

Tourists and AI: A political ideology perspective

Patrick van Esch^{a,*}, Yuanyuan (Gina) Cui^b, Gopal Das^c,
Shailendra Pratap Jain^d, Jochen Wirtz^e



^a Department of Marketing and Professional Sales, Michael J. Coles College of Business, Kennesaw State University, Georgia, United States of America

^b Department of Marketing, Auckland University of Technology, 120 Mayoral Drive, Auckland 1010, New Zealand

^c Indian Institute of Management - Bangalore, Bannerghatta Rd, Bangalore, Karnataka, India

^d Michael G. Foster School of Business, University of Washington, Seattle, WA 98195, United States of America

^e National University of Singapore (NUS), Singapore

ARTICLE INFO

Article history:

Received 20 January 2022

Received in revised form 25 July 2022

Accepted 26 July 2022

Available online xxxx

Associate editor: Viglia Giampaolo

Keywords:

Artificial intelligence

AI

Liberal-conservative

Political ideology

Service robots

Subjective happiness

Tourists

ABSTRACT

The tourism industry has adopted AI agents as substitutes for human contact. We examine how tourists respond to AI in hotel service settings during a pandemic. Four studies show that services featuring human interaction is preferred to AI enabled interaction. Moreover, subjective happiness is identified as the underlying causal mechanism that drives this effect. We provide further nuanced insights by showing that politically conservative tourists discriminate between service agent types more. Theoretically we contribute to a more fine-grained understanding of tourists' responses towards AI by examining an affective and an individual difference factor (political ideology). Practically, marketers are encouraged to incorporate tourists' ideologies and psychographics into segmentation, targeting, and positioning considerations, thereby enhancing their marketing effectiveness.

© 2022 Elsevier Ltd. All rights reserved.

Introduction

The recent pandemic posed serious and unprecedented challenges to economies, public health, livelihoods, consumption, as well as the political climate globally (Das et al., 2021; Van Esch, Cui, Jain, 2021a). In an effort to prevent the spread of harmful pathogens, many countries have resorted to mechanisms like social distancing, stay-at-home orders, and touch-free services. At an individual level, with an uptake in online purchases, offline shopping has begun to be viewed as potentially hazardous, with brick-and-mortar businesses facing an apocalypse like never before (Ozili & Arun, 2020).

An outcome of these developments, across many different industries, is the increased momentum in the adoption of artificial intelligence (AI; Borner et al., 2021; Yu & Schwartz, 2006). This AI-driven transformation is evident in healthcare (e.g., in diagnosis, mapping pandemic spread, and contact tracing), elder care (Čaić et al., 2018; Čaić et al., 2020), and in the hospitality industry. For example, hotels are using AI to sanitize rooms, manage bookings, and facilitate contact-free check-in (Shi, Gong, & Gursoy, 2021). More generally, the pandemic has caused serious challenges in the services sector

* Corresponding author.

E-mail addresses: pvanesch@kennesaw.edu (P. van Esch), yuanyuan.cui@aut.ac.nz (Y.(G.) Cui), gopal.das@iimb.ac.in (G. Das), spjain@uw.edu (S.P. Jain), jochen@nus.edu.sg (J. Wirtz).

which is traditionally driven by face-to-face human interaction (Collins-Kreiner & Ram, 2020). Consequently, many providers have rapidly incorporated AI in their services, simply to survive during the pandemic (e.g., the use of intelligent virtual agents and touchless service delivery) as doing so allows for continued operations through social distancing, touch-free operations (payment, distribution), and promoting a safer purchasing environment (Coombs, 2020; Van Esch, Cui, Jain, 2021b). Despite seemingly large-scale adoption of AI in services, scholarship has yielded mixed insights regarding its perceived effectiveness, with some finding AI in services to be helpful (e.g., Qiu et al., 2020) and some less so (Io & Lee, 2020). The rapid penetration of AI in services, the mixed findings in academic research, and the rising concern over human interactions during the pandemic raise an important, unanswered research question: What are tourist perceptions of services provided by humans vs. AI in hospitality settings, especially during times when tourists tend to be more averse to human interactions (Kim & Pomirleanu, 2021)?

Our research aims to provide insights to this question. We propose that human service (vs. AI enabled service) will be viewed more favorably towards the service provider in a hospitality context (Tussyadiah, 2020; Lv et al., 2021). We further predict that this positive effect of human services is predicated on tourist emotions being more positive for human (vs. AI enabled) services. Critically, given the emerging scholarship investigating service automation among politically divided parties (e.g., service delivery in the finance sector: Ghazwani et al., 2022; automated vehicles: Freemark et al., 2020), researchers now call for research investigating the role of political ideologies in the hospitality and tourism sectors (Gretzel & Murphy, 2019; Kirillova et al., 2020; Loehr & Becken, 2021). Through the lens of system justification, we incorporate tourists' political ideology in our model as a boundary condition, positing that preference for human services holds for politically conservative tourists and not for liberal ones. Results of one pilot and three main large-scale studies hold across varied service contexts. As summarized above, our foundational finding is that even under unsettling pandemic times when tourists might be expected to be reluctant to engage in human interaction, they manifest greater preference for services provided by humans (vs. AI). In addition, this effect is driven by the greater subjective happiness tourists experience in the human service agent condition. Importantly, conservative tourists being system justifiers and therefore more resistant to change, are more likely to manifest this effect than liberals (Li et al., 2021).

Our findings contribute to the existing literature in several ways. First, we respond to the call for future research to examine the impacts of AI enabled service on consumer behavior in general (Lu et al., 2020). Second, our inquiry advances an understanding of the AI revolution currently underway while extending research in the domain of tourists' psychological responses towards AI in service contexts (Castelo et al., 2019; Logg et al., 2019; Longoni et al., 2019). Next, prior research speculates that AI enabled services are incapable of comprehending human emotions and manifesting empathy (Bakpayev et al., 2020). We theoretically and empirically integrate AI and emotions literature and test subjective happiness as an underlying mechanism driving the preference for human over AI enabled service encounters. Finally, we demonstrate that the positive effect of human services on tourist preference holds for conservatives but not liberals. Both, the happiness-driven mediation and political ideology-based moderation are novel to AI literature.

Practically, our findings caution managers against blanket and rapid deployment of AI in service delivery as conservative tourists still prefer "human touch", even in largely functional settings where AI may be presumed to outperform humans. These results provide a reference for managers to more effectively segment and target tourists.

Theoretical background and hypotheses development

AI adoption in services

AI has become ubiquitous in services touching virtually every stage of the consumption journey (Longoni & Cian, 2022; Lu et al., 2020). Supported by emerging technologies such as the Internet of Things, machine learning, and deep learning algorithms (Bornet et al., 2021), businesses are beginning to understand tourists beyond their geo-demographics, but more intriguingly, through psychographics and lifestyles hidden in their digital footprints (Tussyadiah et al., 2020). Even as the data-driven capability of AI continues to improve (Brynjolfsson & Mitchell, 2017), it is increasingly being deployed in the service sector to lower costs, enhance efficiency in service delivery, and create more satisfying consumption experiences (Pitardi et al., 2022). Due to the vast amount of data AI has access to, and is capable of organizing, structuring, and analyzing, businesses equipped with AI are able to allocate resources more optimally, presumably achieving their intended performance goals with fewer inputs (Bornet et al., 2021; Wirtz et al., 2018).

AI enabled robots in services (e.g., health care, restaurants, and hotels) have automated many parts of our lives converting conventional service into self-service (Fluss, 2017), and replacing portfolio managers with big data AI applications (Javelosa, 2017). In an effort to improve guests' on-site hotel experience, the use of AI and robotics within the hotel industry has become commonplace, with applications ranging from AI chatbots designed to assist with guest service processes, to robotic assistants providing smart concierge services (Ivanov & Webster, 2017; Pitardi et al., 2022). A recent inquiry (Belanche et al., 2021) explored service interactions with robots and the value offered. The authors revealed that the human-likeness of AI can substantially affect different dimensions of service expectations - the perceived competence of AI influences the utilitarian expectations, while its perceived warmth affects the relational expectations. Table 1 presents a summary of the key relevant literature while situating our contribution to the scholarship on AI in service settings.

The pandemic drastically reshaped our lives resulting in an era of a "new normal." Facing ever increasing uncertainty and scarcity of human interactions, experts are predicting the evolution of a human-less servicescape, if not a complete AI takeover (Das et al., 2021). Indeed, AI has been deployed in multiple sectors and scenarios, including but not limited to

Table 1
Review of relevant literature.

