

Navigating the personalization-privacy paradox: a study on consumer adoption of chatbots.

Abstract:

Large language models appear to be the next milestone for empowering marketing relationships with consumers through artificial intelligence. In this study, we draw on the privacy calculus theory to investigate how individuals evaluate the benefits and costs of sharing personal information in exchange for personalized recommendations. Our research aims to answer the following research question: how do perceived well-being, self-disclosure, trust beliefs, risk beliefs, and personalization value influence intention to use a chatbot, and what role does consumer privacy control play in this context? Our between subject experiment (N = 151) demonstrate that subjective well-being and trust have a positive influence on the intention to use a chatbot. However, contrary to our expectations, self-disclosure has a negative impact on the intention to use the chatbot. We also highlight the importance of service personalization. Finally, the consumer privacy control, our manipulation, has no significant effect on either personalization value or risk beliefs.

Social presence; Digital assistant; Artificial intelligence; Intimacy; Smart home.

Statement of Key Contributions:

Large language models, through their capacity to engage in conversation with consumers, provide new access to private information through dialogue. This capacity leads us to explore its implications for the personalization-privacy paradox, when consumers exchange personalization of services in exchange for their data. We thus contribute to the privacy calculus theory and we hope to enhance the comprehension of the personalization-privacy paradox. This study explores the dynamics between consumer privacy concerns and the perceived value of personalization in the context of chatbot interactions, contributing to the understanding of the personalization-privacy paradox. By applying the privacy calculus theory to chatbot interactions, this research provides empirical evidence on how consumers weigh the benefits of personalized services against the costs of privacy risks. This contributes to a deeper understanding of the decision-making process involved in sharing personal information with AI-driven services. The study highlights the significant positive influence of subjective well-being and trust in the intention to use such chatbots. Contrary to prevalent beliefs, the research finds that self-disclosure is negatively associated with the intention to use a chatbot. The research confirms the critical role of perceived personalization value in encouraging both self-disclosure and enhancing subjective well-being. The study reveals that providing users with control over their data privacy does not significantly influence their perceived personalization value or privacy risk beliefs. This suggests that mere control mechanisms might be insufficient to address privacy concerns, pointing towards the need for new and meaningful engagement strategies. By offering these insights, the study advances the discourse on the personalization-privacy paradox, providing valuable implications for both theory and practice. It suggests that future strategies should focus less on control mechanisms and more on building trust and delivering genuine value through personalization, to reconcile consumer privacy concerns with the benefits of personalized chatbot services.

INTRODUCTION

The impressive success of ChatGPT, which reached 100 million users in just two months, suggests a massive adoption of chatbots in the future, as well as an increasing use by consumers for a variety of services. This trend raises crucial questions about the privacy and control of personal data. In this paper, we explore how consumer perceived relational artificial intelligence, and how they accept to exchange private information in exchange of personalization during interaction. Our paper is structured as follows: we propose a concise literature review and hypothesis development, then present the design of our methodology, analyze and discuss the results, and finally present our implications and contributions.

BACKGROUND

Privacy Calculus Theory

In this research, we focus on privacy calculus theory, where individuals weigh benefits and costs when sharing personal information online to access personalized recommendations (Chellappa & Sin, 2005; Trepte et al., 2020). This theory is often used to better understand the personalization–privacy paradox (Aguirre et al., 2015; Awad & Krishnan, 2006; Davenport et al., 2020; Karwatzki et al., 2017). The personalization-privacy paradox suggests that consumers value personalized services, yet the data required for this personalization raises privacy issues, which in turn makes them more susceptible to restricting the sharing of information, and therefore the resulting personalization (Cloarec, 2020).

Intention to Use

Intention to use is defined as an individual's subjective inclination or readiness to adopt and utilize a particular technology, system, or service (Davis, 1989; Venkatesh et al., 2003). It represents the individual's subjective likelihood of engaging in the intended behavior, which may involve purchasing, employing, or actively using the technology, system, or service in question (Davis, 1989). This construct is considered a crucial determinant of actual technology adoption and usage behavior, serving as a predictor of future actions (Venkatesh et al., 2003).

