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# Enhancing Customer Engagement Through Artificial Intelligence Authenticity

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## ABSTRACT

Given the limited research on the factors and mechanisms underlying artificial intelligence (AI) authenticity, we examine its use in fostering breakthrough knowledge and enhancing customer engagement. We devised a robust model grounded in mind perception and social exchange theories, with a focus on the outcomes of AI authenticity. Tested across 452 virtual health home stations, the findings reveal that both performance expectation and effort expectation serve as mediators between AI authenticity and customer engagement. This research provides managers with comprehensive insights into the defining attributes and operational mechanics of AI authenticity, thereby highlighting its critical importance in boosting customer engagement.

## 1 | Introduction

The interplay between customers and technologies has undergone a profound metamorphosis in recent years (Noble and Mende 2023; Olabode et al. 2022). At the heart of this transformation is artificial intelligence (AI), which has the potential to reshape customer engagement with firms (Davenport et al. 2020). The influence of AI on the customer sphere has been profound across industries and particularly in healthcare (Longoni et al. 2019; Panch and Bhojwani 2021). AI could unlock a proportion of the unrealized $1 trillion improvement potential in the health sector and foster a two-to-three times boost in healthcare customer engagement (McKinsey 2024a).

Global healthcare systems are increasingly strained by rising operational costs, staff shortages, and low adherence to medical treatment. These issues lead to delays, re-hospitalizations, and poor care delivery, creating huge system inefficiencies (McKinsey 2023). AI-driven service technologies are a critical remedy for these pressures by enabling scalable, automated, and continuous care (McKinsey 2024a). The stakes are high for customers too, as their personal health outcomes are affected. Indeed, AI's success depends not just on technical performance but on how customers perceive, trust, and interact with it. This study proposes that the authenticity of AI, its perceived human-aligned, trustworthy behavior, is central to building customer engagement in healthcare. We directly address the societal challenge of AI adoption in high-stakes environments.

AI refers to the capability of machines to think and execute tasks that mimic human behavior patterns (Gama and Magistretti 2025). Despite increasing sophistication, AI does not necessarily elicit the same engagement as human providers (Kozinets and Gretzel 2021). Prior research has shown that human-like AI can trigger the 'uncanny valley' effect, creating tension by making users feel uneasy or leading them to perceive the AI as inauthentic (Gutuleac et al. 2024). AI authenticity captures how AI manifests human-centric attributes while

**Summary**

- Our study shows that designing authentic AI systems can significantly enhance customer engagement by building trust, raising performance expectations, and encouraging users to invest effort, especially in high-stakes sectors like healthcare.
- For managers, this means going beyond efficiency to focus on relationship-building.
- Authentic AI should blend functional traits (accuracy, credibility) with emotional traits (realism, connectedness, social presence, and individuality) to align with evolving customer expectations.
- Managers can achieve this by personalizing interactions based on customer history, enabling AI to recall previous conversations, and adapting tone to emotional cues to create a sense of continuity and care.
- Tailoring which authenticity components to emphasize (e.g., credibility in healthcare, social presence in retail) and ensuring regular audits, updates, and human oversight can improve engagement, build loyalty, and deliver stronger returns on AI investments.

transparently maintaining its artificial identity (Hollebeek et al. 2022, 2024). Authenticity is known to influence engagement in human relationships, but its role in AI-driven interactions remains underexplored. While prior research has examined AI's managerial and societal implications (Iveson et al. 2022), adoption drivers (Wang and Uysal 2024), and personalization (Huang and Rust 2018), the link between AI authenticity and customer engagement remains largely unexamined. We also lack a clear understanding of the characteristics and dimensionality of AI authenticity (see Appendix A in Supporting Information). This lacuna is critical for high-stakes contexts like healthcare, where concerned customers expect authenticity from AI-driven services. Failure to meet these expectations can lead to customers' skepticism about and reduced engagement in AI-based interactions (Wu et al. 2020).

Accordingly, the possibility of differences between AI and human interactions raises concerns about the proficient utilization of AI technologies and achieving authenticity in AI–customer relationships to ensure sustained customer engagement. While comprehension of AI's functionalities is increasing, an understanding of AI authenticity, consequent customer expectations, and eventual engagement metrics remains elusive. Addressing this mechanism is essential to meeting evolving customer expectations. Recent work indicates that customers of all ages are increasingly comfortable with AI health services and that their subsequent engagement may be a fruitful way of easing the burden on healthcare systems (Deloitte 2025; McKinsey 2022b). In this study, we posit that authenticity serves as the pivotal element to narrow the divide between humans and AI, thus ensuring enhanced customer engagement. We build a model to examine how AI authenticity enhances customer engagement through theoretical mechanisms linked to two complementary theories of success in social relationships: the theory of mind perception and social exchange theory. We test our assertions in the health services setting using a survey of users of a particular virtual health home station.

The study makes four main contributions. First, applying qualitative research and drawing from literature spanning authenticity and AI across varied academic terrains, we delineate the foundational principles of AI authenticity to define the construct and develop and validate measures that encapsulate its dimensionality. We reveal that AI authenticity is multidimensional, comprising six distinct but interrelated components. Second, consistent with the theory of mind perception (Byom and Mutlu 2013), we confirm that AI authenticity, as a humanizing factor, affects how AI is evaluated by customers in terms of observed positive relationships with performance and effort expectations. Our results also reveal an interplay with personalization, another humanizing factor (Söderlund 2022). Personalization or the provision of information tailored to the customer (Jeong and Shin 2020), strengthens the bond between AI authenticity and effort expectations, specifically.

Third, in line with social exchange theory (Blau 1986), we observe that both performance and effort expectations for the AI agent enhance customer engagement. The latter finding is a particular point of interest, as it challenges the idea of technological effortlessness being desirable. Instead, customers become more engaged when challenged to learn to use the AI agent (Kraemer et al. 2023). Our findings also indicate that, surprisingly, a customer's speciesism amplifies the positive association between effort expectation and customer engagement. Speciesism refers to biased beliefs, emotions, and behaviors directed toward nonhuman entities, such as AI, due to their perceived inferiority to humans (Caviola et al. 2019; Caviola and Capraro 2020). This form of bias can affect a customer's effortful engagement.

Fourth, in showing how AI authenticity enhances customer engagement in health services, our article addresses the pressing societal challenge of healthcare resource constraints (McKinsey 2024). By fostering customer engagement within AI-assisted systems, the health sector can reduce the customer load for human providers and increase operational efficiency. Meanwhile, customers would benefit from a more accessible and engaging health service. An authentic AI system can tailor its responses based on patients' history, preferences, and real-time behaviors (Wang and Siau 2019). Our tool for understanding and gauging AI authenticity should prove beneficial for industry professionals interested in ensuring that economically efficient AI systems not only meet user needs but also evolve based on customer interactions and feedback (Huang and Rust 2021, 2022).

## 2 | Literature Review on Authenticity

The concept of perceived authenticity has received significant attention in recent years in the contexts of advertising and branding (Becker et al. 2019) and technology (Alimamy and Nadeem 2022). This work contributes to a broader stream of research suggesting that the dynamics between humans and nonhuman entities (e.g., brands and technology) are complex

and multidisciplinary (Aggarwal and McGill 2007). Although authenticity encompasses multifaceted interpretations (Södergren 2021), some of its components are similar across different studies and fields. Indeed, authenticity is often associated with the concept of 'true' or its derivatives (Napoli et al. 2014).

In a branding context, authenticity refers to the perception of genuineness, realness, and truthfulness that customers attribute to a brand or its offerings (Beverland and Farrelly 2010). Authentic brands can foster deep emotional customer connections (Morhart et al. 2015). However, when applied to technology, and specifically to AI, authenticity becomes even more complex. Research often links authenticity to anthropomorphism by drawing on AI qualities of having human-like attributes, such as a name (e.g., Siri) or recall of previous dialogues (Fotheringham and Wiles 2023). These elements can be so realistic that customers do not perceive AI as nonhuman, which strengthens the customer–AI relationship (Nishant et al. 2024).