Author	Service Setting	Methodology	Dependent variable	Underlying mechanism	Boundary condition	Findings
Kim et al. (2021)	Hotel	Experimental	Evaluation of preference for robot/staffed hotel	Concerns on safety and social distancing	Subjective perceived threat	When COVID-19 is made salient, tourists express preference for robot-staffed hotels over human-staffed hotels. This effect is moderated by perceived threat in times of severe crisis.
Belanche et al. (2020)	Restaurant (Robot waiter)	Survey	Intention to use; Intention to recommend	Perceived human-likeness; Perceived affinity	–	Attributions mediate the relationships between affinity towards the robot and behavioral intentions to use and recommend service robots. Tourist's affinity towards the service robot positively affects service improvement attribution, which in turn has a positive influence on behavioral intentions. In contrast, affinity negatively affects cost reduction attribution, which has a negative effect on behavioral intentions. Human-likeness has a positive influence on affinity.
Choi et al. (2020)	Hotel	Focus-group interviews; Experimental	Service quality perceptions	–	–	Human staff services are perceived higher than the services of service robots in terms of interaction quality and physical service environment. However, no significant difference in outcome quality is noted.
De Kervenoael et al. (2020)	Restaurants; Hotels; Food centers	Interviews; Survey	Intention to use social robot	–	–	Visitors' intentions to use social robots stem from perceived value, empathy and information sharing.
Park (2020)	Information technology; Tourism	Survey	Trust in service robots (formative/reflective)	–	–	Multidimensional trust of tourism service robots. Three sub-constructs of trust including performance, purpose and process. Structural assurance and situational normality positively affected trusting beliefs.
Qiu et al. (2020)	Hospitality (Hotels and Restaurants in China)	Interview; Survey; Experimental	Hospitality experience	Tourist-robot rapport building; Tourist-employee rapport building	–	Robots' being perceived as humanlike or intelligent positively affects tourist-robot rapport building and the hospitality experience. Additionally, tourist-employee rapport building mediates the relationship between robot attributes and the hospitality experience, but tourist-robot rapport building does not.
Xu et al. (2020)	Bank (using Chatbots)	Experimental (in the field)	Usage Intention	Perceived problem-solving ability	Task complexity	Tourist preference for AI (vs. human) tourist services depends on task complexity. For low-complexity tasks, tourists believe that AI has greater problem-solving abilities, and are more likely to adopt AI, but not for high-complexity tasks.
Yam et al. (2020)	World's first robot-staffed hotel	Experimental (in the field)	Tourist satisfaction	Perceived experience	–	Anthropomorphism leads to higher tourist satisfaction. Perceived experience, but not agency, mediates this effect. Perceived experience (but not agency) also interacts with robot service failures to predict tourist satisfaction such that high levels of perceived experience attenuate the negative impact of service failure on tourist satisfaction.
Jörling et al. (2019)	Autonomous experience (Car, Heater, Lawn mower);	Experimental	Outcome responsibility	Perceived behavioral control	Valence of service outcome; Perceived ownership;	Technology's autonomy decreases perceived behavioral control over the service robot, which in turn decreases perceived responsibility for positive outcomes but not for negative

(continued on next page)

Table 1 (continued)

Author	Service Setting	Methodology	Dependent variable	Underlying mechanism	Boundary condition	Findings
Mende et al. (2019)	Medical; Educational; Dining	Experimental	Status consumption; Social affiliation; Compensatory behavior	Eeriness; Identity threat;	Social belongingness; Perceived healthfulness of food	outcomes. Perceived ownership of the service robot accounts for the high responsibility for negative outcomes, irrespective of perceived behavioral control. The potential to interrupt the service robots' autonomy increases perceived behavioral control and perceived responsibility for positive outcomes. Tourists display compensatory responses when they interact with an HSR rather than a human employee (e.g., they favor purchasing status goods, seek social affiliation, and order and eat more food). The underlying process driving these effects is that HSRs elicit greater tourist discomfort (i.e., eeriness and a threat to human identity), which in turn results in the enhancement of compensatory consumption. Compensatory responses that HSRs elicit are (1) mitigated when tourists perceived social belongingness is high, (2) attenuated when food is perceived as more healthful, and (3) buffered when the robot is machinized (rather than anthropomorphized).
Tussyadiah and Park (2018)	Hotel	Questionnaire; Experimental (Laboratory)	Adoption attention	–	–	Tourist intention to adopt hotel service robots is influenced by human-robot interaction dimensions of anthropomorphism, perceived intelligence, and perceived security.
This Study	Hotel	Experimental	Tourist response	Subjective happiness	Political ideology (Liberal vs. Conservative)	Tourists prefer hotels using human staff in room cleaning (vs. AI enabled robots), driven by greater subjective happiness. This effect only occurs for politically conservative tourists. Human touch remains critical in the service delivery process.

healthcare (e.g., pandemic diagnosis), hotels (e.g., robots and chatbots) manufacturing (e.g., automation), and service delivery more generally (e.g., virtual open homes in real estate, virtual conversational agents). The ubiquitous adoption of AI across industries and sectors therefore seems to suggest that consumers are ostensibly averse to human interactions and more favorable towards AI enabled service encounters (Shin & Jeong, 2020).

There are only a handful of investigations aimed at understanding how tourists respond to services provided by AI compared to those provided by humans (see Table 1). Further, the findings appear mixed as some investigations reveal a preference for AI while others report a preference for humans. This void in the literature invites an examination of whether tourists preferentially discriminate between AI-enabled and human-enabled service, and if so, when and why does such discrimination occur. Scholarship in this domain illustrates that tourists do perceive AI differently compared to human-delivered service, and manifest distinct responses (Castelo et al., 2019; Logg et al., 2019; Longoni et al., 2019). Furthermore, these responses towards humans vs. AI can be favorable or unfavorable. Favorable perceptions of AI, on the one hand, mainly stem from its superiority in accessing, gathering, and processing data, i.e., its *cognitive* intelligence (Wirtz et al., 2018). In accord, it has been shown that tourists show greater preference for AI over humans, especially when precision, accuracy, and efficiency are critical criteria in judgment. For instance, individuals generally believe that AI can outperform humans in predicting employees' job performance (Kuncel et al., 2013) and when it is perceived to be superior, AI services are preferred. Unfavorable perceptions of AI vis-à-vis humans are also prevalent in the marketplace, with more complex contributing mechanisms (Xu et al., 2020). In one of the earlier consumer-side investigations, Longoni et al. (2019) showed that consumers generally prefer human to AI healthcare delivery. However, Pezzo and Beckstead (2020) contended that this effect is more likely among patients who believe AI is inferior to humans in specific healthcare delivery tasks.

In addition to concerns about data usage and privacy, and biases in decision-making by AI, two additional rationales have been gaining ground in terms of negative perceptions of AI. First, compared to humans, consumers in general perceive AI to be inferior in *affective* intelligence. AI refers to the ability to recognize, identify, interpret, and respond to emotional content

appropriately. Although such a possibility seems promising and intriguing, further examination is required. Despite scientific efforts represented by the ideas of emotional AI and affective computing, practitioners as well as tourists appear skeptical at technological advancement represented by AI being capable of comprehending human emotions and manifesting empathy (Bakpayev et al., 2020). Second, in general, people believe that AI is capable of generating only standardized solutions, but not flexible and intuitive decisions based on evolving situations. Consequently, a lack of “human touch” leads to AI being perceived as low on the personalization metric. This viewpoint is captured in Longoni et al. (2019) who found that people tended to derive negative utility when the service provider was an AI agent instead of a human doctor. In terms of mechanism, the authors found that individuals showed resistance to AI medical recommendations because AI was not viewed as being equipped with human ability of incorporating a patient’s unique characteristics and circumstances. Studies in elderly care context also show that AI and service robots can compromise value for their human service recipients (Čaić et al., 2018; Čaić et al., 2020).

Huang and Rust (2018) propose an elegant theoretical framework to further delineate this view, which parallels our assertion and posit that presently, AI replacement of humans in services occurs for tasks involving mechanical and analytical intelligence, such as taking orders, handling basic tourists’ inquiries, and greeting tourists (Colby et al., 2016). With respect to intuitive tasks and those requiring empathy such as hotel and restaurant services, management consulting and decision-making involving affective skills, AI has limitations. Specific to our research, “human touch” plays a crucial role in establishing a sustainable relationship with tourists, which aligns better with the affective (vs. cognitive) processes in tourists’ decision-making (Mühlhoff, 2015). Tourists actively seek social interactions with other human beings, which constitute more joyful and meaningful experiences such as being authentically greeted upon entering a store, hotel, and restaurant and personalized recommendations offered by frontline employees (Mogaji, Soetan, & Kieu, 2021). Consequently, a lack of human touch (as in AI enabled services), despite being presumably more efficient, may fail to satisfy tourists’ affective expectations in relation to social interactions.