Well-being

Subjective well-being is defined as the degree to which consumers perceive experiences in positive ways through cognitive judgments and affective reactions, without objective facts (Diener, 1984). Utilitarian value is not sufficient to explain consumer attitudes that affect technology use (Chitturi et al., 2008; Hsee et al., 2009), and consumer subjective well-being is subject to growing attention in academia and marketing research (Meyer-Waarden & Cloarec, 2021). Subjective well-being shapes customers' technology preferences and usage patterns (Diener & Chan, 2011). When consumers consider that interacting with a chatbot promotes their well-being, we expect their intention to use the service to increase.

H1: Subjective well-being is positively associated with intention to use.

Self-disclosure

Self-disclosure refers to the voluntary sharing or revealing of personal information, thoughts, emotions, or experiences by an individual (Melumad & Meyer, 2020). As Wheelless and Grotz (1977) stated, “a self-disclosure is any message about the self that a person communicates to another” (p. 338). It involves the intentional communication of personal details about oneself to others, either directly or indirectly. Previous study suggests a relation between self-disclosure and intention to use a technology (Lowry et al., 2011) but it remains poorly investigated. We expect that consumers with higher self-disclosure when communicating with a chatbot will exhibit a higher intention to use the service.

H2: Consumer self-disclosure is positively associated with intention to use.

Trust Beliefs

Trust is the perception of a target's competence, which refers to their credibility, as well as their benevolence (Wirtz et al., 2018). Consumer trust, a crucial element of shaping perceptions, can be defined as the accumulation of beliefs regarding the service provider's integrity, benevolence, and ability to safeguard the consumer's interests (Vimalkumar et al., 2021). According to literature, trust beliefs, especially when it comes to privacy, is positively associated with self-disclosure (Tran et al., 2022; Mutimukwe et al., 2020; Joinson et al., 2010). The literature also shows that consumers must have trust in technology to be willing to use it (Arfi et al., 2021; Lee & Choi, 2017).

H3: Trust beliefs is positively associated with intention to use.

H4: Trust beliefs is positively associated with self-disclosure.

Risk Beliefs

The term of risk is subjective and can be understood as the likelihood of experiencing a loss (Vimalkumar et al., 2021). Privacy risk, in this context, refers to the extent to which consumers associate potential disclosure of personal information with loss (Malhotra et al., 2004). The literature considers privacy risk as a one-dimensional concept that represents the loss of control over personal data (Smith et al., 2011). Research indicates that when consumers perceive privacy risk, especially concerning the secondary use of their information, their trust decreases (Martin, 2018; Vimalkumar et al., 2021).

H5: Risk beliefs is negatively associated with trust beliefs.

Personalization Value

Personalization refers to the proactive capability to adapt products and the process of purchasing those products to suit the individual tastes of customers, drawing from their personal and preference-related information (Chellappa & Sin, 2005). The effectiveness of personalization depends on two aspects: firstly, the capacity of service providers (chatbots) to collect and analyze consumer data, and secondly, the willingness of consumers to share information and engage with personalized services (Chellappa & Sin, 2005). By using personalized technology, consumers expect to receive time-saving, convenience, accurate recommendations, and personalized experiences that align with their preferences and needs (Zhu et al., 2021). Personalized services can thus increase consumer SWB (Meyer-Waarden &

Cloarec, 2021). Furthermore, chatbots, thanks to their personalized communication capabilities, encourages self-disclosure (Lowry et al., 2011; Zeng et al., 2021)

H6: The value of personalization is positively associated with well-being.

H7: The value of personalization is positively associated with self-disclosure.

Control

For the consumer experience of AI-driven chatbots, one crucial aspect is data collection. This process involves gathering information to improve products and services. However, consumers encounter concerns about their privacy due to the data collection concerns. These worries arise because consumers are unaware of how their data is being used and can feel exploited by the information-gathering process (Cukier, 2021). Research indicates that this diminishes individuals' perceived capacity to control their personal data and heightens their perception of privacy risk.(Koohikamali et al., 2017; Chen, 2013; Bansal et al., 2010; Mutimukwe et al., 2020). By empowering consumers to control the information they disclose, we expect to reduce privacy risk beliefs and promote the perceived value of personalization.