Traditional notions of authenticity emphasize human traits and behaviors, which are inherently challenging to replicate in AI systems. AI authenticity involves not just the perception of realness but also the ability of AI to emulate human-like interactions convincingly. This requires AI to demonstrate attributes such as accuracy (Choudhary et al. 2025), connectedness (Blut et al. 2021), and social presence (Bleier et al. 2019; Noble and Mende 2023)—qualities not typically associated with other technologies. The differentiation of authenticity in AI versus in other technology contexts lies in AI's role in direct human interaction. Unlike traditional technologies, which are tools that assist humans in performing tasks, AI-powered chatbots engage in ongoing dynamic interactions with users. Interactions with customers require AI to continuously learn and adapt, creating an ongoing relationship rather than a one-time use scenario. Therefore, AI authenticity is about how well AI can sustain this relationship by consistently mimicking human traits, understanding user needs, and providing tailored responses (Pantano and Scarpi 2022). Studies have shown that users attribute greater satisfaction and engagement with AI systems that display human-like behaviors and social presence (Blut et al. 2021; Hollebeek et al. 2022). Studies have also highlighted the potential business benefits of AI systems designed to deliver engaging customer experiences (Perez-Vega et al. 2021). Such experiences improve customer perceptions of a system's functionality, fostering greater attention, more interactivity, and a sense of control. Indeed, as customers become more accustomed to digital solutions, it is important that healthcare providers integrate digital tools to enhance the patient experience. Of the customers surveyed in a McKinsey (2024) study, 60% reported greater satisfaction with telehealth services than with in-person visits, suggesting that digital engagement has the potential to boost patient satisfaction and outcomes.

The AI agent's ability to simulate human behaviors authentically via computational algorithms, and without the inherent human ability to feel and understand emotions, sets it apart from other technologies. The challenge lies in creating AI that can convincingly emulate human empathy and responsiveness, which are crucial for user trust and engagement. AI must bridge the gap between mechanical interaction and genuine human-like engagement, making authenticity a unique and critical factor in its success.

The concept of correspondence, which may be used to establish the truthfulness of something, forms the basis of the entity–referent correspondence framework of authenticity. This framework introduces an initial overarching definition of authenticity: the extent to which a component within one's surroundings (e.g., an object or individual) is perceived as being aligned with or matching something else, that is, a referent. Identifying the appropriate referent is critical to conceptualizing AI authenticity. While comparing AI with human agents constitutes one feasible approach, considering AI's unique capabilities and how it performs relative to its potential is a second possibility. Authenticity can involve genuineness or acting in a way that is true to what the entity really is (Morhart et al. 2015). For AI, this means presenting itself as an AI technology tool and delivering in accordance with its unique and superior capabilities (e.g., data processing and 24/7 availability).

Nonetheless, customers commonly perceive technological agents as being calculative, and indeed, mechanical AIs are already widespread in various work domains that require precise category replication. However, customers may not perceive interacting with AI as authentic compared with their interactions with human employees. Authenticity judgments are not based simply on the characteristics of a particular behavior or its outcome; they also stem from stereotypes associated with various agents involved in an interaction (e.g., Newman and Smith 2016). Jago (2019) found that customers perceived algorithms as most authentic when they exhibited characteristics relative to human authenticity. Therefore, to effectively conceptualize AI authenticity, it is important to focus on replicating genuine human interactions with customers. Prioritizing the creation of AI systems that can mimic authentic human behavior is likely to enhance customer engagement.

Sirianni et al. (2013) defined employee authenticity as the extent to which customers perceive the behavior of an employee (entity) as consistent with the brand (referent). Similarly, we affirm that AI authenticity is customers' perceptions of the *degree to which an AI agent (entity) is aligned with human cognitive and emotional authenticity (referent) when interacting with customers*. It should be noted that this construct does not capture the extent to which AI resembles a human but rather the degree to which its behavior is aligned with its stated function and perceived as transparent, credible, and trustworthy, like a human employee's behavior. This is consistent with prior literature, which emphasizes the human as the referent point rather than the object itself. Similar to artificial empathy, which takes human cognitive and affective empathy as its referent point (Liu-Thompkins et al. 2022), our conceptualization of AI authenticity likewise takes the human as its referent.

## 3 | Preliminary Qualitative Study

We conducted a qualitative study to understand the novel core variables (e.g., AI authenticity), formulate a conceptual model grounded in real-world empirical insights, and identify and fine-tune valid measures. In the preliminary study, we followed

a multi-step process involving a targeted literature review, in-depth interviews, thematic analysis, and initial scale testing. We also appraised industry reports (e.g., McKinsey and Forbes). Our review highlighted the absence of established scales for AI authenticity (e.g., relevant for the healthcare setting), supporting the necessity of developing a new scale. To address this and other gaps that emerged during the literature review, we conducted in-depth interviews with 17 managers, 21 employees, and 19 customers.

We selected the respondents based on their professional experience of and/or familiarity with AI systems, imposing a minimum of 2 years' experience in using or managing AI technologies. The respondents were recruited mainly in the United Kingdom (UK) from various industries, including healthcare, finance, retail, and customer service. We reached out to them using social messaging platforms, email, and telephone calls to arrange interviews. The interviews were structured around a discussion guide designed to explore respondents' experiences with and perceptions of AI authenticity. We provide the sampling and interviewing methods, along with information on the development of scales, in Appendix B in Supporting Information.

Our preliminary qualitative study employed the expectations discrepancy approach to furnish valuable insights into AI authenticity and its implications for customer expectations. However, this path shifted when the open-ended discussions expanded beyond our original set of questions. Specifically, we found that the concept of customer engagement was intricately intertwined with AI authenticity and customer expectations. Given the nature of qualitative research, the initial focus of predetermined inquiries can lead to the serendipitous unearthing of unexpected insights.

### 3.1 | Insights Into AI Authenticity

Appendix C in Supporting Information presents excerpts from the interview discussions, providing a glimpse of the rich insights obtained. In the first phase of our discussion guide, we aimed to understand the backdrop for AI authenticity in interviewees' firms. Thus, we invited interviewees to discuss their knowledge of, roles in, and experiences with AI in general. These insights illuminate the efficiency and versatility of AI technologies. For example, one interviewee highlighted AI's role in delivering rapid, data-driven insights. Another focused on AI's capability to emulate human interactions, as exemplified by a chatbot named "Sara." This duality of AI's functionality, as both an operational tool and an interface for customer interaction, was a recurring theme. The discussions revealed the complexities of firms' AI adoption. One interviewee noted that firms often erroneously equate AI-use case selection with experiences in digital programs, leading to unmet expectations. Another elaborated on operational challenges, such as scaling and integration complexities, thus emphasizing the need for realistic expectations in AI deployment. The theme of prioritizing AI authenticity strategically during the development process also resonated frequently. An interviewee specified that trust in AI outputs hinges on the accuracy and representativeness of the service, attributes that pave the way for authenticity in AI-model development. Professionals across various roles provided insights into linking their strategies for AI implementation to authenticity in AI design.

In the second phase of the discussion guide, the focus was squarely on AI authenticity and its importance to marketing and contexts such as healthcare. One interviewee stressed that AI authenticity is a tool to mirror human-like traits. Another commented on AI's potential to operate similarly to a human employee in specific tasks, albeit with the necessary human oversight. Still another interviewee discussed the importance of instilling confidence in the authenticity of AI devices. The collective narrative was that achieving complete authenticity is challenging, but, via rigorous assessment and ongoing refinement, the trustworthiness and validity of AI results can be greatly enhanced. There is a fine balance between the aspirational goals of AI and the pragmatic realities of its implementation. This underscores the crucial role of authenticity in the successful deployment and acceptance of AI systems in business applications.

An interviewee with expertise in voice technology discussed the impact of AI disclosure on brand-voice authenticity. He emphasized the importance of being genuine, consistent, original, and dependable and of maintaining a natural tone. This approach revealed the challenge of making algorithmically generated messages feel as authentic as possible. Another interviewee elaborated on this, stating that, in AI system design, especially for voice technology, a paramount consideration is ensuring that AI-generated voices are accurate and natural. The focus is on maintaining the natural tones, language, and vocal nuances essential for an authentic voice experience.