To capture these affective expectations, we introduce the emotion of subjective happiness as a novel candidate to explain why human service agents may be preferred over AI enabled ones. Subjective happiness, referring to the extent to which we experience positive affect, portrays the level of satisfaction we have when appraising an experience (Lyubomirsky & Lepper, 1999). When a service encounter satisfies our needs, a tourist presumably experiences greater subjective happiness. Subsequently, the fulfillment (vs. lack of fulfillment) of a satisfying experience provided by human employees (vs. AI) will lead to different affective appraisals, and eventually distinct responses (Hosany et al., 2017). For instance, Hosany et al. (2017) showed that tourists’ positive emotions, such as pleasure, joy and inspiration, significantly influence their responses (e.g., intention to recommend a travel destination to others). Therefore, we predict that tourists experiencing pandemic driven relational scarcity (Das et al., 2021) will anticipate greater subjective happiness when using human services compared to those provided by AI, resulting in more favorable responses for the former. Stated formally,

H1. Human (vs. AI enabled) service will lead to a more favorable tourist response towards the service provider.

H2. The positive effect of human service occurs because tourists experience greater subjective happiness with humans (vs. AI).

Human touch: the psychology of political ideology

To add deeper insights into this phenomenon, we consider a theory-guided moderator: tourists’ political ideology. Extensive work by Jost et al. (2013) contends that political ideology (conservative vs. liberal) reflects not only attitudes and orientation towards political issues, philosophies, candidates, and parties but also signifies value prioritization in general, beyond the scope of politics (Cui et al., 2022). Congenially, studies have shown that individuals with different political ideologies show different levels of tolerance for uncertainty (Cui, 2022). Compared to liberals, conservatives are more averse to uncertain and ambiguous situations. Consequently, to cope with, and potentially avoid such uncertainty, conservatives are more likely to behave in a defensive manner. One of the most discussed and prevalent manifestation of such defensive processes is “system justification.” System justification, referring to one’s tendency to rationalize and justify the status quo, captures tourists’ defensive responses facing ambiguous and complex scenarios (Krosch et al., 2013). Through endorsing and defending the status quo, system justification allows individuals to legitimize and justify the current system/paradigm, thereby reducing subsequent ambiguity and dissonance one might anticipate (Jost et al., 2004).

Supporting this assertion, conservative individuals’ manifest behaviors, that at least in part stem from system justification, including higher likelihood of maintaining the status quo, greater tendency to use stereotypes in interpersonal judgment, and motivated seeking for interpersonal affirmation (Jost et al., 2008). Inspired by such beliefs and views, they are more likely to seek relational belonging in interpersonal interactions. For example, conservatives were motivated to show greater likelihood of anthropomorphizing non-human objects and simulate a human touch, especially when the non-human objects were unpredictable, and therefore signaled greater uncertainty (Chan, 2020).

In a service encounter, using the lens of system justification and consequent endorsement of the status quo, we anticipate conservative tourists, but not liberals, to be more prone to defending the prevailing paradigm where services stereotypically offer human touch. Therefore, when using services provided by humans (vs. AI), they will experience greater subjective happiness, and appraise the service experience more favorably. We therefore predict:

H3. Preference for service agents (human vs. AI enabled) mediated by subjective happiness will be moderated by tourists' political ideology. Specifically, the positive effect of human agents will be observed for politically conservative (vs. liberal) tourists.

Summarily, we propose that human (vs. AI enabled) service will lead to higher subjective happiness, which in turn will result in more favorable tourist responses towards the service provider. However, this effect will be contingent on the tourists' political ideology.

Empirical overview

Across one pilot and three main experimental studies, we present convergent support for our conceptual model (Fig. 1). Based on approval from one of the authors' institutional review board, data collection was executed on Amazon Mechanical Turk during the recent pandemic (8th Jan – 1st Sep 2021). All participants were US residents and over 18 years old. Tourists' response was operationalized as overall hotel perception (Studies 1, 2 & 3), future patronage intent (Studies 2 & 3), and positive word-of-mouth (Study 3). To achieve greater rigor and generalizability, across studies, we 1) utilized diverse stimuli, 2) featured different service settings to enhance generalizability (a restaurant in the pilot study & a hotel in Studies 1–3), 3) examined an alternative mechanism, and 4) operationalized political ideology both, as a state and a trait. Study 1 tests H₁ and H₂, aiming to shed light upon tourists' preference for human (vs. AI enabled) service agents and examines the mediating mechanism of subjective happiness. Study 2 replicates Study 1 and also tests H₃ revealing the moderating effect of political ideology on greater preference for humans over AI. Study 3 consolidates our proposed model by manipulating, rather than measuring political ideology, and examining the alternative process account of situational lay rationalism belief.

Pilot study

We conducted a pilot study to examine the “human touch” account: whether human (vs. AI) services lead to greater perceived value in service interactions and are associated with greater happiness. That is, if subjective happiness, as theorized, is induced by human touch more in the human (vs. AI enabled) condition, we should expect participants to experience greater value and subjective happiness from human services.

Method

Participants and design

154 Amazon Mechanical Turkers (45.5 % Female, $M_{Age} = 41.0$, $SD = 13.7$) were randomly assigned to one of two conditions (service agents: Human vs. AI enabled) in a between-subjects study for a small monetary reward.

Procedures and measures

Participants were asked to imagine going to a restaurant, where the service provider was either an AI enabled robot, or a human employee (see Appendix 1). To capture perceived value from “human touch” and subjective happiness, participants indicated their agreement on three items for each of these constructs (see Appendix 2). To offer some preliminary insights on the impact of service agents on tourist responses, we also measured participants' patronage intent (Han et al., 2009).

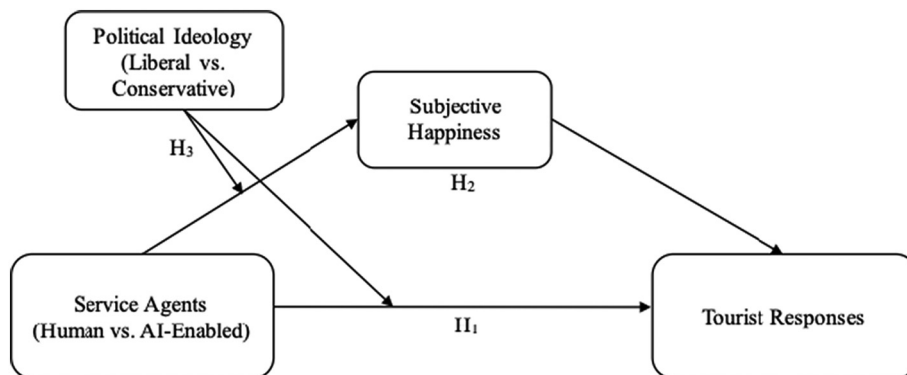


Fig. 1. Conceptual Framework.

Results and discussion

As expected, the results show that human (vs. AI enabled) service led to higher patronage intent ($M_{AI} = 4.47$, $SD = 1.99$ vs. $M_{Human} = 5.68$, $SD = 1.11$, $F(1, 152) = 21.93$, $p < .001$; $\eta^2 = 0.13$ [ANOVA]). To examine the value of “human touch,” results of two, one-sample t -tests showed that participants in the human condition perceived greater value offered ($M = 5.55$, $SD = 1.40$ vs. the neutral point of 4 [out of 7]; $t(76) = 9.74$, $p < .001$; Cohen's $d = 1.11$). In contrast, response from those in the AI condition was neutral ($M = 4.00$, $SD = 2.01$ vs. the neutral point of 4 [out of 7]; $t(76) = 0.00$, $p = 1.00$; Cohen's $d = 0.00$). Participants also indicated greater subjective happiness in the human condition ($M_{AI} = 5.01$, $SD = 1.39$ vs. $M_{Human} = 5.84$, $SD = 1.00$, $F(1, 152) = 17.96$, $p < .001$; $\eta^2 = 0.11$). Moreover, value offered, and subjective happiness associated with human service were strongly and positively correlated ($r = 0.53$, $p < .001$). Taken together, our findings support the role of perceived value from “human touch” and offer preliminary evidence for the underlying mechanism of greater subjective happiness associated with human services.

Study 1

Method

Participants and design

145 Amazon Mechanical Turkers (44.8 % Female, $M_{Age} = 37.9$, $SD = 11.2$) were randomly assigned to one-factor two-level (service agents: Human vs. AI enabled) between-subjects study for a small monetary reward.

