, ChatGPT. The workers were assigned the task of sifting through large volumes of text, labeling and filtering out any toxic data from the chatbot’s training data set. However, the investigation revealed that the workers had to endure reading through graphic details of NSFW content such as child sexual abuse, bestiality, murder, suicide, torture, self-harm and incest.

News article for the negative III – energy condition

OpenAI spent a significant amount of electricity to boost the performance of ChatGPT.

Since its release in late November by OpenAI, ChatGPT, a chatbot powered by machine learning, has been experiencing a surge in popularity. Its advanced writing abilities have impressed millions of users who have used the app for various purposes, including writing news articles and songs.

However, the narrative of triumph does not solely revolve around the brilliance of Silicon Valley. According to a recent news report, OpenAI used machine learning to enhance the capabilities of its chatbot, ChatGPT. However, this required a significant amount of electronic power, as seen in the case of ChatGPT, which consumed 1287 MWh of power for training and emitted 5.5 million tons of carbon dioxide – an amount equivalent to 550 round trips between New York and San Francisco by a single individual.

News article for the negative IV – plagiarism condition

OpenAI used advanced plagiarism to boost the performance of ChatGPT.

Since its release in late November by OpenAI, ChatGPT, a chatbot powered by machine learning, has been experiencing a surge in popularity. Its advanced writing abilities have impressed millions of users who have used the app for various purposes, including writing news articles and songs.

However, the narrative of triumph does not solely revolve around the brilliance of Silicon Valley. According to a recent news report, OpenAI used “advanced plagiarism” to enhance the capabilities of its chatbot, ChatGPT. Just as fossil fuel companies extract resources from the earth for profit, digital platform-based capital accumulates profits by mining the labor of people around the world who upload their texts, photos, pictures and creative works to the internet, which are essentially the shared intellectual assets of humanity, without compensation.

Source: Created by authors
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