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The Role of Anthropomorphism in AI: ChatGPT's Impact on Travel Services Using the SOR Model

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ABSTRACT

The objective of the study is to examine the application of the SOR (Stimulus-Organism-Response) model and the influence of ChatGPT's anthropomorphic characteristics on users' perceptions and the establishment of trust in the tool within the tourism sector. The study also aims to investigate the relationship between tourists' happiness derived from interacting with ChatGPT and their intention to continue using it. The study employs a systematic sampling method collecting data from 201 tourists through an online survey. Structural Equation Modeling (SEM) using SPSS was performed to analyze relationships among variables. The results show that tourists are much more likely to believe and like ChatGPT when they think the staff is friendly quick to respond, and knowledgeable. This, in turn, makes them happier. The results show that travel services that are powered by AI need to include human-like features to build trust and connection with users. In real life, this means that travel companies should make AI chatbots that are more interactive and personalized to make users happier. This study adds to the growing body of AI literature in tourism by emphasizing the importance of anthropomorphism in shaping user experiences and long-term engagement.

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1. Introduction

Advancements in Natural Language Processing (NLP) technology have led to the creation of increasingly complex language models, such as Chatbots built on ChatGPT-3.5, generally referred to as ChatGPT (Keiper et al., 2023; Wong, Lian, & Sun, 2023). Because natural language processing (NLP) technology is constantly developing, more sophisticated language models like Chatbot which is based on ChatGPT 3.5 or ChatGPT have been created (Carvalho & Ivanov, 2024). Without a doubt, the introduction of ChatGPT has ushered in a period of significant advancement in artificial intelligence (AI) that might be considered the "ai era." (Wong, Lian, & Sun, 2023). The hospitality and travel industry shows the restricted mode in accepting technology inventions firstly due to different Characteristics of the service based sector (Dwivedi et al., 2024). Businesses in the hospitableness or travel started price including chatbots to enhance customer service interaction (Tussyadiah, 2020). ChatGPT's with his acceptance in polishing conclusive feedback and effectively dressing routine questions which stand as its competitive advantage (Wong, Lian, & Sun, 2023). Its saturation into travel service sector offering would serve clear resolve traveler questions and enhance the overall traveling experience (Dwivedi et al., 2024). ChatGPT could help users to make smart choices regarding what to incorporate into their vacation in their destination and also a choice of the routes, means of transport, hotel accommodation and even the expenditure (Wong, Lian, & Sun, 2023).

Taking into account the latest development in artificial intelligence generated by ChatGPT and related technologies. Investigate their ability to link a transfer native trend shift in the hospitality and travel sectors. The use of solutions like ai-based chatbots has saturated travel services, with some as simple as one booking a hotel to others where an individual receives customized trip recommendations (Zhang et al., 2024; Zhu et al., 2023). Statista (2023) established that as things stand in 2024, the percentages of income accrued to AI-affected travel businesses would have risen to 32 percent as compared to 21 percent currently. Chatbots with ChatGPT capabilities are growing in popularity among online travel firms, hotels, and airlines. The 24/7 automated customer service is one of the most well-known applications (Bulchand-Gidumal, 2022; Lv et al., 2022). These chatbots can answer rapidly to consumer demands, hence enhancing customer satisfaction and minimizing labor expenses (Calvaresi et al., 2023). For example, they may manage requests regarding ticket modifications make travel advice and provide real-time help during travel difficulties. The capacity of these chatbots to learn and adapt over time enables for more customized and efficient service. AI based recommendation systems save time, reduce information overload and enhance travel decision-making. Anthropomorphism characteristics is human known as human like characteristics forcefully impact user thinking and communication (Sun, Chen, & Sundar, 2024). A important angle for the durability and efficacy of AI-based applications such as charitable giving in the travel and tourism sector. It is a preferred choice among researchers looking to conduct research on technology acceptance because of its inherent cause and effect structure (Chakraborty et al., 2023). The study under consideration seeks anthropomorphic traits in their companion in order to respond to the following research questions.