Procedures and measures

Participants were asked to imagine that they were staying in a hotel during the pandemic, and to promote greater cleanliness, the focal hotel had been taking specific actions. Participants in the human (vs. AI enabled) condition were informed that their room had been cleaned and sealed by hotel staff (vs. AI enabled robot) for their protection (see Appendix 3 for stimuli and experimental scenarios). Next, participants indicated their perception of the hotel using a three-item, seven-point scale ($\alpha = 0.88$).

To test H_1 , we measured participants experienced emotions, including anger, disgust, fear, anxiety, sadness, happiness, and relaxation (Harmon-Jones et al., 2016). As manipulation check for the human (vs. AI) condition, we measured participants' agreement on their level of interaction with hotel staff members during their stay (Shin & Kang, 2020). Finally, participants reported their agreement on experimental realism ($r = .79$, $p < .001$; Lee et al., 2021), frequency of staying in a hotel when traveling (Han et al., 2009), and demographics (see Appendix 4).

Results and discussion

Preliminary analysis

Results of one-sample t -test showed that the experimental scenario was perceived as realistic ($M = 5.35$, $SD = 1.49$ vs. the neutral point of 4 [out of 7]; $t(144) = 10.91$, $p < .001$; Cohen's $d = 0.91$), suggesting sufficient ecological validity.

Manipulation check

A one-way ANOVA confirmed that participants indicated greater human interaction in the human staff condition ($M_{AI} = 3.14$, $SD = 2.19$ vs. $M_{Human} = 4.70$, $SD = 1.70$, $F(1, 143) = 22.23$, $p < .001$; $\eta^2 = 0.14$).

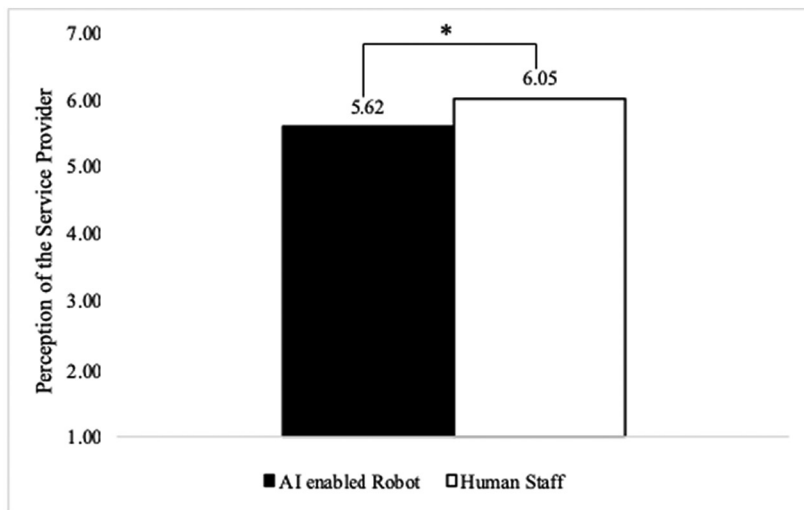
Main effect

Supporting H_1 , the human staff (vs. AI enabled robot) condition led to significantly more favorable perception of the hotel ($M_{AI} = 5.62$, $SD = 1.32$ vs. $M_{Human} = 6.05$, $SD = 0.91$, $F(1, 143) = 4.80$, $p = .030$; $\eta^2 = 0.03$; Fig. 2).

Mediation

We conducted a mediation analysis using PROCESS macro in SPSS (Model 4, 10,000 bootstrapped samples; Hayes, 2018; Kim et al., 2019) with service agent type as the independent variable, different emotions as parallel mediators, and perception of the hotel as the dependent variable, with frequency of staying in a hotel when traveling as a covariate. Results remained significant with and without including them and we next report results with the covariates.

The analysis yielded a significant mediation model, supporting H_2 . Controlling for the effect of frequency of staying in a hotel when traveling ($\beta = -0.10$, $SE = 0.05$, $CI_{95\%}: -0.20, 0.00$), happiness significantly mediated the effect of human staff on perception ($\beta = 0.20$, $SE = 0.10$, $CI_{95\%}: 0.01, 0.42$). Ruling out alternative explanations, none of the other emotions were significant (anger: $\beta = 0.02$, $SE = 0.05$, $CI_{95\%}: -0.05, 0.17$; disgust: $\beta = 0.03$, $SE = 0.08$, $CI_{95\%}: -0.12, 0.20$; fear: $\beta = -0.01$, $SE = 0.04$, $CI_{95\%}: -0.09, 0.07$; anxiety: $\beta = 0.00$, $SE = 0.03$, $CI_{95\%}: -0.06, 0.06$; sadness: $\beta = 0.01$, $SE = 0.04$, $CI_{95\%}: -0.07, 0.10$; relaxed: $\beta = 0.02$, $SE = 0.04$, $CI_{95\%}: -0.03, 0.14$).



Note: * $p < 0.05$.

Fig. 2. Results of Study 1: Overall Perception of the Hotel.

Study 2

Study 2 varied the experimental stimuli for generalizability (Appendix 5), and also tested whether tourists' political ideologies moderate the above effects (H_3).

Method

Participants and design

Study 2 featured a 2 (service agents: human staff vs. AI enabled robot) \times 2 (political ideology [measured]: liberal vs. conservative) mixed design. 598 Amazon Mechanical Turkers (51.5 % Female, $M_{Age} = 36.3$, $SD = 11.3$) were randomly assigned to one of two service agents' conditions and indicated their political ideology.

Procedures and measures

After reading about the hotel room cleaned by hotel staff (vs. AI enabled robot) when they were staying in a hotel during the pandemic, participants indicated their hotel perception on the same scale used in Study 1 ($\alpha = 0.98$) as well as future patronage intent ($\alpha = 0.92$; Han et al., 2009). They also responded to the same emotion measures. To examine H_3 , participants rated their political ideology using three-items¹ ($\alpha = 0.90$). As in Study 1, participants indicated their level of interaction with human staff members, experimental realism ($r = .83$, $p < .001$), frequency of staying in a hotel when traveling, and demographics.

Results and discussion

Preliminary analysis

Results of a one-sample t -test showed that the experimental scenario was perceived as realistic ($M = 4.93$, $SD = 1.69$ vs. the neutral point of 4 [out of 7]; $t(597) = 13.41$, $p < .001$; Cohen's $d = 0.55$), suggesting sufficient ecological validity.

Manipulation check

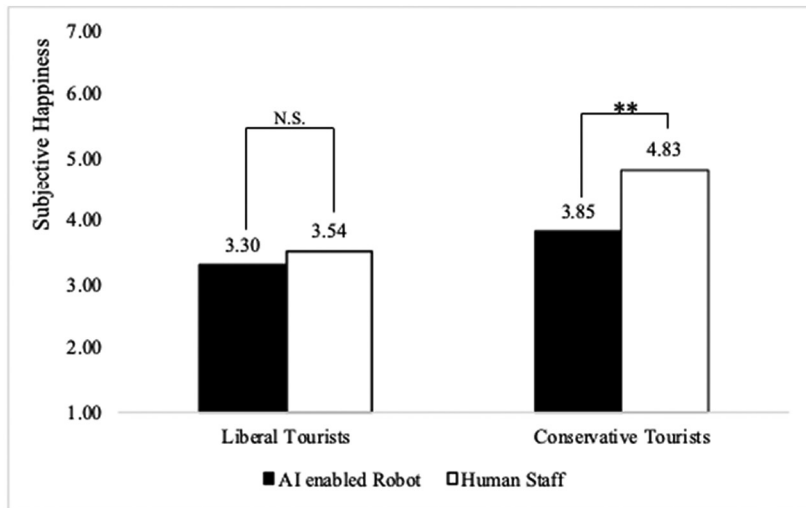
A one-way ANOVA confirmed the effectiveness of our manipulation ($M_{AI} = 2.66$, $SD = 2.08$ vs. $M_{Human} = 4.39$, $SD = 1.77$, $F(1, 596) = 118.18$, $p < .001$; $\eta^2 = 0.17$).

Main effect

Replicating Study 1's findings, the human (vs. AI enabled robot) condition led to a significantly more favorable perception of the hotel ($M_{AI} = 5.41$, $SD = 1.39$ vs. $M_{Human} = 5.89$, $SD = 0.96$, $F(1, 596) = 23.18$, $p < .001$; $\eta^2 = 0.04$). Further supporting H_1 , consistent findings were observed for future patronage intent ($M_{AI} = 5.21$, $SD = 1.52$ vs. $M_{Human} = 5.73$, $SD = 1.07$, $F(1, 596) = 22.51$, $p < .001$; $\eta^2 = 0.04$).²

¹ A measurement scale examining political ideology was adopted instead of system justification tendency as political ideology encompasses a variety of values and behaviors that go beyond simple system justification (Jost et al., 2008).

