

We Are in An Exchange Relationship: The Effect of Empathetic AI on the Engagement with Consumers

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Abstract

Our research investigates user responses to empathetic AI over time, highlighting differences across communal and exchange relationship norms. Initially, individuals exhibit positive reactions to empathetic AI, consistent with prior studies. However, in communal relationships, where emotional depth and authenticity are emphasized in the long run, positive responses diminish over time due to the AI's limited modalities, which weaken social presence. In exchange relationships, characterized by transactional dynamics, positive responses persist longer, with a more gradual decline. These findings, derived from sentiment analysis, reveal the dual nature of empathetic AI: while it fosters strong initial connections, sustaining these responses depends on relational contexts. This research has significant implications for industries including retail, service, and health, where empathetic AI is increasingly integrated. This research suggests that practitioners should address challenges of authenticity and longevity in communal contexts to enhance user engagement. Our study contributes to understanding the evolving dynamics of human-AI interactions, emphasizing the importance of tailored AI design for long-term success.

Keywords: *Generative AI, empathetic AI, modalities*

Track: *Digital marketing & social media*

1. Introduction

Empathetic artificial intelligence (AI) is gaining increasing attention in marketing practices, extending beyond emotional interactions in customer care to fostering and strengthening relationships between humans and AI, thereby helping to reduce loneliness (De Freitas, Uguralp, Uguralp, and Stefano 2024; Huang and Rust 2024). Leveraging machine learning technologies, generative AI algorithms are capable of recognizing human emotions and are commercially designed to serve as companions for humans (Elyoseph, Hadar-Shoval, Asraf, and Lvovsky 2023). Empathetic AI, the capability of generative AI to recognize, understand, and mimic individuals' thoughts and emotions to deliver appropriate responses, is considered essential for bridging the human-AI gap in customer experience (Liu-Thompkins et al. 2022).

Empathetic AI has been a subject of research for over two decades, beginning with affective computing (Bickmore and Picard 2005). Whether it adopts a fixed emotional architecture based on theories and models of biological systems or a program designed to mimic the human brain and adapt through reinforced learning, extant research consistently shows that AI trained to understand and express human emotions tends to receive positive responses from consumers (see Table 1). Furthermore, a growing body of research highlights that, due to remarkable technological advancements, generative AI exhibit emotional awareness on par with, or even exceeding, human levels (Elyoseph et al. 2023). Given this level of mimicking, the studies highlight positive consumer responses to empathetic AI, such as reduced loneliness, increased customer satisfaction, and overall positive engagement (Elyoseph et al. 2023; Huang and Rust 2024; Juquelier, Poncin, and Hazez 2025). At the same time, the rise of empathetic AI introduces a novel dilemma from the consumer's perspective:

- Should consumers rely more on humans or AI for emotionally-driven interactions?
- Over time, how does this consumer reaction change?

Our research suggests why and how consumers engage with empathetic AI, and the practical interventions that marketers can use to increase consumers' engagement with empathetic AI in the long-term perspective.

Empathy has traditionally been regarded as a domain where humans excel compared to AI (Robinson et al. 2020). However, prompt-response design and pretraining on human-generated data have enabled generative AI to engage and communicate effectively with humans, even in areas such as friendship and romance (De Freitas et al. 2024). Furthermore, social signals, such as empathy, affect responses toward technologies, as explained by the Computers are Social Actors (CASA) paradigm (Lombard & Xu, 2021). Specifically, informal and warm language styles (e.g., encouraging and friendly) have been shown to exert greater influence on perceptions of technology compared to formal and cold language styles (Sah & Peng, 2015). Given that interactions are fundamentally social and emotional, empathetic AI can serve as the impactful communication devices (Yu, Berg, & Zlatev, 2021).

In sum, we propose that consumers exhibit a positive response to empathetic AI in the initial stage, however, over time, it is expected to reveal that positive responses decrease in communal relationships. Compared to communal relationships, in exchange relationships, positive responses to empathetic AI last longer, and the velocity and extent of decline of positive responses are slower and less significant. Our results show that individuals' positive interactions with empathetic AI in an exchange relationship persist relatively longer but do not extend to communal relationships.

Table 1. Synthesis of previous research on empathetic AI.