This study makes a significant practical addition to the body of literature already available on hospitality and tourism. First of all, it's one of the latest attempts to use the SOR trend to explain why travelers are travel services using chatGpt. Second, concentrating on on chatGpt's anthropomorphic features helps us better understand how anthropomorphic signals might affect mental creatures, such as promoting attitude and trust in chatGpt. The enjoyment of tourists is increased by these creative beings, which in turn encourages further daily usage of ChatGPT. From the practical viewpoint, considering the current findings of this study, practitioners and marketers could use their results to enhance visitor happiness and overall experience by promoting chat GPT benefits associated with both healthcare and tourism sectors. How do tourists respond to anthropomorphism cues that influence their organism-based cognitive processes while they are thinking about utilizing ChatGPT for their travel needs? How do they trust ChatGPT and what are their thoughts about it? How can travelers' cognitive organisms their attitude and level of confidence in ChatGPT encourage them to be satisfied and keep utilizing ChatGPT for traveling services?

2. Literature Review

When comparing ChatGPT to other AI chatbots and anthropomorphic, its uniqueness stands out, especially against traditional rule-based chatbots. Traditional systems rely on fixed rules to generate responses, but ChatGPT uses advanced deep-learning techniques (Ivanov & Soliman, 2023). This allows it to create human-like characteristics without being restricted by rigid rules (Kumar, Gupta, & Bapat, 2024). This shift is not just technical but represents a major evolution in AI chatbot capabilities (Ruan & Mezei, 2022). Rule-based systems have trouble adapting a new or changing conversations because they stick to pre-set responses (Baabdullah et al., 2022). ChatGPT, on the contrary, can use deep learning overcome these limitations, bringing about a new era of adaptability and flexibility while coming up with answers (Abaddi, 2024). By moving away from strict rules, ChatGPT can adapt and provide a more authentic and engaging consumer experience (Duong et al., 2024). Its ability to set different consumer inputs or make relevant answers is a significant advancement (Bin-Nashwan, Sadallah, & Bouteraa, 2023) setting a new standard for ai chatbots in mimicking human conversation. ChatGPT’s quick response time is another important feature that sets it apart (Rejeb et al., 2024). Many other AI chatbots have slower response times, but ChatGPT can quickly generate relevant responses (Lian et al., 2024). This matches the natural flow of human conversation and meets modern anticipated for instant conversation (Menon & Shilpa, 2023).

2.1. Anthropomorphism and AI

The definition of anthropomorphism is the characteristics of human-like features to robotic things. With a ubiquitous acceptance, anthropomorphism is remained throughout the history of

humanity and exhibited in many domains, such as marketing (Han, Wang, & Yang, 2023) tourism, hospitality and AI Robo advisor (Ding et al., 2022). It significantly affects how consumers interact with artificial intelligence, giving it incredible control over the efficacy of AI creation (Xie et al., 2023). More and more research is concerned on examining various aspects of artificial intelligence anthropomorphism, given the basic significance of anthropomorphism in these interactions (Baek & Kim, 2023).

2.2. ChatGPT and travel services

AI developments and an increasingly information-rich environment open the door to new online information sources with a variety of capabilities (Wong, Lian, & Sun, 2023). Technology advancements enable travelers to plan their trips and assist them with tasks like booking, information retrieval, and pre-arrival planning (Knani, Echchakoui, & Ladhari, 2022). For instance, ChatGPT, which improves real-time and customized information, as well as suggestions for vacation destinations and tourist attractions (Zarezadeh, Benckendorff, & Gretzel, 2023). These days, a lot of companies are actively looking for ways to integrate ChatGPT and related products into their operations and expose and improve their capabilities (Javaid, Haleem, & Singh, 2023). Because Microsoft skillfully integrated ChatGPT in its Bing search engine, customer happiness and results have significantly increased (Dwivedi et al., 2024).

2.3. Stimulus-organism-response (SOR) model

Mehrabian (1974) were the first to propose the SOR model more popularly called the Mehrabian Russell model which rests on the stimulus-response theory in the field of environmental psychology. This trend depicts how environmental signals alter single cognition, emotions, and behavior (Liu & Huang, 2023). The fundamental tool of the SOR paradigm's link between components centers on how an individual's emotions and cognitive processes are influenced by both external and internal inputs, which then determine their reactions (Xie et al., 2023). As an example, with the help of the SOR model, it was confirmed that three dimensions of anthropomorphic communication, (i.e., coolness, warmth, and cuteness) influence emotional attachment to the brand and the willingness to overpay on the tourist side (Liu & Huang, 2023) demonstrated how VR video (virtual tour stimulation) influences viewers' varied levels of enjoyment utilizing the SOR trend. The belief that someone else has nice intentions toward them is called as stimulus perceived warmth (Lee & Li, 2023). Particularly in human-ai interactions, perceived warmth is crucial. (Wu & Huo, 2023; Xu, Niu, & Zhao, 2023), as holds a significant impact over users' opinions regarding ai and contentment. In addition, perceived warmth has the capacity of raising the degrees of social fixation amid the users and the ai chatbots during service experience, which is up to date in caring about the faith in this chatbot (Cheng et al., 2022). Thus, it is expected that the perception of being warm may act as a booster as far as the tourists capital among the faith in ChatGPT and attitude towards ChatGPT is concerned.