² A Post Hoc Power analysis using the G*Power software confirmed a satisfactory level of power (Power = 0.99).



Note: ** $p < 0.001$.

Fig. 3. Results of Study 2: Subjective Happiness.

Moderated mediation (overall hotel perception)

We conducted a moderated mediation analysis using the PROCESS macro in SPSS (Model 8, 10,000 bootstrapped samples) with service agent type as the independent variable, hotel perception as the dependent variable (a continuous variable, measured), political ideology as the moderator (measured; with high and low levels of political ideology operationalized as one standard deviation (SD) above and below the mean, respectively), and different emotions as parallel mediators (anger, disgust, fear, anxiety, sadness, happiness, and relaxation). Again, the results remained significant with and without covariates and we next report findings with covariates in the model.

The analysis supported our proposed model ($MMI = 0.04$, $SE = 0.02$, $CI_{95\%}: 0.01, 0.09$). Specifically, for liberals, happiness did not mediate the effect of service agent type on perception ($\beta = 0.04$, $SE = 0.04$, $CI_{95\%}: -0.03, 0.12$). In contrast, conservatives experienced greater happiness in the human condition, which in turn led to a more favorable hotel perception ($\beta = 0.18$, $SE = 0.06$, $CI_{95\%}: 0.01, 0.30$; Fig. 3). Using the Johnson-Neyman (JN) technique to probe meaningful ranges of the conditional effect (Spiller et al., 2013), we found that for participants whose political ideology score was higher than 2.88, human service agents led to a more favorable hotel perception ($\beta_{JN} = 0.36$, $SE = 0.18$, $t = 1.96$, $CI_{95\%}: 0.00, 0.72$), but not for those who scored lower than 2.88 (Fig. 4). Additionally, the moderating effect of political ideology on the effect of service agent

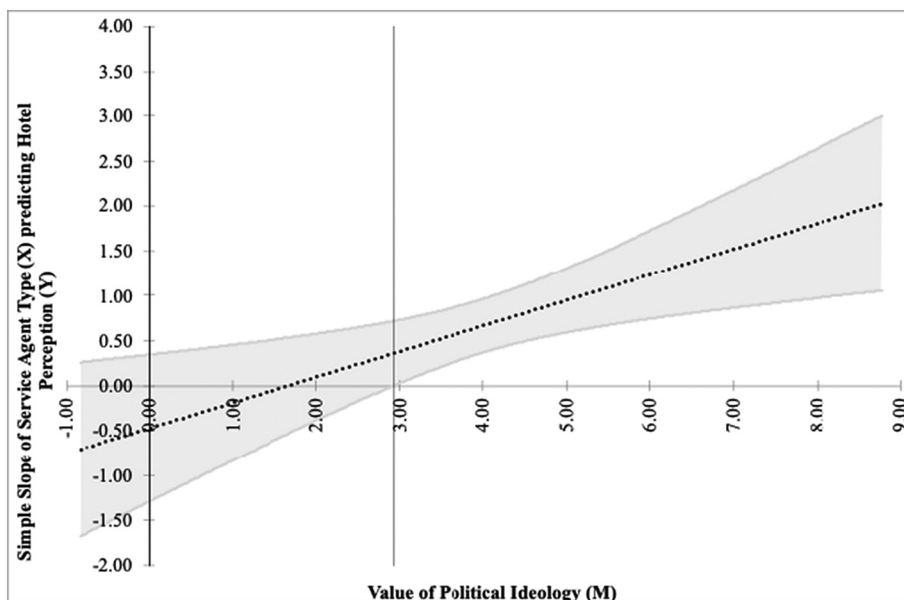


Fig. 4. Floodlight Plot of the Interaction Effect (Study 2 [Johnson-Neyman Technique]).

type on perception was insignificant ($\beta = -0.01$, $SE = 0.08$, $CI_{95\%}: -0.17, 0.14$). None of the other emotions were significant (anger: $MMI = -0.03$, $SE = 0.03$, $CI_{95\%}: -0.09, 0.03$; disgust: $MMI = -0.04$, $SE = 0.03$, $CI_{95\%}: -0.11, 0.02$; fear: $MMI = -0.06$, $SE = 0.03$, $CI_{95\%}: -0.13, 0.01$; anxiety: $MMI = -0.01$, $SE = 0.02$, $CI_{95\%}: -0.06, 0.03$; sadness: $MMI = 0.02$, $SE = 0.02$, $CI_{95\%}: -0.03, 0.07$; relaxed: $MMI = 0.02$, $SE = 0.02$, $CI_{95\%}: -0.01, 0.06$).

Moderated mediation (future patronage intent)

Analysis with future patronage intent as the dependent variable replicated the moderated mediation model for hotel perception: the indirect effect of service agent type via happiness was contingent upon political ideology ($MMI = 0.03$, $SE = 0.02$, $CI_{95\%}: 0.01, 0.07$; PROCESS Model 8, 10,000 bootstrapped samples). Specifically, happiness significantly mediated the effect of human staff on future patronage intent for conservatives ($\beta = 0.15$, $SE = 0.05$, $CI_{95\%}: 0.05, 0.26$; political ideology score > 2.88 (JN) technique; $\beta_{JN} = 0.36$, $SE = 0.18$, $t = 1.96$, $CI_{95\%}: 0.00, 0.72$), but not for liberals ($\beta = 0.04$, $SE = 0.03$, $CI_{95\%}: -0.03, 0.11$). Again, we found an insignificant conditional effect of political ideology on the effect of service agent type on future patronage intent ($\beta = -0.03$, $SE = 0.09$, $CI_{95\%}: -0.21, 0.14$). Ruling out alternative mediators, none of the other emotions were significant (anger: $MMI = -0.00$, $SE = 0.04$, $CI_{95\%}: -0.07, 0.07$; disgust: $MMI = -0.03$, $SE = 0.04$, $CI_{95\%}: -0.11, 0.04$; fear: $MMI = -0.00$, $SE = 0.04$, $CI_{95\%}: -0.08, 0.08$; anxiety: $MMI = -0.03$, $SE = 0.03$, $CI_{95\%}: -0.10, 0.02$; sadness: $MMI = -0.02$, $SE = 0.03$, $CI_{95\%}: -0.08, 0.05$; relaxed: $MMI = 0.03$, $SE = 0.02$, $CI_{95\%}: -0.01, 0.08$).

Study 3

In Study 3, we manipulated instead of measuring political ideology and operationalized happiness with a multi-item scale (Joseph et al., 2004).

Method

Participants and design

260 Amazon Mechanical Turkers (52.7 % Female, $M_{Age} = 37.2$, $SD = 11.7$) incentivized with a small monetary payment were randomly assigned to one of the four conditions [2 (service agents: AI enabled robot vs. human staff) x 2 (political ideology: liberal vs. conservative)] in a full factorial between-subjects design.

Procedures and measures

To prevent demand effect (Mummolo & Peterson, 2019), participants were led to believe that they were about to engage in multiple studies. Political ideology was manipulated using a well-established effective approach (see Appendix 6).

Next, replicating Study 2, participants read the scenario about the hotel room being cleaned by either hotel staff or an AI enabled robot and indicated their perception of the hotel ($\alpha = 0.90$), and future patronage intent ($\alpha = 0.92$). For greater generalizability, we also measured participants' positive word-of-mouth intent ($r = 79$, $p < .001$; Han et al., 2009; Zeithaml et al., 1996). Acknowledging that intentions do not always translate to actual behaviors (Trivasse et al., 2020), we incorporated a consequential (behavioral) outcome to triangulate our findings as mitigation remedies. Specifically, participants were asked whether they would like to leave a positive review on TripAdvisor (Borghi & Mariani, 2021), and those who agreed were redirected to submit their review in a given text entry box.

Participants indicated their subjective happiness on a three-item, seven-point scale ($\alpha = 0.92$; Joseph et al., 2004). To test an alternative explanation, we measured participants' lay rationalism in decision-making ($\alpha = 0.62$; deemed acceptable; Hsee et al., 2015; Taber, 2018). Lay rationalism captures variation in the extent to which tourists might use reasons versus feelings in their decision making. Including lay rationalism as an alternative mediator allows us to test whether feelings in general are driving our effect or whether it is happiness in specific. The former will challenge our account while the latter will support it. Finally, participants rated their level of interaction with human staff, experimental realism ($r = 0.76$, $p < .001$), frequency of staying in a hotel when traveling, and demographics.

Results and discussion

Preliminary analysis

Results of a one-sample *t*-test showed that the experimental scenario was perceived as realistic ($M = 5.37$, $SD = 1.32$ vs. the neutral point of 4 [out of 7]; $t(259) = 16.78$, $p < .001$; Cohen's $d = 1.04$).