The discussions were helpful in distinguishing AI authenticity from the related constructs of human likeness and anthropomorphism. Human likeness is the degree to which an AI mimics basic human behavior or appearance (e.g., language style, voice, and physical form) (Blut et al. 2021; Nishant et al. 2024), and anthropomorphism is the attribution of human traits, emotions, or intentions to nonhuman agents (Epley et al. 2007; Uysal et al. 2022). AI authenticity instead emphasizes the alignment between the AI's behavior and its function, its transparency in presenting its identity, and its ability to foster trust (via accuracy, connectedness, realism, etc.).

Interviewees understood that AI authenticity does not simply depend on how human-like the AI appears or its behavioral resemblance to humans; it captures the extent to which AI behaves in a way that is perceived as consistent, honest, and aligned with its purpose, even when users are fully aware that it is a machine. Our interviewees appreciated AI systems that provided reliable and realistic responses without pretending to be human. AI authenticity may include certain human-like elements (e.g., social presence), but it reflects a broader evaluative judgment of trustworthiness, alignment, and coherence, rooted in the AI's unique capabilities and limitations. Further, while anthropomorphism might involve attributing emotions to an AI, authenticity ensures that the AI does not mislead users but instead provides clear, truthful interactions grounded in its actual capabilities. Rather than focusing on humanizing nonhuman entities, authenticity emphasizes

being true to an entity's identity or role, whether or not it mimics human traits. In AI systems, an anthropomorphized system may adopt human traits and features. Yet its authenticity depends on how well it fulfills its intended purpose and meets user expectations.

Finally, empathic AI, or feeling AI, has the capacity to learn and understand human emotions, allowing it to adapt its responses to users' needs (Huang et al. 2019). Unlike AI authenticity, it focuses on the ability to simulate human-like emotional intelligence. Moreover, empathic AI does not involve AI agents' truthful self-disclosure. As one interviewee noted: "Picture implementing an [authentic] AI agent which can explain its limitations and then, based upon learning from user interaction, still provide trustworthy and reliable information." According to another: "AI authenticity means being real and honest in its limitations and capabilities, whereas empathy means understanding user needs and addressing them." Customers of healthcare services know that any warmth they attribute to AI agents is not authentic per se.

### 3.2 | AI Authenticity Components

The emerging respondent narratives support our literature-based assertion that AI authenticity is a multifaceted, higher-order concept. Using the qualitative insights, we identified six components of AI authenticity that capture facets of interaction quality pertaining to AI authenticity. We were able to refine the definition of authenticity and its components in the context of AI.

*Accuracy*, the first component of AI authenticity, captures the extent to which AI systems perform tasks correctly and provide precise and complete information about services, similar to a human employee. Our qualitative study revealed that accuracy and precision in AI–customer interactions are crucial in fostering authenticity in AI systems. One interviewee opined: "Providing precise information can be regarded as the baseline of authentic AI. Without it [accuracy], my customers would not rely on AI and would prefer to deal with a human employee." AI can process vast amounts of data quickly and with precision, often surpassing human capabilities in certain tasks. Another interviewee summed this up as follows: "AI can sometimes offer more valuable insights than human employees, and they're invariably more patient." Nonetheless, in line with our conceptualization of AI authenticity, the AI agent should achieve the accuracy of a conscientious human employee. Informants emphasized that they evaluate accuracy in AI systems in relation to their functional goals. For example, while AI systems often exceed human accuracy in computational tasks, their ability to deliver contextually appropriate responses (e.g., understanding customer queries) requires alignment with human interaction expectations. The referent shifts depending on the task; an AI virtual assistant may be highly accurate in processing data, but if it fails to interpret user queries in a conversational manner, it risks being perceived as inauthentic.

*Connectedness*, the second component, captures the extent to which an AI device can foster an interpersonally close relationship with customers, mirroring human employees. As such, AI authenticity includes the degree to which the system fosters rapport akin to genuine human-to-human contact. Prima facie, actual interpersonal interactions have the edge in relationship building. Yet interviewees ascertained that AI possesses latent advantages. One suggested: "Individuals turn to a therapeutic AI platform for several reasons, such as its convenience, the anonymity it offers, its accessibility, and the belief that interactions are free from judgment. Some might be concerned that this can result in replacing therapists, but this is not likely ... since [AI] cannot replicate the depth of understanding human therapists provide." In sum, AI authenticity involves simulating human interactions and fostering connectedness using AI's inherent strengths.

*Realism*, the third component, refers to the extent to which customers come to regard the AI device as a real, genuine, and lifelike employee. Even when they are aware that they are interacting with a machine, customers tend to embrace AI systems that simulate genuine human qualities. One interviewee revealed that this sense of genuineness even exists from the firm's side: "At our company, we see our AI as one of the teammates who helps out the crew! It brings just as much to the table and complements the team just as well as any other employee." Still, there is a caveat insofar as an AI agent should present itself as an AI and not pretend to be a human. Customers tend to value transparency and be more comfortable with an AI's functions when they know that it is an AI, especially when it leverages its unique strengths.

*Credibility*, the fourth component, captures the extent to which AI is perceived as reliable, dependable, and trustworthy in its actions and information, similar to a human employee. Indeed, our qualitative findings identified credibility as a pivotal aspect of AI authenticity, emphasizing its role in fostering customer trust. Such trust encourages customers to rely on AI-powered services and to view an AI as authoritative, with its insights being reliable and, thus, comparable to those offered by trained human employees.

*Social presence*, the fifth component, captures the extent to which AI conveys a sense of human contact, warmth, and sensitivity, as would a human employee. Our interviewees explained that they felt a palpable social presence when they could not discern the difference between genuine human and digital interactions. This blurring of the lines occurs when an AI agent exhibits warmth, care, friendliness, and other human qualities.

The sixth component, *individualism*, is when the AI device exhibits to customers the traits of originality and uniqueness, similar to those of a human employee. An AI agent can deliver experiences that make interactions feel unique, akin to how human employees show their originality. Customers would no longer perceive AI as a machine but as something that has a personality. An interviewee elaborated on this: "We don't want our AI to be a total robot, you know. We would like our AI tool to have a bit of personality within its pre-defined parameters. This will make it more user-friendly and fun to interact with and can make the whole overall thing more authentic. It's a stepping-stone toward AI doing the tricky stuff but with a pre-defined 'individuality' to navigate those nuances."[1]

Although we used the interviewees' responses to identify and refine the key components of AI authenticity, the initial identification came from our literature review. This iterative process involved using interviews to appraise and adjust scale items (see Appendix B in Supporting Information). Appendix D in Supporting Information presents our literature-based examination of the six distinct components.

### 3.3 | Expectations From AI Use

In the third phase of the discussion guide, we prompted informants to discuss their objectives and the significance of incorporating AI authenticity in their business and consumption endeavors. Two primary expectation-related mechanisms arose: performance and effort. While these elements can operate independently, the interviewees revealed that they function concurrently, as the benefits and costs are not mutually exclusive and can occur together. We also determined that expectations are set depending on customer appraisals of the performance benefits or effort costs, formed when exploring AI devices (Gursoy et al. 2019). Customers who view the AI during service delivery as relevant (e.g., in its authenticity) will deliberately appraise the benefits and costs of using AI to form performance and effort expectations. A focus on past experience also suited our empirical context; patients of our client were already using the health assistant.

Performance expectations are the specific outcomes a customer anticipates from interactions with AI, including its effectiveness and consistency. This aspect influences customer trust and the perceived utility of AI, which are essential for navigating the complexities of AI integration in business. Specifically, patients may expect an AI virtual health home station to accurately assess their symptoms, provide consistent advice across repeated interactions, and effectively guide them on the appropriate next steps. Such expectations are critical for fostering engagement and the successful integration of AI technologies in healthcare delivery (McKinsey 2024).

Effort expectation reflects the customer's anticipation of the effort investments needed to use AI systems rather than the expectation of ease of use (Chi et al. 2022). Unlike the traditional perspective that technology makes processes simpler and effortless, our study highlights that psychological and learning efforts can enhance the efficacy of authenticity by fostering more human-like interactions with AI. Indeed, the UK National Health Service's (NHS 2024) use of Babylon Health's AI triage system shows the patient-perceived costs of AI. This authentic AI chatbot assesses symptoms and gives recommendations for care. However, some patients reported heightened anxiety when receiving alarming assessments, especially when advised to seek urgent care without immediate human reassurance (wired.com 2025). It is challenging for patients who may feel stressed by being monitored by the AI system and overwhelmed by their additional responsibility (Park et al. 2022).