Authors	Theory	Context	Relationship	Time frame	Outcomes
Fan et al. (2023)	Expectation confirmation theory	Chatbot / hospitality	Exchange	Short term	Customer retention
Freitas et al (2024)	N/A	Chatbot / retail	Communal	Short term and 7-day period	Loneliness
Huang and Rust (2024)	N/A	Chatbot / retail	Exchange	Short term	Emotional connection
Li, Chan, and Kim (2019)	Social factors	Chatbot / retail	Exchange	Short term	Behavioral intentions
Liu & Sundar (2018)	CASA	Chatbot / healthcare	Exchange	Short term	Overall evaluation, uncanniness
Liu-Thompkins et al. (2022)	Customer experience	Chatbot / retail	Exchange	Short term	Customer experience
Lv et al. (2022)	CASA	Chatbot / airline, entertainment, hospitality	Exchange	Short term	Usage intention

Markovitch et al. (2024)	Attribution theory	Chatbot / retail	Exchange	Short term	Customer satisfaction
Juquelier et al. (2025)	Social presence theory	Chatbot / hospitality, insurance, retail	Exchange	Short term	Customer satisfaction
<i>This study</i>	CASA	<i>Chatbot & synthetic expert / retail</i>	<i>Communal & exchange</i>	<i>Short- and long terms</i>	<i>Emotion detection (positive, neutral, or negative), behavioral pattern (length of the usage) & satisfaction</i>

Given the rapid rise in the integration of generative AI as an entertaining and effective tool, along with the growing academic interest in this area, our research on the long-term impact of empathetic AI within relationship norms represents a timely endeavor. Moreover, by conducting sentiment analysis on user text, we ensured that respondents were free from the social desirability bias or novelty effect they might commonly exhibit. Additionally, we incorporated a survey to robustly validate our findings. It aims to enhance understanding of human-AI interactions and provide insights into effectively leveraging generative AI, offering valuable opportunities for firms.

2. Research Method

Firstly, we created a website that incorporated the OpenAI Application Programming Interface (API) to provide answers to respondents based on ChatGPT-4. Then, we manipulated empathetic AI and neutral AI by embedding specific syntax. The empathetic AI manipulation was examined through a post-hoc analysis with participants recruited via Prolific. To track individual users over time, we implemented a login function on our website to recognize each user during long-term interactions. This panel data was collected in collaboration with a research firm. Each respondent was randomly assigned to one of the conditions in a 2 (relationship norms: exchange vs. communal) \times 2 (empathetic AI vs. neutral AI) between subject design. The initial number of participants was 329 ($M_{age} = 38.22$, 53% male), and the experiment is conducted over three months, from January to April 2025. We encouraged respondents to use the site at least once a week either a specific context (e.g., work-related tasks that can be coined as exchange relationship) or a daily-life context (e.g., deciding on a lunch menu that can be categorized as communal relationship). As dependent

variables, we measure emotion detection, including positive, neutral, or negative, behavioral pattern (i.e.,g length of the usage), and customer satisfaction.

3. Summary of Findings

Our results indicate that individuals exhibit a positive response to empathetic AI in the initial stage regardless of the relationship norms that is aligned with previous studies. However, over time, it is expected to reveal that positive responses decrease in communal relationships. In exchange relationships, compared to communal relationships, positive responses to empathetic AI persist for a longer duration, while the shift toward negative responses occurs more gradually and to a lesser degree. Individuals may infer greater warmth from empathetic AI that incurs higher positive responses from the users on both types of relationship norms (Aggarwal 2004). Over time, individuals exhibit lowered positive responses to empathetic AI which is contingent on communal relationship as the application of limited modalities ultimately has the effect of diminishing people's sense of social presence and authenticity.

4. Implications

A significant body of research argues that empathetic AI elicits positive responses from individuals. However, to the best of our knowledge, our studies are the first to rigorously and causally evaluate whether this is the case. Through sentiment analysis, we find that individuals initially respond positively to empathetic AI, aligning with previous research. However, this tendency changes over time. Our findings are relevant not only to the field of AI but also to the retail and mental health industries, which increasingly incorporate AI into their operations. Importantly, the results highlight the benefits of building emotional connections with authenticity between AI and users, demonstrating that empathetic AI generates significant positive reactions from consumers, even though these positive effects diminish over time.

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