Manipulation check

The analyses confirmed the success of our manipulation of both, service agents ($M_{AI} = 3.08$, $SD = 2.25$ vs. $M_{Human} = 4.40$, $SD = 1.83$, $F(1, 258) = 26.98$, $p < .001$; $\eta^2 = 0.10$ [one-way ANOVA]), and political ideology (liberal: $M = 7.54$, $SD = 3.05$ vs. the neutral point of 6 [out of 11]; $t(125) = 5.68$, $p < .001$; Cohen's $d = 0.50$; conservative: $M = 6.57$, $SD = 3.27$ vs. the neutral point of 6 [out of 11]; $t(133) = 2.01$, $p = .047$; Cohen's $d = 0.17$ [one-sample *t*-test]).

Moderated mediation (replication)

The analyses supported our proposed theorization (with subjective happiness and lay rationalism as parallel mediators; PROCESS Model 8, 10,000 bootstrapped samples), with and without the covariates. The effect of human agents through subjective happiness moderated by political ideology was significant for both, hotel perception (MMI = 0.46, SE = 0.19, CI_{95%}: 0.13, 0.87) and future patronage intent (MMI = 0.50, SE = 0.20, CI_{95%}: 0.14, 0.93). Further, subjective happiness significantly mediated the effect of human agents for conservatives (hotel perception: $\beta = 0.37$, SE = 0.14, CI_{95%}: 0.13, 0.66; future patronage intent: $\beta = 0.40$, SE = 0.15, CI_{95%}: 0.14, 0.72), but not for liberals (hotel perception: $\beta = -0.09$, SE = 0.12, CI_{95%}: -0.32, 0.13; future patronage intent: $\beta = -0.10$, SE = 0.12, CI_{95%}: -0.34, 0.14). The results revealed a significant moderation effect of political ideology on the effect of service agent type (hotel perception: $\beta = -0.78$, SE = 0.35, CI_{95%}: -1.46, -0.09; future patronage intent: $\beta = -0.94$, SE = 0.39, CI_{95%}: -1.70, -0.17). Ruling out the alternate account, the effect of lay rationalism was insignificant (hotel perception: MMI = 0.07, SE = 0.05, CI_{95%}: -0.01, 0.20; future patronage intent: MMI = 0.09, SE = 0.06, CI_{95%}: -0.02, 0.23) confirming that the process relates to happiness in specific and not feelings in general.

Moderated mediation (positive word-of-mouth)

The results for positive word-of-mouth paralleled the above findings. Perception and patronage intent effectively translated to significantly more favorable word-of-mouth (MMI = 0.51, SE = 0.20, CI_{95%}: 0.15, 0.95; with subjective happiness and lay rationalism as parallel mediators; PROCESS Model 8, 10,000 bootstrapped samples). Conservatives experienced greater subjective happiness when using human agents, which in turn resulted in increased positive word-of-mouth ($\beta = 0.41$, SE = 0.15, CI_{95%}: 0.14, 0.73). In contrast and as predicted, liberals were indifferent ($\beta = -0.10$, SE = 0.13, CI_{95%}: -0.36, 0.15). Additionally, we found a significant moderating effect of political ideology on the effect of service agent type on positive word-of-mouth ($\beta = -1.01$, SE = 0.44, CI_{95%}: -1.87, -0.15). Further confirming the mediating role of subjective happiness, lay rationalism was insignificant (MMI = 0.04, SE = 0.05, CI_{95%}: -0.03, 0.16).

Analysis with regard to the consequential dependent variable yielded convergent findings, with choice to leave a positive review [1 = Yes, I'd love to, 2 = Maybe later] as the dependent variable, and subjective happiness and lay rationalism as parallel mediators (PROCESS Model 8, 10,000 bootstrapped samples). Lay rationalism was again successfully excluded (MMI = -0.01, SE = 0.07, CI_{95%}: -0.15, 0.14) while a significant conditional indirect effect through subjective happiness was observed (liberal: $\beta = 0.06$, SE = 0.09, CI_{95%}: -0.10, 0.25; conservative: $\beta = -0.26$, SE = 0.13, CI_{95%}: -0.58, -0.07; MMI = -0.32, SE = 0.17, CI_{95%}: -0.73, -0.07; conditional effect of political ideology on the effect of service agent type on choice to leave a positive review: $\beta = 0.70$, SE = 0.86, CI_{95%}: -0.97, 2.38).

General discussion

Four studies showed that services featuring human interaction (vs. AI enabled) lead to greater preference for the service provider. Moreover, we identified subjective happiness as the underlying causal mechanism that drives a more favorable response towards human services in a hospitality context. Leveraging theory-guided moderation, we provide deeper insights by showing that conservative (vs. liberal) tourists discriminate between service agent types.

Theoretical contributions

The findings of our research make several theoretical contributions. First, we respond to the call to advance research investigating the utilization of AI in services (Das et al., 2021; Lu et al., 2020). While prior research shows that technically AI is capable of replacing human employees in tedious jobs (Huang & Rust, 2018; Longoni et al., 2019; Wirtz et al., 2018), our findings show that there may be political ideology related bounds to this effect. As such, our investigation argues against a complete 'take-over' by AI in service settings and posits that as technology advances, the disparity between AI and humans needs to account for affective preference for "human touch" instead of functional superiority alone.

Second, we empirically document the emotion of subjective happiness as the mechanism underlying greater preference for services carrying human touch. As inquiries of AI are still in their infancy, we lack a deeper understanding in relation to factors differentiating perceptions of AI vs. humans in service encounters. Prior work focuses predominantly on cognitive aspects, such as competency and uniqueness concerns (Logg et al., 2019). Our findings serve as a critical point of departure and show that affective factors play a role in leading to distinct tourist perceptions. In this regard, we contribute to a more fine-grained understanding of AI offering a fertile ground for more intriguing conversations and investigations featuring affect as the fulcrum.

Importantly, our findings offer a nuanced understanding of AI applications and their preference by examining a novel boundary condition (tourists' political ideology). Our findings indicate that only politically conservative tourists manifest greater preference for human service interactions over AI enabled ones. Liberals on the other hand are indifferent. Concurring with the nascent view that political ideology is more than a political filter, our findings argue that political ideology systematically predicts value prioritization, value seeking, and preference (Jost et al., 2013). Conservatives, driven by their tendency to engage in system justification are more prone to seek human interactions, and prefer human (vs. AI enabled) services. Through this theory-guided moderation, we show that the nuances of human services go beyond technicality/functionality, but more importantly, lie in their ability in offering 'real' human experiences.

Practical implications

From a practical viewpoint, first and foremost, this research shows that although AI may be superior in functionality, efficiency, and accuracy to service-oriented tasks, and, during pandemics in specific, assures greater safety, tourists do not prefer such technical superiority unconditionally (Xiong et al., 2021). Therefore, our research cautions against a single-minded functional pursuit in service operations strategy. Practitioners ought to be more mindful of the affective drivers and make strategic decisions accordingly. Our research also illustrates that tourist preferences can be potentially influenced by promoting positive affective cues – for example, via adopting different service agents in our research, with one such cue being subjective happiness. As a construct in determining individual well-being, our research examines it as the driver for more favorable tourist responses. Marketers therefore can benefit from our findings and cultivate their existing service touchpoints to promote more affective and happiness promoting service experiences.

From a branding perspective, our research elucidates a novel segmentation strategy. As tourist psychology evolves and becomes more sophisticated, marketers ought to move beyond simplistic targeting and segmentation strategies (e.g., by relying largely on demographics). By demonstrating a null effect for the liberals and a significant positive effect of human services for conservatives, we encourage marketers to incorporate tourists' ideologies and psychographics into segmentation, targeting, and positioning considerations (Gilbert & Warren, 1995), thereby potentially enhancing their marketing effectiveness. A specific application of our framework could lead marketers to emphasizing human (vs. AI enabled) services in “Red” states.

Conclusion and future research directions

While the pandemic has accelerated the intrusion of AI in our lives, particularly in the way we interact with technology as well as humans, our findings underscore the possibility that tourists still continue to seek “human touch” in services as it enhances their subjective happiness. In accord, our findings illustrate that such favorable affective states drive greater preference for services provided by humans (vs. AI).

While our findings derive from well-established measures and experimental designs, including relatively large and representative samples, they are not without limitations which offer avenues for future inquiries. First, although we have proposed “human touch” as an *affective* dimension used by tourists to evaluate a service experience, future empirical studies are warranted to further demonstrate the robustness of this proposition. Specifically, closer scrutiny is needed to examine what “human touch” entails and disentangle it along the affect-cognition continuum. For instance, if “human touch” is a priori affective in nature as our findings showed, then priming participants to be in a more cognitive mode may eliminate our observed pattern. Alternatively, our proposed effect should be observed more for tourists with greater need for affect, instead of need for cognition.