The interviewees confirmed that AI authenticity can increase the effort required from both the AI system and the users. One of the managers interviewed explained: "The high hopes for AI-driven value often encounter practical challenges. This underscores the need for a carefully planned approach to AI authenticity, to effectively navigate these challenges, which requires further effort from customers." AI strives to be user-friendly, but the complexity of delivering authentic interactions may require effort-intensive solutions. If the AI offers authentic interactions, customers are willing to invest effort in recognition of the potential for worthwhile involvement.

Finally, in the fourth phase of the discussion guide, we delved deeper into the relationships between customer expectations and engagement. We also revealed possible moderation links involving personalization and speciesism (see Appendix C in Supporting Information). The development of our model and hypotheses (see Figure 1) was enriched by the qualitative insights.

The fieldwork endorsed our model, which unites the theory of mind perception (Byom and Mutlu 2013) and social exchange theory (Blau 1986). Both theories explain success in social relationships. The theory of mind perception implies that integral to a person's social outcomes is the ability to reason about the thoughts of others to predict behavioral responses (Byom and Mutlu 2013). Individuals attribute mental states to both humans and nonhuman entities (e.g., animals and devices), enabling them to interact with nonhuman entities using the same social norms they apply to humans (Byom and Mutlu 2013; Nass and Moon 2000). The tendency to attribute a mind to nonhuman entities arises from a fundamental human desire to better understand and connect with them (Epley et al. 2007). Attributing minds to and, thus, humanizing AIs can make them seem more predictable (Uysal et al. 2022) and trustworthy in providing accurate, timely, and reliable offerings (Lou et al. 2023). AIs that exhibit qualities like authenticity and empathy are easier to humanize. Nonetheless, mind perception of AI has psychological drawbacks; it can challenge notions of human uniqueness, provoke uncertainty about one's role in a world increasingly shaped by AI, and even spark fears that AI could replace human intelligence (Złotowski et al. 2017).

According to social exchange theory, consumers engage in reciprocal interactions in the expectation of receiving positive outcomes (Gao et al. 2023). When customers interact with an authentic AI, they may begin to perceive it as a social entity and apply the reciprocal expectations they would use in human interactions.[2] This means that relationship development involves not only gaining benefits but also incurring costs, as customers consider performance and effort expectations in the normal process of exchange (Dwyer et al. 1987; Uysal et al. 2022). For example, a patient who perceives the AI health assistant as a social entity may appreciate the increased efficiency and support it provides but may also contemplate its potential to disrupt established service roles or foster increased dependence on technology. Thus, guided by reciprocal exchange in the consumer–agent relationship (Kim, So, and Wirtz 2022; Kim, Kim, et al. 2022), we argue that AI authenticity drives customer expectations, and these, in turn, influence perceived successful engagement.

AI authenticity alone might not be sufficient to establish customer expectations. According to Söderlund (2022), two humanizing characteristics of AI, conscientiousness and personalization, can boost its theory of mind perception-related abilities. While interactions with AI need to be authentic (e.g.,

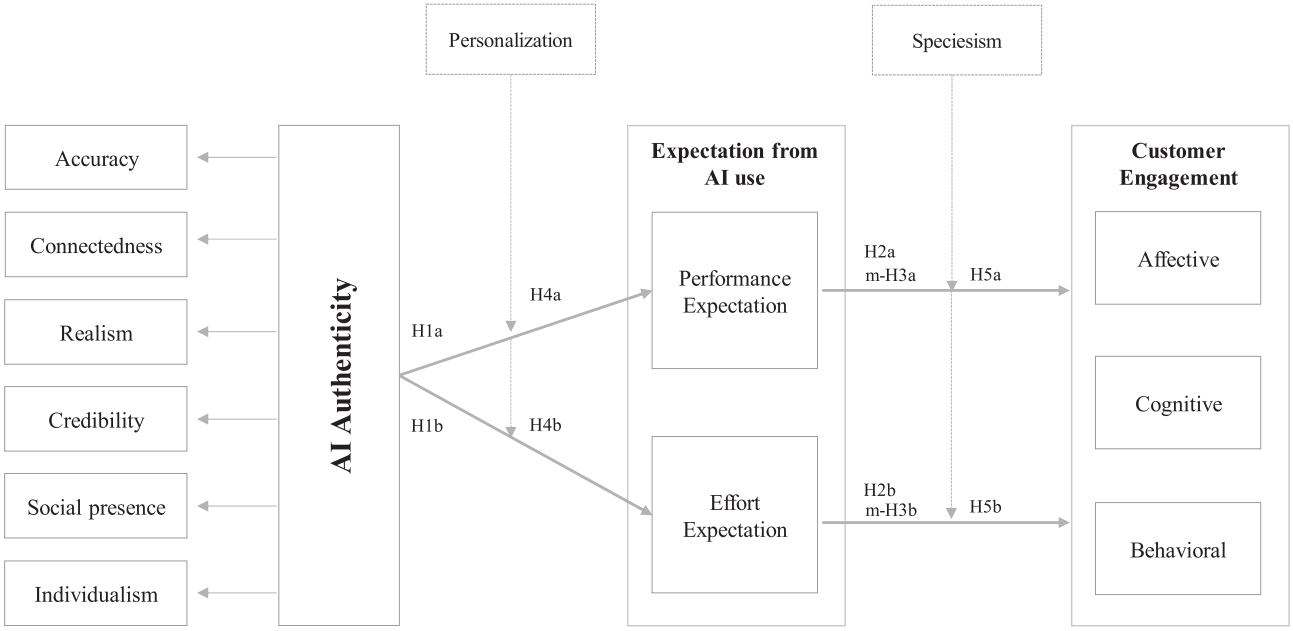


**FIGURE 1** | Conceptual model.

showing connectedness and realism) in the manner of a conscientious human service employee, personalization's provision of information tailored to the customer (Jeong and Shin 2020) is also required to manifest a human's ability to adapt and to satisfy customer needs. Thus, we posit that personalization has a positive moderation effect on the links between AI authenticity and customer expectations.

AI authenticity triggers expectancy responses, guided by human social rules (Uysal et al. 2022), with which to understand AI behavior more easily. The normalcy of increasing benefits and costs in a relationship drives customer engagement. However, social exchange theory maintains that partners face anxiety when building a relationship over time (Obadia and Robson 2021). If AI is indistinguishable from human intelligence and demonstrates authenticity, customers should have no reason to treat AI agents differently from humans. However, technological advancements in AI may provoke anxiety about job displacement and other societal shifts, leading to prejudice against AI (Caviola et al. 2019; Schmitt 2020). Speciesism's belief in human superiority causes discrimination against nonhuman entities, including authentic AI (Frank and Otterbring 2024). While social interactions foster positive connections, speciesism reinforces inequality by promoting biased perceptions of AI. We thus posit that speciesism bias acts as an anxiety trigger, negatively moderating the links between customer expectations and customer engagement.

## 4 | Hypotheses Development

### 4.1 | AI Authenticity and AI Use Expectations

At the heart of authenticity in AI is its capacity to emulate real-life situations, mirroring the routine experience of a customer being served by a human. AI authenticity is adept at mimicking the nuances of expected human interactions (Stanko and Rindfleisch 2023; Valsesia and Diehl 2022). These authenticity attributions often lead customers to interact with AI in a manner similar to their interactions with humans and to expect similar relational dynamics (Schmitt 2020). As such, customers are likely to have high performance expectations, even if the interactions require effort. While mimicking human interactions can enhance user engagement by making AI seem relatable, AI must also be transparent about its identity as a machine. Overemphasis on human qualities is not always beneficial, as it can lead to unrealistic expectations or even skepticism when AI deviates from human norms (Gursoy et al. 2019). Thus, AI authenticity should balance human-like interactions with clear communication about AI's benefits. An interviewee captured the sense of authenticity elevating overall expectations for AI use, "It's like interacting with a knowledgeable and empathetic human colleague. This makes me more inclined to engage with AI systems and, frankly, raises the bar for what I expect from them. I now demand ... human-like interactions."