H1: Trust in ChatGPT and attitude toward ChatGPT have been positively affected by perceived warmth.

Some chatbots have begun intentionally adding delays to their replies in order to simulate the time that people typically take to respond, as researchers have recognized that embodying humanistic delayed responses might increase the productivity of AI services (Cheng et al., 2022). Perceived warmth and competence are the basic ways we think about and describe others. Warmth refers to how friendly and approachable someone feels, which is a fundamental part of being human. This includes their intelligence, talents, and ability to get things done, especially in the context of dealing with intelligent services like AI.

H2: Communication speed has a positive effect on both (a) attitude toward ChatGPT and (b) faith in ChatGPT.

In this research, communication speed is defined as the clarity with which ChatGPT answers customer inquiries in the travel services industry. The low degree of change in user interactions in the business of travel services is the foundation of positive effects of communication speed on the cognitive organisms of tourists (trust in ChatGPT and attitude toward ChatGPT). The beneficial association derives from the notion that rapid answers from an AI chatbot, like ChatGPT, fit the urgent and usually time-sensitive expectations of customers seeking information about travel. certainly in the travel industry, where prompt and comprehensive information is critical, a delay that prevents consumers from making prompt

judgments may lead to a decline in confidence in the capabilities of AI systems. Furthermore, a number of studies indicate that humans give AI-enabled agents a variety of human-like traits, such as greater honesty and a sense of significance when they react quickly as opposed to slowly (Rizomyliotis et al., 2022).

H3: (a) ChatGPT trust and (b) ChatGPT attitude have a positive effect by perceived competence.

Perceived competence functions as the major trigger in this setting. It relates to the user's conviction in ChatGPT's capacity to accomplish duties quickly and effectively, giving accurate, relevant, and timely information. When visitors regard ChatGPT as highly competent, it greatly effects their internal cognitive and emotional states. A stimulus-organism-response perspective. The organism component in this approach incorporates the visitors' internal states, including trust and attitude toward ChatGPT. When consumers regard ChatGPT as competent, their faith in the technology improves. They feel sure that ChatGPT can dependably satisfy their requirements, whether it's delivering tailored travel advice, aiding with booking adjustments, or supplying real-time assistance during their journeys (Huang & Rust, 2018).

2.4. Organism

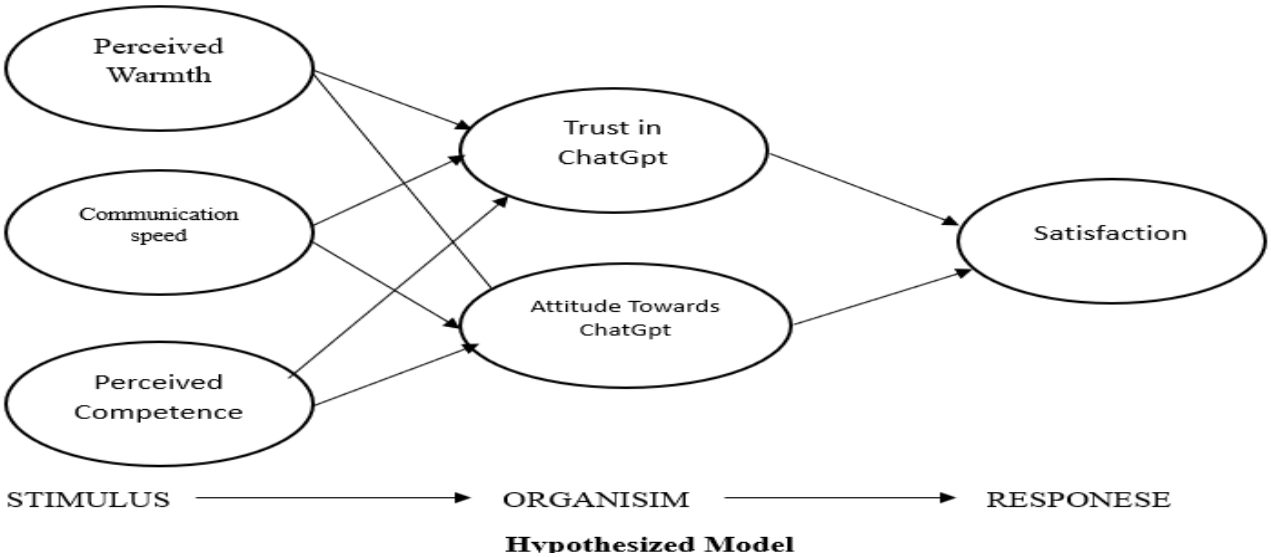
Trust may be described as the conviction and expectation that someone else will conduct honestly or with good intentions (Wang et al., 2023). In case with AI chatbots, the user trust can be discussed as an increase of interpersonal trust, signaling how confident a client is in and willing to follow directions or actions from an AI chatbot (Alagarsamy & Mehrolia, 2023). Prior study has showed that trusting AI may result in desirable benefits including attitude, contentment and users' emotional experience. The question of how to create confidence in an AI chatbot has consequently become a major research topic (Cheng et al., 2022).