Second, although we believe that our findings carry generalizability in other service settings, we encourage scholars to investigate their robustness. For instance, our research utilizes hotels and restaurants as the service contexts. Future inquiries ought to harvest insights by replicating our findings in settings such as more functional services that are evaluated largely on the basis of their efficiency and accuracy (e.g., car repairs, transportation, tax consulting, and insurance services). For example, Cui and van Esch (2022) investigated conservatives' and liberals' attitudes towards AI enabled checkouts in the retailing setting and found that when the service domain entails a greater need for functionality, liberals prefer AI enabled checkouts as it renders greater autonomy. As such, we encourage future studies to examine the affective/cognitive processes in different service settings (relational-oriented [the present research] vs. functional-oriented). Such an examination, while of utility in and of itself, should be conducted while controlling for additional factors including tourists perceived technological utility, ease of use, and technological readiness (Parasuraman, 2000).

Finally, following the call for more research investigating the implications of political ideology outside the scope of politics (Cui & van Esch, 2022; Jost et al., 2008), our research introduces political ideology as a pivotal boundary condition to account for tourists' responses towards AI (vs. humans). Our research is a pioneering effort in introducing political ideology into the tourism literature, and we hope that our findings could help pivot and provoke more scholarly conversations on this matter (Gretzel & Murphy, 2019).

CRedit authorship contribution statement

Patrick van Esch: Conceptualization, Data curation, Investigation, Methodology, Project administration, Resources, Formal analysis, Software, Visualization, Writing - original draft, Writing - review & editing. **Yuanyuan (Gina) Cui:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Writing – original draft, Writing – review & editing. **Gopal Das:** Writing - review & editing. **Shailendra Pratap Jain:** Writing – review & editing. **Jochen Wirtz:** Writing – review & editing.

Data availability

Data will be made available on request.

Declaration of competing interest

None.

Appendices. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.annals.2022.103471>.

References

- Bakpayev, M., Baek, T. H., van Esch, P., & Yoon, S. (2020). Programmatic creative: AI can think but it cannot feel. *Australasian Marketing Journal*. <https://doi.org/10.1016/j.ajmsmj.2020.04.002>.
- Belanche, D., Casaló, L., & Flavián, C. (2020). Frontline robots in tourism and hospitality: Service enhancement or cost reduction? *Electronic Markets*, 1–16.
- Belanche, D., Casaló, L. V., Schepers, J., & Flavián, C. (2021). Examining the effects of robots' physical appearance, warmth, and competence in frontline services: The Humanness-Value-Loyalty model. *Psychology & Marketing*, 38(12), 2357–2376.
- Borghini, M., & Mariani, M. M. (2021). Service robots in online reviews: Online robotic discourse. *Annals of Tourism Research*, 87(C).
- Bornet, P., Barkin, I., & Wirtz, J. (2021). *Intelligent automation: Welcome to the world of hyperautomation*. Hackensack, NJ: World Scientific Books.
- Brynjolfsson, E., & Mitchell, T. (2017). What can machine learning do? Workforce implications. *Science*, 358(6370), 1530–1534.
- Čaić, M., Avelino, J., Mahr, D., Oederkerken-Schröder, G., & Bernardino, A. (2020). Robotic versus human coaches for active aging: An automated social presence perspective. *International Journal of Social Robotics*, 12, 867–882.
- Čaić, M., Oederkerken-Schröder, G., & Mahr, D. (2018). Service robots: Value co-creation and co-destruction in elderly care networks. *Journal of Services Management*, 29(2), 178–205.
- Castelo, N., Bos, M. W., & Lehmann, D. R. (2019). Task-dependent algorithm aversion. *Journal of Marketing Research*, 56(5), 809–825.
- Chan, E. Y. (2020). Political conservatism and anthropomorphism: An investigation. *Journal of Consumer Psychology*, 30(3), 515–524.
- Choi, Y., Oh, M., Choi, M., & Kim, S. (2020). Exploring the influence of culture on tourist experiences with robots in service delivery environment. *Current issues in tourism* (pp. 1–17).
- Colby, C. L., Mithas, S., & Parasuraman, A. (2016). Service robots: How ready are tourists to adopt and what drives acceptance. *The 2016 Frontiers in service conference, Bergen, Norway*.
- Collins-Kreiner, N., & Ram, Y. (2020). National tourism strategies during the Covid-19 pandemic. *Annals of Tourism Research*, 89.
- Coombs, C. (2020). Will COVID-19 be the tipping point for the intelligent automation of work? A review of the debate and implications for research. *International Journal of Information Management*, 55, Article 102182.
- Cui, Y., & van Esch, P. (2022). Autonomy and control: How political ideology shapes the use of artificial intelligence. *Psychology & Marketing*. <https://doi.org/10.1002/mar.21649>.
- Cui, Y. G. (2022). Sophia Sophia tell me more, which is the most risk-free plan of all? AI anthropomorphism and risk aversion in financial decision-making. *International Journal of Bank Marketing*, 40(6), 1133–1158. <https://doi.org/10.1108/IJBM-09-2021-0451>.
- Cui, Y. G., van Esch, P., Das, G., & Jain, S. (2022). Surge price precision and political ideology. *Journal of Business Research*, 143, 214–224.
- Das, G., Jain, S. P., Maheswaran, D., Slotegraaf, R., & Srinivasan, R. (2021). Pandemics and marketing: Insights, impacts, and research opportunities. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-021-00786-y>.
- De Kervenoael, R., Hasan, R., Schwob, A., & Goh, E. (2020). Leveraging human-robot interaction in hospitality services: Incorporating the role of perceived value, empathy, and information sharing into visitors' intentions to use social robots. *Tourism Management*, 78, 1–15.
- Fluss, D. (2017). The AI revolution in tourist service. *Tourist Relationship Management*, January(38).
- Freemark, Y., Hudson, A., & Zhao, J. (2020). Policies for autonomy: How American cities envision regulating automated vehicles. *Urban Science*, 4(4), 55.
- Ghazwani, S., Van Esch, P., Cui, Y. G., & Gala, P. (2022). Artificial intelligence, financial anxiety and cashier-less checkouts: A Saudi Arabian perspective. *International Journal of Bank Marketing*, 40(6), 1200–1216. <https://doi.org/10.1108/IJBM-09-2021-0444>.
- Gilbert, F. W., & Warren, W. E. (1995). Psychographic constructs and demographic segments. *Psychology & Marketing*, 12(3), 223–237.
- Gretzel, U., & Murphy, J. (2019). Making sense of robots: Consumer discourse on robots in tourism and hospitality service settings. *Robots, artificial intelligence, and service automation in travel, tourism and hospitality*. Emerald Publishing Limited.
- Han, H., Hsu, L. T. J., & Lee, J. S. (2009). Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel tourists' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4), 519–528.
- Harmon-Jones, C., Bastian, B., & Harmon-Jones, E. (2016). The discrete emotions questionnaire: A new tool for measuring state self-reported emotions. *PLoS One*, 11(8), Article e0159915.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York, NY: The Guilford Press.
- Hosany, S., Prayag, G., Van Der Veen, R., Huang, S., & Deesilatham, S. (2017). Mediating effects of place attachment and satisfaction on the relationship between tourists' emotions and intention to recommend. *Journal of Travel Research*, 56(8), 1079–1093.
- Hsee, C. K., Yang, Y., Zheng, X., & Wang, H. (2015). Lay rationalism: Individual differences in using reason versus feelings to guide decisions. *Journal of Marketing Research*, 52(1), 134–146.
- Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research*, 21(2), 155–172.
- Io, H. N., & Lee, C. B. (2020). Social media comments about hotel robots. *Journal of China Tourism Research*, 16(4), 606–625.
- Ivanov, S. H., & Webster, C. (2017). Adoption of robots, artificial intelligence and service automation by travel, tourism and hospitality companies—a cost-benefit analysis. *Artificial intelligence and service automation by travel, tourism and hospitality companies—A cost-benefit analysis*.
- Javelosa, June (2017). "Major firm announces it's replacing its employees with A.I." Futurism, March 30 (accessed May 29, 2021), available at <https://futurism.com/major-firm-announces-its-replacing-its-employees-with-a-i>.
- Jörling, M., Böhm, R., & Paluch, S. (2019). Service robots: Drivers of perceived responsibility for service outcomes. *Journal of Service Research*, 22(4), 404–420.
- Joseph, S., Linley, P. A., Harwood, J., Lewis, C. A., & McCollam, P. (2004). Rapid assessment of well-being: The short depression-happiness scale (SDHS). *Psychology and Psychotherapy: Theory, Research and Practice*, 77(4), 463–478.
- Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, 25(6), 881–919.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2013). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129, 339–375.
- Jost, J. T., Ledgerwood, A., & Hardin, C. D. (2008). Shared reality, system justification, and the relational basis of ideological beliefs. *Social and Personality Psychology Compass*, 2(1), 171–186.
- Kim, E. J., & Pomirleanu, N. (2021). Effective redesign strategies for tourism management in a crisis context: A theory-in-use approach. *Tourism Management*, 87, Article 104359.
- Kim, J., Cui, Y., Jang, S., Spence, M. T., & Park, J. (2019). Response to regarding mediation analysis revisited. *Australasian Marketing Journal*, 27(2), 126–128.
- Kim, S., Kim, J., Badu-Baiden, F., Giroux, M., & Choi, Y. (2021). Preference for robot service or human service in hotels? Impacts of the COVID-19 pandemic. *International Journal of Hospitality Management*, 93, Article 102795.