AI authenticity can enhance performance expectations, not because customers see AI, per se, as superior to humans but because they expect AI to align with established social norms while leveraging its unique strengths (Castelo et al. 2023). Specifically, AI's cultivation of human-centric attributes could engender consumer faith and belief in the exchange process, as if it were being delivered by a well-trained human occupying a similar role (Belk et al. 2022). Moreover, as customers are aware that they are using automated agents, they might expect and experience the advanced 'thinking work' that is part of the forte of sophisticated AI (Jago et al. 2022). Because AI authenticity manifests features such as accuracy and credibility, it propagates consistency in service offerings, thereby heightening customers' perceptions of performance reliability (Schepers et al. 2022). For example, if an AI not only detects early-stage cancer in a lung scan but also demonstrates authenticity (e.g., individualism by using personality to soften explanations of risk factors, or social

presence by explaining findings in a conversational manner), doctors may be more likely to utilize it. In this way, authenticity fosters trust, raising expectations for its accuracy and encouraging AI's deeper integration into diagnostic workflows.

AI authenticity leads to increased psychological efforts to interact with the human-like device and costly learning efforts in using the device (Gursoy et al. 2019). The perceived psychological effort can significantly influence customers' evaluations of the effort required to use AI agents that exhibit authenticity (Chi et al. 2022). However, although advanced technologies embedded in AI aim to streamline interactions, the psychological costs associated with adapting to authentic AI remain significant (Ling et al. 2021). An interviewee stated: "Using AI that tries to be human demands extra mental effort... It forces me to adjust my expectations and responses." Customers who experience psychological discomfort when interacting with human-like robots may even perceive their attributes as disadvantages rather than advantages (Schepers et al. 2022). Customers might also anticipate that social interactions with AI entities demand extra learning effort on their part to comprehend and use authentic features of the technology (e.g., social presence) (Kim and McGill 2018). Indeed, building authentic relationships, with AI or any other actor, requires time and effort to understand the mutual adjustments needed (Dwyer et al. 1987). Thus:

**Hypothesis 1.** *The relationships between* (*a*) *AI authenticity and performance expectation and* (*b*) *AI authenticity and effort expectation are positive.*

### 4.2 | Customer Engagement and the Mediation Role of Expectations

Logic holds that customers' performance and effort expectations drive their engagement. Here, customer engagement is a positive and fulfilling motivational state arising from interactive experiences with AI systems. It involves the investment of affective, cognitive, and behavioral resources in interactions, activities, and relationships with AI systems (Brodie et al. 2011; Hollebeek et al. 2024). AI agents can overcome the performance variability often associated with human service delivery. Indeed, studies have shown that AI can outperform humans across various domains and contexts (Kumar et al. 2019). This beneficial performance consistency can create a strong foundation for trust between customers and firms. As one of the interviewees noted: "I was pleasantly surprised by the AI's consistent performance. It always met my expectations, and that made me more inclined to engage with it." When customers expect and experience consistent high-level performance from AI, they are more likely to develop positive perceptions of the company, which, in turn, culminates in increased engagement (Zhang et al. 2023). Customers feel confident in their interactions with AI-powered systems, knowing that their performance expectations will be met or even exceeded. This confidence fosters an emotional connection with positive thinking about, and a preference for using the AI device (Hollebeek et al. 2022). Therefore, performance expectation aligns with the multifaceted concept of customer engagement.

Customers need to exert efforts to acquire a certain level of knowledge of and skill with AI-facilitated services (Han et al. 2023). Indeed, customers who perceive engaging with authentic AI as demanding significant psychological effort are likely to invest in learning how to interact effectively with these systems (Mende et al. 2019). If customers believe that the higher level of effort will lead to the desired outcomes, they will experience a greater sense of self-efficacy (Kraemer et al. 2023; Wang et al. 2013) and be more likely to become engaged. In support of this, one interviewee noted: "Well, I think when I put too much effort into understanding how an AI system works, the more I will be confident about it, and this confidence can boost my self-efficacy ... making me more inclined to engage with it." Accordingly, well-developed AI systems can attract customers willing to invest more time and effort in achieving good outcomes (Sharma et al. 2022), leading to their superior engagement. In effect, they view the effort required as a means to an end for successful social interactions. Therefore:

**Hypothesis 2.** *The relationships between* (*a*) *performance expectation and customer engagement and* (*b*) *effort expectation and customer engagement are positive.*

We predict a positive relationship between AI authenticity and customer engagement. Customers are likely to perceive AI agents that exhibit authenticity as a valuable resource that simplifies their engagement with the company. On top of the conventional utilitarian attributes of AI assistants (e.g., speed, 24/7 accessibility) (Ostrom et al. 2021), those perceived as authentic are likely to project traits such as warmth (Kervyn et al. 2022), which can evoke emotional responses from customers and foster a stronger sense of affinity with the agent (Becker et al. 2019). Thus, AI authenticity is well-positioned to cater to customers' cognitive, emotional, and hedonic needs, resulting in heightened customer engagement. Nonetheless, given Hypotheses 1 and 2 and the implications of our qualitative interview findings, we propose that the positive link is mediated; that is, AI authenticity holds a substantial sway over customer engagement but exerts its influence primarily through performance and effort expectations. Thus:

**Hypothesis 3.** (*a*) *Performance expectation and* (*b*) *effort expectation mediate the positive relationship between AI authenticity and customer engagement.*

### 4.3 | Moderating Role of Personalization

AI has evolved from being a simple interactive tool to becoming an indispensable asset for customers (Singh and Bridge 2023). In particular, the transformative potential of AI lies in its ability to offer personalized solutions to individual customers (Huang and Rust 2021; Singh et al. 2021). According to both the literature and our interviewee accounts, AI has an unparalleled ability to deeply analyze and adjust to customer needs. As one user commented, "I was skeptical about the AI interface at first. Yet the depth of its personalization astounded me. It seemed the AI was moderating its suggestions, adapting them based on my past interactions and preferences." Here, we posit that, for AI authenticity's realistic human-centric service to drive performance and effort expectations, it needs to be backed up with evidence of personalization (Söderlund 2022).

AI authenticity inspires heightened expectancy of task performance, as it unites the benefits of human service (e.g., attentive communications) and AI agents (e.g., high-level thinking). The theory of mind perception holds that personalization can be a humanizing characteristic of AI (Söderlund 2022). Still, the intellectual prowess of AI is magnified and intensified for customers when it delivers real-time personalized information. When integrated with historical customer interactions, personalization augments the experience by establishing a record of reliability. While AI authenticity allows for conscientious interactivity that collects data on customer needs, personalization acts on the data to provide information tailored to customers (Jeong and Shin 2020). Thus, personalization allows AI authenticity to deliver on nuanced individual requisites in a way that refines the service and boosts performance expectancy (Mostafa and Kasamani 2022).

AI authenticity inspires heightened effort expectation because it increases both psychological effort (to overcome discomfort with human-like AI) and learning effort (to comprehend the AI's authentic features). In social exchanges, a relational actor's perceived efforts are offset by the expected rewards. Importantly, enhanced personalization mechanisms in software applications can improve user productivity (Basoglu et al. 2014). Personalization means the provision of tailored information to customers, and thus, these users are insulated from the pitfalls of receiving and sifting through irrelevant information (Lambillotte et al. 2022). With diminished search intervals, customers can adeptly discern offerings that cater to their specifications, under the careful guidance of the AI agent. Accordingly, customers faced with the daunting prospect of psychological and learning costs from using authentic AI might view personalization as a guarantor of their positive outcomes and of the efficacy of the heightened effort they expect to make (Appel et al. 2020). Thus:

**Hypothesis 4.** *Personalization strengthens the positive relationship between (a) AI authenticity and performance expectation and (b) AI authenticity and effort expectation.*

### 4.4 | Moderating Role of Speciesism

Our new era of AI could awaken inherent consumer biases in interactions with different types of AI, especially sophisticated AI service technology that is intended to emulate and even replace human counterparts. Speciesism, a bias favoring humans over nonhuman entities, operates in both social and professional contexts (Caviola et al. 2019). When applied to AI, speciesism bias persists regardless of the AI's capabilities or behavior. We posit that it interrupts the normalcy of increasing benefits and costs driving customer engagement in a social exchange by discouraging customers' engagement with AI-driven systems that meet performance and effort expectations.