H4: Satisfaction is positively affected by trust in ChatGPT.

Most ai technology adoption and success rely on trust. Users who trust ChatGPT are more likely to be happy with its services. The foundation of this trust is the belief that ChatGPT can consistently provide relevant, timely, and accurate information that satisfies user needs and expectations. When ChatGPT promptly assists with trip planning, reservations, or real-time support, for example, it boosts customer satisfaction and confidence (Bulchand-Gidumal, 2022). (Davis, 1989) characterized attitude in terms of happiness or negative feelings that an individual feels when taking part in a given activity. To begin with, the attitudes of consumers have been revealed in some studies to play an important role in the overall satisfaction of their experience with chatbots in general (Klein & Martinez, 2023; Kwangsawad & Jattamart, 2022). Previous study has indicated a strong correlation between people's attitudes and their intents to stick with a given habit since people frequently rely their ongoing activities on their feelings about it.

H5: Satisfaction is positively affected by attitude towards ChatGpt.

Figure 1



Hypothesized Model

Table 1: Measurable Items

Question	Variable Name
Demographics	
What is your gender?	Gender
What is your age?	Age
What is your qualification level?	Qualification
Attitude towards ChatGPT	ATC
During my travel experience, I enjoy the ChatGPT travel service.	ATC1
Using ChatGPT for travel services makes me feel happy.	ATC2
My attitude regarding the overall travel services that could use ChatGPT is positive.	ATC3
Communication Speed	CS
ChatGPT provides me with extremely fast answers to my answers.	CS1
ChatGPT does not take a long time to react.	CS2
Getting replies from ChatGPT is incredibly rapid.	CS3
Continuance Usage Intention	CI
I also intend to continue using ChatGPT in the travel industry.	CI1
I will never give up trying to use ChatGPT in my life.	CI2
For travel services, I will highly suggest ChatGPT to others.	CI3
I want to keep using ChatGPT for travel-related services.	CI4
I want to keep requesting the travel services that ChatGPT offers.	CI5
When it comes to travel, I plan to remain using ChatGPT instead of using human customer support.	CI6
In the future, I want to utilize ChatGPT for travel services on a regular basis.	CI7
Perceived Competence	PC
I think ChatGPT is smart.	PC1
I feel that ChatGPT is clever.	PC2
I think ChatGPT is capable.	PC3
Perceived Warmth	PW
ChatGPT is extremely flexible.	PW1
ChatGPT is really "warm" and kind.	PW2
ChatGPT is very nice.	PW3
ChatGPT is very likable.	PW4
Satisfaction	SATIS
In overall, I am happy with ChatGPT's travel assistance.	SATIS1
My satisfaction with ChatGPT's travel service is high.	SATIS2
I am satisfied with ChatGPT travel service.	SATIS3
I was pleased with ChatGPT's travel service overall.	SATIS4

3. Methodology

3.1. Survey Instrument

This study uses established multi-item measures to evaluate constructs in ChatGPT. The first part includes eight scales for trust, attitude, and satisfaction. The second part collects sociodemographic information. The design of the questionnaire guarantees reliability, readability, and clarity. By taking into account variables like perceived Warmth, communication speed, and Competence, the study conforms to earlier research.

3.2. Data collecting and sampling

In our study, we recruited data using a systematic sampling approach. Data was collected online using Google Forms, and after six weeks, 250 questionnaires were distributed. Of these, 201 valid questionnaires were kept for additional analysis after incomplete questionnaires and those with flatline or uninformative responses were removed.