- Kirillova, K., Wang, D., Fu, X., & Lehto, X. (2020). Beyond "culture": A comparative study of forces structuring tourism consumption. *Annals of Tourism Research*, 83, Article 102941.
- Krosch, A. R., Berntsen, L., Amodio, D. M., Jost, J. T., & Van Bavel, J. J. (2013). On the ideology of hypodescent: Political conservatism predicts categorization of racially ambiguous faces as Black. *Journal of Experimental Social Psychology*, 49(6), 1196–1203.
- Kuncel, N. R., Klieger, D. M., Connelly, B. S., & Ones, D. S. (2013). Mechanical versus clinical data combination in selection and admissions decisions: A meta-analysis. *Journal of Applied Psychology*, 98(6), 1060–1072.
- Lee, J. S., Kim, J., Hwang, J., & Cui, Y. G. (2021). Does love become hate or forgiveness after a double deviation? The case of hotel loyalty program members. *Tourism Management*, 84, Article 104279.
- Li, X., Barone, M. J., Jain, S. P., & Kwon, M. (2021). The challenge of being a challenger: Social dominance orientation shapes impact of "challenger vs. leader" comparisons. *Journal of Tourist Psychology*, 31(1), 55–71.
- Loehr, J., & Becken, S. (2021). The tourism climate change knowledge system. *Annals of Tourism Research*, 86, Article 103073.
- Logg, J. M., Minson, J. A., & Moore, D. A. (2019). Algorithm appreciation: People prefer algorithmic to human judgment. *Organizational Behavior and Human Decision Processes*, 151, 90–103.
- Longoni, C., Bonezzi, A., & Morewedge, C. K. (2019). Resistance to medical artificial intelligence. *Journal of Tourist Research*, 46(4), 629–650.
- Longoni, C., & Cian, L. (2022). Artificial intelligence in utilitarian vs. hedonic contexts: The "Word-of-Machine" effect. *Journal of Marketing*, 86(1), 91–108. <https://doi.org/10.1177/0022242920957347>.
- Lu, V. N., Wirtz, J., Kunz, W. H., Paluch, S., Gruber, T., Martins, A., & Patterson, P. G. (2020). Service robots, customers and service employees: What can we learn from the academic literature and where are the gaps? *Journal of Service Theory and Practice*, 30(3), 361–391.
- Lv, X., Liu, Y., Luo, J., Liu, Y., & Li, C. (2021). Does a cute artificial intelligence assistant soften the blow? The impact of cuteness on customer tolerance of assistant service failure. *Annals of Tourism Research*, 87, Article 103114.
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46(2), 137–155.
- Mende, M., Scott, M. L., van Doorn, J., Grewal, D., & Shanks, I. (2019). Service robots rising: How humanoid robots influence service experiences and elicit compensatory tourist responses. *Journal of Marketing Research*, 56(4), 535–556.
- Mogaji, E., Soetan, T. O., & Kieu, T. A. (2021). The implications of artificial intelligence on the digital marketing of financial services to vulnerable tourists. *Australasian Marketing Journal*, 29(3), 235–242. <https://doi.org/10.1016/j.ausmj.2020.05.003>.
- Mühlhoff, R. (2015). Affective resonance and social interaction. *Phenomenology and the Cognitive Sciences*, 14(4), 1001–1019.
- Mummolo, J., & Peterson, E. (2019). Demand effects in survey experiments: An empirical assessment. *American Political Science Review*, 113(2), 517–529.
- Ozili, P. K., & Arun, T. (2020). *Spillover of COVID-19: Impact on the global economy*. (Available at SSRN 3562570).
- Parasuraman, A. (2000). Technology readiness index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, 2(4), 307–320.
- Park, S. (2020). Multifaceted trust in tourism service robots. *Annals of Tourism Research*, 81, 1–12.
- Pezzo, M. V., & Beckstead, J. W. (2020). Patients prefer artificial intelligence to a human provider, provided the AI is better than the human: A commentary on Longoni, Bonezzi and Morewedge (2019). *Judgment and Decision Making*, 15(3), 443–445.
- Pitardi, V., Wirtz, J., Paluch, S., & Kunz, W. (2022). Service robots, agency, and embarrassing service encounters. *Journal of Service Management*, 33(2), 389–414.
- Qiu, H., Li, M., Shu, B., & Bai, B. (2020). Enhancing hospitality experience with service robots: The mediating role of rapport building. *Journal of Hospitality Marketing & Management*, 29(3), 247–268.
- Shi, S., Gong, Y., & Gursoy, D. (2021). Antecedents of trust and adoption intention toward artificially intelligent recommendation systems in travel planning: A heuristic-systematic model. *Journal of Travel Research*, 60(8), 1714–1734. <https://doi.org/10.1177/0047287520966395>.
- Shin, H., & Kang, J. (2020). Reducing perceived health risk to attract hotel tourists in the COVID-19 pandemic era: Focused on technology innovation for social distancing and cleanliness. *International Journal of Hospitality Management*, 91, Article 102664.
- Shin, H. H., & Jeong, M. (2020). Guests' perceptions of robot concierge and their adoption intentions. *International Journal of Contemporary Hospitality Management*, 32(8), 2613–2633. <https://doi.org/10.1108/IJCHM-09-2019-0798>.
- Spiller, S. A., Fitzsimons, G. J., Lynch Jr, J. G., & McClelland, G. H. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research*, 50(2), 277–288.
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296.
- Trivasse, H., Webb, T. L., & Waller, G. (2020). A meta-analysis of the effects of training clinicians in exposure therapy on knowledge, attitudes, intentions, and behavior. *Clinical Psychology Review*, 80. <https://doi.org/10.1016/j.cpr.2020.101887>.
- Tussyadiah, I. (2020). A review of research into automation in tourism: Launching the annals of tourism research curated collection on artificial intelligence and robotics in tourism. *Annals of Tourism Research*, 81, Article 102883.
- Tussyadiah, I. P., & Park, S. (2018). Tourist evaluation of hotel service robots. In B. Stangl, & J. Pesonen (Eds.), *Information and communication Technologies in Tourism* (pp. 308–320). Cham: Springer.
- Tussyadiah, I. P., Zach, F. J., & Wang, J. (2020). Do travelers trust intelligent service robots? *Annals of Tourism Research*, 81, Article 102886.
- Van Esch, P., Cui, Y., & Jain, S. P. (2021a). COVID-19 charity advertising: Identifiable victim message framing, self-construal, and donation intent. *Journal of Advertising*, 50(3), 290–298.
- Van Esch, P., Cui, Y. G., & Jain, S. P. (2021b). The effect of political ideology and message frame on donation intent during the COVID-19 pandemic. *Journal of Business Research*, 125, 201–213.
- Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2018). Brave new world: Service robots in the frontline. *Journal of Service Management*, 29(5), 907–931.
- Xiong, X., Wong, I. A., & Yang, F. X. (2021). Are we behaviorally immune to COVID-19 through robots? *Annals of Tourism Research*, 91, Article 103312.
- Xu, Y., Shieh, C., van Esch, P., & Ling, I.-L. (2020). AI tourist service: Task complexity, problem-solving ability, and usage intention. *Australasian Marketing Journal*, 28(4), 189–199.
- Yam, K. C., Bigman, Y. E., Tang, P. M., Ilies, R., De Cremer, D., Soh, H., & Gray, K. (2020). Robots at work: People prefer—And forgive—Service robots with perceived feelings. *Journal of Applied Psychology*, 1, 1–16.
- Yu, G., & Schwartz, Z. (2006). Forecasting short time-series tourism demand with artificial intelligence models. *Journal of Travel Research*, 45(2), 194–203.
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60, 31–46.