When an authentic AI assistant meets customers' performance expectations, the most speciesist among them are likely to resist engaging with the AI (Blut et al. 2021). For instance, healthcare customers with high levels of speciesism would prefer doctors over AI in decision-making tasks (Dhont et al. 2016). Indeed, an interviewee in our qualitative study explained: "Despite AI meeting my expectations, I just feel more comfortable with a doctor making decisions for me rather than AI [...engaging with the system]". The cognitive resistance toward AI assistants as out-group members stems from the customer's belief in human exceptionalism, as they value intrinsic qualities as exclusive to humans (Caviola et al. 2019). Because of the psychological barrier caused by high speciesism, the customer's awareness of the effectiveness and consistency of the AI agent is unlikely to culminate in greater engagement. Such customers will never warm to a proficient AI system, leading to suspicion over favorable evaluations, reduced trust, and low affinity with the AI agent (Stanko and Rindfleisch 2023).

Customers with high levels of speciesism might also react less favorably when AI shows the human trait of being effortful. Their psychologically ingrained resistance, stemming from perceptions of attempted AI mimicry despite human superiority (Millet et al. 2023; Yu et al. 2018), will lead them to begrudge learning efforts to achieve desirable outcomes with the AI agent. The customer's learning efforts could be attributed to a failure of the technology to interpret their unique context (Degbey et al. 2024). Even when the anticipation of effort in developing an AI service relationship is fulfilled, concerns over the technology replacing human roles would amplify suspicion and discomfort, making engagement unlikely (Fiestas Lopez Guido et al. 2024; Kamoonpuri and Sengar 2024). This was reflected in the comment of one interviewee: "I just can't trust AI when it tries to act human, it feels like it's just pretending, like it's faking its abilities. Even if it meets my expectations in terms of effort, it still doesn't feel genuine, and that makes me hesitant to engage with it." The customer's psychological effort in reconciling AI's growing role with human distinctiveness undermines customer engagement (Koles et al. 2024). In sum, speciesism bias disrupts the relationships of performance and effort expectations with customer engagement:

**Hypothesis 5.** *Speciesism weakens the positive relationships of (a) performance expectation and customer engagement and (b) effort expectation and customer engagement.*

## 5 | Method

In healthcare settings, AI-powered chatbots and virtual assistants have been designed to simulate human conversation and provide personalized support to patients. Advanced chatbots can engage in rich conversations, offer meaningful social interactions, and provide support for users dealing with mental health issues and other health-related concerns (Torous et al. 2021). We tested the hypotheses through a customer survey conducted on a particular virtual health home station. The focus was on AI-powered virtual assistants designed to provide personalized, authentic interactions with customers. AI tools can be used inside a firm to offer precision in processing data and providing rapid, actionable insights to managers (Qin et al. 2023). Still, our study concentrates on how AI can emulate human interactions in customer service. This distinction is crucial, as the application of AI differs between managerial and customer-facing tools. In corporate settings, AI agents are mainly evaluated based on their efficiency and precision, whereas in customer services, the

AI's human-like qualities and alignment with brand norms are paramount.

Customer engagement in healthcare settings is critical for improving treatment adherence, reducing readmission rates, and fostering trust in care delivery. Studies indicate that effective engagement can lower readmission rates by up to 30% while also addressing broader challenges such as resource strain and system costs (McKinsey 2022a, 2023). Unlike interactions in general customer settings, healthcare interactions involve deeply personal, high-stakes decisions, making patient engagement both unique and essential.

Patients are becoming increasingly comfortable with digital solutions, with 60% expressing greater satisfaction with telehealth than in-person visits. Such tools enhance patient satisfaction and improve overall health outcomes (McKinsey 2022b, 2023, 2024). Indeed, AI tools have transformed the concept of telemedicine by providing an all-in-one home-based health assistant. Equipped with algorithms and diagnostic tools such as blood pressure monitors and temperature sensors, AI offers accurate health assessments. A device-built-in video screen facilitates real-time consultations with healthcare professionals, while optional augmented reality capabilities allow for the display of realistic symptoms. Trust in the system is built through sourcing information from medical databases and displaying reviews by professionals. The system supports multiple customers and even allows family members or caregivers to join consultations for added social support. Tailored health plans can be stored and accessed, providing a highly personalized healthcare experience.

In healthcare settings, AI assistants are not just task-performing agents powered by AI; they are sophisticated systems designed to emulate human interaction, delivering seamless customer service experiences while providing cost-effective and efficient on-demand support (De Freitas et al. 2024). These systems have shown significant potential in managing various health conditions such as anxiety and depression (Ahmed et al. 2023; Haque and Rubya 2023). Woebot, an AI-based mental health app, has seen 75% of its interactions occurring outside regular business hours, when traditional therapist access is unavailable.

A prominent AI research-and-development company gathered customer data for our study from April to July 2023. The sampling frame for the survey included customers (i.e., end-user patients) selected based on predefined eligibility criteria. Initially, the company used a convenience sampling method along with a purposive sampling technique to focus on specific data subsets deemed relevant to our study's objectives. With the help of two managers from the company, we conducted pre-study qualitative research to finalize the conceptual model, conceptualizations of the constructs, and measurement instruments. Here, we conducted a total of 20 in-depth interviews with AI managers, employees, and customers to gather qualitative insights pertaining to the health sector. We then conducted preliminary scale testing, for which we collected 168 responses from customers. However, 13 were removed due to missing answers or inattentiveness, leaving 155 complete responses. These responses were then subjected to exploratory factor analysis to identify the underlying factor structure and confirm the reliability of the scales (see Appendix E in Supporting Information).

Our survey was conducted in two phases. In the first phase, informants provided demographic information and assessed their proficiency with the tool. In the second phase, they evaluated several factors, including AI authenticity, customer expectations, customer engagement, personalization, and perceptions of speciesism. Informants were assured that their responses would remain anonymous and confidential. The study constructs were measured on 7-point Likert-type scales (1 = strongly disagree, 7 = strongly agree) derived from the literature and adapted for our specific context using our qualitative work. Table 1 provides the list of items along with their original sources.

In the main survey itself, we collected 489 questionnaires from the same company's customer database. We excluded 37 questionnaires that had missing answers or exhibited inattentiveness. Hence, the final dataset comprised 452 valid responses (92% response rate). Participants from the preliminary scale testing were excluded from the list (for survey procedures, see Appendix Fa in Supporting Information). Most of the main survey respondents were women (60.8%), had postgraduate degrees or higher (55.3%), and were aged from 25 to 34 (36.7%) and 35 to 44 (31.6%) years (Appendix Fb in Supporting Information).

To assess the possibility of non-response bias, we initially compared early respondents ($n = 50$) with those who responded later ($n = 50$) in terms of the study constructs. The $t$-tests revealed no significant differences ($p < 0.05$) between the two groups, indicating that non-response bias is not a significant concern in our study.

## 6 | Analysis and Results

### 6.1 | Measure Assessment

We conducted confirmatory factor analysis (CFA) using AMOS to assess the validity and reliability of our multi-item reflective scales. We employed maximum likelihood estimation with robust inference, ensuring robustness against data non-normality. We tested the second-order factor structure of AI authenticity and customer engagement, modeling them as higher-order constructs composed of multiple interrelated first-order dimensions. Specifically, AI authenticity comprised six first-order dimensions, while customer engagement included three. Performance and effort expectations, personalization, and speciesism were included as first-order factors in the CFA model (for results, see Table 1).