3.3. Type of Investigation

The causal relationship between anthropomorphic signals (perceived warmth, communication speed, and perceived competence) and tourists' cognitive reactions (belief in ChatGPT and attitude toward ChatGPT) is studied in this study utilizing a causal study technique. We examine how external stimuli influence cognitive and emotional reactions, which in turn influence visitors' happiness and continuous usage of ChatGPT for travel services, utilizing the Stimulus-Organism-Response (a SOR) paradigm (Hsiao & Tang, 2021).

4. Results and Interpretations

We used empirical data from questionnaires in this work to predict the pathways inside a multivariable model with latent components using structural equation modeling (SEM) (Ajayi et al., 2023). The hypothesis was tested using partial least structural equation modeling (PLS-SEM) due to the existence of formative constructs in the SEM, as well as factors pertaining to the type of data gathered, the predictive nature of the study, and the intricacy of the proposed model (Hair & Alamer, 2022). The analyses were conducted using SPSS 29. The demographic analysis reveals that the majority of respondents were male (73·6%), with females comprising 25·4% of the sample· Most participants (76·6%) belonged to the 26-35 age group, indicating that young professionals are the primary consumers of ChatGPT for travel services, followed by 18-25-year-olds (19·4%), while older age groups had minimal representation· In terms of education, 65·7% held graduate degrees, suggesting that highly educated individuals are more inclined to use AI-driven travel tools, while 19·4% were undergraduates and 14·9% held postgraduate degrees· These findings suggest that young, educated male travelers are the prominent consumers of ChatGPT for travel services, emphasizing the need for AI developers and marketers to enhance adoption among older and female travelers to broaden accessibility and engagement·

Table 2: Demographic Profile of Respondents

Category	Response	Frequency	Percent (%)
Gender	Male (1.00)	148	73.6
	Female (2.00)	51	25.4
	Missing Data	2	1.0
Age	18-25 (1.00)	39	19.4
	26-35 (2.00)	154	76.6
	36-45 (3.00)	5	2.5
	46+ (4.00)	3	1.5
Qualification Level	Undergraduate (1.00)	39	19.4
	Graduate (2.00)	132	65.7
	Postgraduate (3.00)	30	14.9
Total Respondents		201	100.0

Table 3

Variables	ATC	CS	CI	PC	PW	SATIS
ATC	1	.282**	.697**	.344**	.452**	.696**
CS	.282**	1	.459**	.444**	.482**	.431**
CI	.697**	.459**	1	.591**	.670**	.761**
PC	.344**	.444**	.591**	1	.622**	.485**
PW	.452**	.482**	.670**	.622**	1	.605**
SATIS	.696**	.431**	.761**	.485**	.605**	1

4.1. Correlation

The correlation analysis demonstrates considerable links between the important variables, with all correlations being statistically significant at the 0·01 level (2-tailed)· Satisfaction displays the highest correlation with cognitive engagement ($r = 0{\cdot}761$, $p < 0{\cdot}001$), demonstrating that greater cognitive participation leads to improved satisfaction with ChatGPT in travel services. Additionally, pleasure is positively linked with perceived warmth ($r = 0{\cdot}605$, $p < 0{\cdot}001$), perceived competence ($r = 0{\cdot}485$, $p < 0{\cdot}001$), and communication speed ($r = 0{\cdot}431$, $p < 0{\cdot}001$), demonstrating that human-like features in AI interactions greatly impact user enjoyment .Similarly attitude towards ChatGPT is strongly associated with happiness ($r = 0{\cdot}696$, $p < 0{\cdot}001$) suggesting that a good opinion of the AI promotes user engagement and enjoyment· Other prominent associations include a substantial link between perceived warmth and cognitive engagement ($r = 0{\cdot}670$, $p < 0{\cdot}001$) and between perceived competence and cognitive involvement ($r = 0{\cdot}591$, $p < 0{\cdot}001$), demonstrating that AI qualities have a big impact in molding user experience.

Table 4: Measurement model testing

Construct	Cronbach's Alpha	Number of Items
Attitude towards ChatGPT (ATC)	0.794	3
Communication Speed (CS)	0.733	3
Continuance Usage Intention (CI)	0.883	7
Perceived Competence (PC)	0.758	3
Perceived Warmth (PW)	0.815	4

Satisfaction (SATIS)	0.822	4

The reliability analysis confirms that all constructs used in the study exhibit acceptable to high internal consistency, as indicated by Cronbach's Alpha values exceeding 0.7. The highest reliability is observed for Continuance Usage Intention (α = 0.883) demonstrating strong consistency across its seven items. Similarly, Satisfaction (α = 0.822) and Perceived Warmth (α = 0.815) also show high reliability, indicating that their respective items effectively measure the intended constructs. Attitude towards ChatGPT (α = 0.794) Perceived Competence (α = 0.758), and Communication Speed (α = 0.733) all fall within the acceptable range confirming their suitability for analysis.