H8: A high (vs low) privacy control positively affects value of personalization.

H9: A high (vs low) privacy control negatively affects risk beliefs.

METHODOLOGY

We conducted a 2 (privacy control is low vs high) between-subject experiment. Participants were shown a scenario in which a consumer obtains travel recommendations for a one-day trip to Munich from a chatbot. As the chatbot uses the consumer's personal data, it first asks him to manage his data preferences by reviewing chatbot policy terms. To manipulate the privacy control, respondents were asked to indicate their data collection preference, using the chatbot requires choosing between "subscribe for €20 monthly fee" and "accept all" in the "weak" condition, and using the chatbot requires choosing between "reject all", "manage settings" and "accept all" in the "strong" condition. We then ask participants to rate the consumer privacy control when using the chatbot from a scale between 1 (strongly disagree) to 7 (strongly agree) adapted from Malhotra et al. (2004). A T-test shows a significant difference in means according to the condition (MLow = 5.74, MHigh = 6.06, $p < .05$). We finally use well-known Likert scales, namely: value of personalization (Chellappa & Sin, 2005), risk and trust beliefs (Hong & Thong, 2013), self-disclosure (Liu et al., 2016), well-being (Meyer-Waarden & Cloarec, 2021), and behavioral intention (Venkatesh et al., 2012). The survey is done online in France (N = 151). The convenience sample is composed of 60.9% women, 32.5% full-time employed, and 35.1% students, with 64.2% of respondents aged between 18 and 24 and 20.5% between 25 and 34. The measurement model achieves satisfactory fit (RMSEA < .08, CFI, TLI > .90) with good reliability (Cronbach $\alpha > .70$), convergent (> .50) and discriminant validity (< .85, Henseler et al., 2015).

RESULTS AND DISCUSSION

The structural model explains 37.4% of the variance of the intention to use. Well-being significantly increases the intention to use the chatbot ($\beta = .55$, $p < .001$). H1 is supported. Self-disclosure significantly decreases the intention to use the chatbot ($\beta = -.13$, $p < .05$). H2 is not

supported. Trust beliefs significantly increases the intention to use the chatbot ($\beta = .11, p < .05$). H3 is supported. Trust beliefs significantly increases self-disclosure ($\beta = .25, p < .001$). H4 is supported. Risk beliefs significantly decreases trust beliefs ($\beta = -.31, p < .01$). H5 is supported. The value of personalization significantly increases well-being ($\beta = .15, p < .05$). H6 is supported. The value of personalization significantly increases self-disclosure ($\beta = .50, p < .001$). H7 is supported. A high (vs low) privacy control does not significantly increase value of personalization ($p > .05$). H8 is not supported. A high (vs low) privacy control does not significantly decrease risk beliefs ($p > .05$). H9 is not supported. Our results confirm the importance of trust and subjective well-being when considering to use a chatbot-based services. However, our results show that in this context, a high desire for self-disclosure is negatively associated with the adoption of the chatbot, which is, interestingly, contradictory to the literature. We then show that the value of personalization favors self-disclosure and well-being, demonstrating its importance for consumers. Finally, our results suggest that consumer empowerment through the capacity to control the data shared has no impact on the consumer experience.

CONCLUSIONS AND IMPLICATIONS FOR THEORY AND PRACTICE

Our study highlights how important well-being and trust are when it comes to adopting services based on consumer data. The role of self-disclosure, which underpins the adoption of chatbots, deserves further investigation, in order to better understand the psychological mechanism of value destruction. We finally suggest that managers' attention should not be focused on giving consumers control over their data, but rather on the value of the subsequent personalization, thereby contributing to a deeper understanding of the personalization-privacy paradox. Of course, these findings need to be replicated with a larger, most representative sample, and using different methodologies, preferably longitudinal and with actual behavior, since the literature has already demonstrated a dissonance between consumers' declarations and their actual behavior when sharing personal information.

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