Table 2 presents Cronbach's alpha scores, average variance extracted (AVE) values, and inter-construct correlations. The Cronbach's alpha scores ranged from 0.817 to 0.928, indicating satisfactory internal consistency. The AVE for each construct met or exceeded the recommended threshold of 0.50 (Fornell and Larcker 1981), confirming construct reliability. To establish convergent validity, we ensured that all factor loadings exceeded 0.70 and that AVE values were above 0.50. Discriminant validity was established for all model constructs using the Fornell–Larcker criterion and the heterotrait–monotrait ratio,

**TABLE 1** | Measurement model results.

| Construct and items | Standardized loading | *t*-value | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|
| **AI authenticity** | | | | | |
| Accuracy (Collier and Kimes 2013) | | | 0.881 | 0.884 | 0.717 |
| Authenticity → Accuracy | 0.782 | 11.003 | | | |
| The AI device will act accurately in firm x like a human employee. | 0.833 | 1.000 | | | |
| The AI device can provide me with good information about products/services in firm x like a human employee. | 0.826 | 19.854 | | | |
| The information provided by the AI device on products/services of firm x is correct like with a human employee. | 0.880 | 21.334 | | | |
| **Connectedness** (Nunes et al. 2021) | | | 0.908 | 0.908 | 0.767 |
| Authenticity → Connectedness | 0.662 | 1.000 | | | |
| I feel that I have a relationship with the AI device in firm x similar to with a human employee. | 0.895 | 1.000 | | | |
| The AI device used in firm x conveys a distinctive interpersonal closeness to me similar to with a human employee. | 0.883 | 25.430 | | | |
| I feel engaged with the AI device in firm x similar to with a human employee. | 0.849 | 23.829 | | | |
| **Realism** (Beverland and Farrelly 2010) | | | 0.911 | 0.913 | 0.778 |
| Authenticity →Realism | 0.717 | 10.407 | | | |
| The AI device is a real employee in firm x. | 0.806 | 1.000 | | | |
| The AI device is a genuine employee in firm x. | 0.911 | 22.994 | | | |
| The AI device depicts a real-life employee in firm x. | 0.924 | 23.307 | | | |
| I am able to see the AI device as a real employee separate from its role in firm x. | Removed | | | | |
| **Credibility** (Becker et al. 2019) | | | 0.869 | 0.875 | 0.700 |
| Authenticity → Credibility | 0.751 | 10.920 | | | |
| The AI device is as reliable as a real employee in firm x. | 0.807 | 1.000 | | | |
| The AI device is as credible as a real employee in firm x. | 0.884 | 21.077 | | | |
| The AI device is as verifiable as a real employee in firm x. | 0.816 | 18.550 | | | |
| **Social presence** (Bleier et al. 2019) | | | 0.909 | 0.915 | 0.785 |
| Authenticity → Social Presence | 0.648 | 10.449 | | | |
| There is a sense of human contact in the AI device similar to a human employee in firm x. | 0.738 | 1.000 | | | |
| There is a sense of human warmth in the AI device similar to a human employee in firm x. | 0.943 | 37.488 | | | |
| There is a sense of human sensitivity in the AI device similar to a human employee in firm x. | 0.958 | 21.089 | | | |
| **Individualism** (Ballantyne et al. 2006) | | | 0.919 | 0.921 | 0.795 |
| Authenticity → Individualism | 0.678 | 11.005 | | | |
| The AI device is an individual employee in firm x. | 0.936 | 1.000 | | | |

(Continues)

**TABLE 1** | (Continued)

| Construct and items | Standardized loading | *t*-value | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|
| The AI device is an original employee in firm x. | 0.908 | 30.444 | | | |
| The AI device is a unique employee in firm x. | 0.826 | 25.062 | | | |
| Customer engagement (Rather et al. 2021) | | | | | |
| **Affective** | | | 0.881 | 0.886 | 0.722 |
| Customer Engagement → Affective | 0.679 | 8.677 | | | |
| I feel very positive when I am using the AI device. | 0.897 | 1.000 | | | |
| Being able to use the AI device makes me happy. | 0.879 | 23.643 | | | |
| I feel good when I use the AI device. | 0.767 | 19.588 | | | |
| I am proud to use the AI device. | Removed | | | | |
| **Cognitive** | | | 0.806 | 0.808 | 0.584 |
| Customer Engagement → Cognitive | 0.697 | 1.000 | | | |
| The AI device gets me to think about it. | 0.767 | 1.000 | | | |
| I think about the AI device a lot when I am using it. | 0.768 | 14.894 | | | |
| Using the AI device stimulates my interest to learn more about it. | 0.758 | 14.076 | | | |
| **Behavioral** | | | 0.791 | 0.793 | 0.561 |
| Customer Engagement → Behavioral | 0.759 | 8.515 | | | |
| I spent a lot of time using the AI device compared with other devices. | 0.720 | 1.000 | | | |
| Whenever I am using a technological device, I prefer the AI device. | 0.794 | 14.215 | | | |
| I use this AI device often. | 0.731 | 13.104 | | | |
| **Expectation** (Chi et al. 2022) | | | | | |
| Performance expectation | | | 0.817 | 0.824 | 0.610 |
| The x provided by the AI device is more accurate than provided by human beings. | 0.696 | 1.000 | | | |
| The x provided by the AI device is more accurate has fewer errors than that provided by human beings | 0.818 | 14.336 | | | |
| The AI device provides more consistent x than human beings. | 0.823 | 14.307 | | | |
| In firm x, the information provided by the AI device is more consistent. | Removed | | | | |
| Effort expectation | | | 0.904 | 0.905 | 0.760 |
| In firm x, using the AI device takes up too much of my time. | 0.822 | 1.000 | | | |
| Working with the AI device is difficult to understand and use in firm x. | 0.895 | 25.141 | | | |
| It takes me too long to learn how to interact with the AI device in firm x. | 0.893 | 22.288 | | | |

(Continues)

**TABLE 1** | (Continued)

| Construct and items | Standardized loading | *t*-value | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|
| **Personalization** (Jeong and Shin 2020) | | | 0.822 | 0.826 | 0.614 |
| The AI device in firm x allowed me to receive tailored information. | 0.840 | 1.000 | | | |
| I could interact with the AI device in firm x to get personalized information. | 0.713 | 14.285 | | | |
| The personalized information provided by the AI device met my need in firm x. | 0.792 | 16.007 | | | |
| **Speciesism** (Caviola et al. 2019) | | | 0.852 | 0.855 | 0.665 |
| In operation systems, we have the right to use AI devices if we decide to. | 0.894 | 1.000 | | | |
| It is morally acceptable to keep AI devices in circuses for human entertainment. | 0.704 | 15.782 | | | |
| AI always counts for less than humans. | 0.838 | 18.367 | | | |

*Note:* The *t*-values provided for standardized loadings were tested for statistical significance. All *t*-values exceed the threshold of 1.96, indicating statistical significance at the 5% level. The results confirm that the measurement model demonstrates good validity and reliability. Fit indices further support the model's robustness: $\chi^2 = 915.804$ (df = 677), $p < 0.001$; CFI = 0.979; TLI = 0.976; IFI = 0.979; RFI = 0.915; NFI = 0.923; RMSEA = 0.028.

which remained below the 0.85 threshold. These results confirmed that each construct was empirically distinct from the others.

To scrutinize our new conceptualization of AI authenticity, we tested various alternative measurement models. From these, the hierarchical (second order) and six-factor correlated models both demonstrated strong empirical fit: ($\chi^2 = 224.442$, df = 129, CFI = 0.985, RMSEA = 0.040 and $\chi^2 = 192.720$, df = 120, CFI = 0.989, RMSEA = 0.037, respectively). The six-factor correlated model has the edge empirically ($\Delta\chi^2_{(9)} = 31.647$, $p < 0.001$). Yet following procedures used by Brakus et al. (2009), we adopted the second-order model for subsequent analyses due to its theoretical alignment and interpretive parsimony (for discussion, see Appendix G in Supporting Information).

Common method bias was assessed using Lindell and Whitney's (2001) marker variable technique. To do so, we included in the survey a theoretically unrelated measure of perceived safety using AI as our marker variable. The correlations between the marker variable and our substantive variables were low (ranging from 0.08 to 0.10). After adjusting the correlations using the smallest marker variable correlation, our key relationships remained significant, indicating that common method bias does not substantially affect our findings. Additionally, we took steps to minimize common method variance by designing clear survey questions with both positive and negative phrasing to reduce response pattern biases.