Table 5: Regression Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	54.830	3	18.277	44.360	.000[b]
	Residual	81.167	197	.412		
	Total	135.997	200			

a. Dependent Variable: SATIS_AVG
b. Predictors: (Constant), PW, CS, PC

Where customer satisfaction (SATIS) is the dependent variable and the predictors comprise perceived waiting time (PW), customer service (CS) and perceived cost (PC) the ANOVA table assesses the general significance of the regression model. While the residual sum of squares (81.267) shows the examined variation the regression sum of squares (54.830) shows the part of variability in customer satisfaction explained by these predictors. With a significance value of 0.000, the F-statistic (44.360) indicates that the model is quite highly significant, so at least one of the predictors definitely affects customer satisfaction. Given the significance value of less than 0.05, we can say that customer satisfaction in ATM service quality is statistically significantly influenced by the independent variables taken as whole.

Table 6

Predictor	B (Unstandardized)	Std. Error	Beta (Standardized)	t-value	Sig. (p-value)
Constant	0.562	0.145	—	3.874	0.000
CS	0.173	0.071	0.156	2.423	0.016
PC	0.147	0.076	0.139	1.938	0.054
PW	0.496	0.082	0.444	6.031	0.000

The coefficients table offers understanding of how customer satisfaction (SATIS) is influenced by perceived cost (PC), customer service (CS) and perceived waiting time (PW). The constant value (B = 0.562, p = 0.001) implies that the baseline level of customer satisfaction is 0.562 when all the predictors are zero. Among the predictors PW(B = 0.496, p < 0.001) has the largest positive impact on customer satisfaction so a one-unit increase in perceived waiting time helps to produce a 0.496-unit increase in satisfaction. Furthermore, greatly affecting satisfaction is CS (B = 0.173, p = 0.016), indicating that improved customer service raises satisfaction levels. PC (B = 0.147, p = 0.054) has a weaker but somewhat significant influence; so, perceived warmth may have some influence but its significance level somewhat above the standard 0.05 level.

5. Discussion and Conclusion

A notable shift in focus toward the use of AI-driven chatbots in the travel and tourism sector, among other businesses, has resulted from ChatGPT's unexpected success in recent months (Wong, Lian, & Sun, 2023). These chatbots are currently being used extensively for a variety of tasks, including managing product transactions, answering frequently asked questions, providing information that is affordable, and making recommendations to customers in the hotel and tourist sectors (Ali et al., 2024). Chatbots are being used by a number of service providers to help passengers with their location, airline, and lodging searches. In the case of ChatGPT, its primary function is to function as a tool for providing passengers with personalized recommendations (Dwivedi et al., 2024). However, we currently know very little about the elements that impact passengers' choice to utilize ChatGPT for travel services. The study at hand threw new light into the literature on hospitality and tourism because the SOR model has been applied to examine how anthropomorphic stimuli, including perceived warmth, communication speed and perceived competence trigger cognitive organisms of tourists, including their attitude

to and trust in ChatGPT, and subsequently moderate their behavioral reactions including satisfaction and intention to use ChatGPT to fulfill travel services in the future. In studying the negative effect of technical concerns on the relationship between the satisfaction of tourists and their desire to use the technology again, this study also adds to the literature body. Major theoretical implications arise, therefore, of the present work.

Despite the groundbreaking findings and important theoretical and practical contributions made to the tourism and hospitality industries, it is crucial to acknowledge a number of shortcomings in this research as well as the intriguing opportunities for further investigation that may result from it. First, a sample of 201 respondents provided data for the current study, which was carried out in a number of Vietnamese tourist locations. Although this sample size is suitable for a number of study goals, it could restrict how broadly the results can be applied. The findings of the study are mainly relevant to visitors to the several designated locations in Vietnam; they may not be representative of the nation's larger tourist population. Larger and more varied samples, comprising tourists from other nations, areas, and backgrounds, may be the goal of future studies. This extension would enable more generalizations and enhance the findings' external validity. Additionally, data was gathered during a rather short six-week timeframe.

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