## 6.2 | Hypotheses Evaluation

Using the PROCESS bootstrapping approach introduced by Preacher and Hayes (2008), we tested the hypotheses with 5000 bootstrapped samples and bias-corrected percentile confidence intervals (CIs) and regression analysis in SPSS for the main effects model. These bootstrapping methods offer the advantage of not relying on any assumptions about the shape of the sampling distribution for inferential tests (Preacher and Hayes 2008). Table 3 provides the outcomes of our model estimations. We found that AI authenticity has positive associations with performance expectation (b = 0.398, $t = 8.89$, $p = 0.00$) and effort expectation (b = 0.341, $t = 5.73$, $p = 0.00$), in support of Hypotheses 1a and 1b. In addition, performance expectation has a positive association with customer engagement (b = 0.268, $t = 7.35$, $p = 0.00$), and effort expectation is positively related to engagement (b = 0.063, $t = 2.28$, $p = 0.023$). Thus, Hypotheses 2a and 2b are supported.

Consistent with our hypotheses implying parallel mediation, we assessed whether AI authenticity influences customer engagement through performance expectation and effort expectation. Using Preacher and Hayes's (2008) PROCESS Model 4, we calculated the CI for the indirect effect of AI authenticity on customer engagement through performance expectation (b = 0.105, BootSE = 0.021, 95% CI: [0.065, 0.147]; PROCESS does not report t- or *p*-values for indirect effects). This analysis provided evidence supporting Hypothesis 3a. Similarly, we examined the CI for the indirect effect of AI authenticity on customer engagement through effort expectation (b = 0.019, BootSE = 0.011, 95% CI: [0.000, 0.042]) and found support for Hypothesis 3b. We thus observed parallel mediation. These effects entail partial rather than full mediation.

Using the bootstrapping methods outlined by Preacher and Hayes (2008) (5000 bootstrapped samples; bias-corrected percentile CIs), we assessed the proposed moderated parallel mediation by applying PROCESS Model 21. We found that personalization significantly moderates the relationship between AI authenticity and effort expectation (b = 0.342, $t = 2.85$, $p = 0.005$), thus providing support for Hypothesis 4b. However, personalization does not moderate the AI authenticity–performance expectation

**TABLE 2** | Correlation matrix.

| | AI authenticity | Performance expectation | Effort expectation | Customer engagement | Personalization | Speciesism |
|---|---|---|---|---|---|---|
| AI authenticity | 0.708 | 0.447* | 0.259* | 0.461* | 0.346* | 0.069$^{ns}$ |
| Performance expectation | 0.447* | 0.781 | 0.266* | 0.563* | 0.432* | 0.122* |
| Effort expectation | 0.259* | 0.266* | 0.871 | 0.246* | 0.217* | 0.010$^{ns}$ |
| Customer engagement | 0.461* | 0.563* | 0.246* | 0.712 | 0.321* | 0.219* |
| Personalization | 0.346* | 0.432* | 0.217* | 0.321* | 0.783 | 0.131* |
| Speciesism | 0.069$^{ns}$ | 0.122* | 0.010$^{ns}$ | 0.219* | 0.131* | 0.816 |
| Mean | 4.349 | 4.858 | 3.597 | 4.649 | 4.499 | 4.266 |
| SD | 1.338 | 1.372 | 1.751 | 1.090 | 1.492 | 1.550 |
| Cronbach's alpha | 0.928 | 0.817 | 0.904 | 0.852 | 0.822 | 0.852 |
| CR | 0.857 | 0.824 | 0.904 | 0.755 | 0.826 | 0.855 |
| AVE | 0.501 | 0.610 | 0.758 | 0.508 | 0.614 | 0.666 |

*Note:* CR = Composite reliability. Diagonal values represent the square root of the AVEs for each construct, which indicates the measure's reliability and discriminant validity. Off-diagonal values represent correlations among the constructs, providing a comprehensive view of the relationships and confirming the distinctness of the constructs.
*$p < 0.05$; ns = not significant.

relationship (b = 0.119, $t = 1.34$, $p = 0.180$); thus, Hypothesis 4a is not supported. The relevant plot (see Appendix Ha, Panel A in Supporting Information) shows that personalization strengthens the positive relationship between AI authenticity and effort expectation.

Further, speciesism does not significantly moderate the relationship between performance expectation and customer engagement (b = 0.020, $t = 0.292$, $p = 0.770$), meaning Hypothesis 5a is not supported. However, speciesism has a marginally significant moderation effect on the relationship between effort expectation and customer engagement in the opposite direction to Hypothesis 5b (b = 0.105, $t = 1.956$, $p = 0.051$). Our plot (see Appendix Ha, Panel B in Supporting Information) shows that, contrary to our theorization, speciesism strengthens the positive relationship between effort expectation and customer engagement. Following Meyer et al. (2017), we replicated the marginal effects analysis using Python to visualize the mediating effect of performance expectation on the relationship between AI authenticity and customer engagement. Appendix Hb in Supporting Information illustrates the marginal effect of AI authenticity on customer engagement across different levels of performance expectation. The plot includes 95% confidence intervals, key reference points (A and B), and data points along the marginal effect line.

To address endogeneity concerns about AI authenticity and performance expectations specifically, we used the internal instrumental variable approach (or instrument-free method) recommended by previous research (Musarra et al. 2023; Park and Gupta 2012; Wetzel et al. 2018). This method constructs a multivariate distribution to capture the relationship between the endogenous regressor and the structural error, which is useful when identifying valid instruments is challenging. Our results confirmed significant deviations from normality for the constructs AI authenticity, performance expectation, and others, justifying the use of Gaussian copulas. The non-significant results for the copulas ($p$-values > 0.05) suggest that the regressors are not endogenous, thus mitigating concerns about endogeneity in our analyses (Appendix I in Supporting Information).

Further, the moderated mediation analysis confirmed that AI authenticity indirectly influences customer engagement through performance expectation (b = 0.25, $t = 7.05$, $p < 0.001$) and effort expectation (b = 0.05, $t = 1.94$, $p < 0.05$). However, the strength of this mediation varies based on moderator levels. The moderation effect of personalization on the relationship between AI authenticity and effort expectations was marginally significant (b = 0.12, $t = 3.94$, $p = 0.06$), indicating that personalization may slightly enhance the perceived effort required for AI engagement. In contrast, speciesism significantly moderated the relationship between effort expectation and customer engagement (b = 0.04, $t = 2.36$, $p < 0.05$), suggesting that at higher levels of speciesism, the positive effect of effort expectation on engagement is strengthened. These findings demonstrate that the mediated effect of AI authenticity on engagement is conditional on speciesism and personalization levels, reinforcing the role of moderated mediation in explaining customer responses to AI. Lastly, to test the robustness of our theoretical framework, we examined previous experience from AI use as a rival antecedent (i.e., of AI authenticity), as detailed in Appendix J in Supporting Information. The results confirmed that AI authenticity is a stronger predictor of engagement, reinforcing the importance of trust and credibility over mere familiarity in AI interactions.

**TABLE 3** | Model estimations.

| Variables | Hypotheses | Main effects model | Parallel mediation model | Full model |
|---|---|---|---|---|
| Direct effects | | | | |
| AI authenticity → Performance exp. | H1a | | 0.398 (SE: 0.045; *t*: 8.885), $p = 0.000$ [0.310; 0.486] | 0.367 (SE: 0.044; *t*: 8.291), $p = 0.000$ [0.280; 0.454] |
| AI authenticity → Effort exp. | H1b | | 0.341 (SE: 0.060; *t*: 5.733), $p = 0.000$ [0.224; 0.458] | 0.334 (SE: 0.060; *t*: 5.588), $p = 0.000$ [0.216; 0.451] |
| AI authenticity → Cust. engagement | | 0.264 (SE: 0.037; *t*: 7.203), $p = 0.00$ [0.192; 0.336] | 0.150 (SE: 0.038; *t*: 4.004), $p = 0.000$ [0.076; 0.224] | 0.153 (SE: 0.037; *t*: 4.091), $p = 0.000$ [0.080; 0.227] |
| Performance exp. → Cust. engagement | H2a | | 0.268 (SE: 0.036; *t*: 7.351), $p = 0.000$ [0.196; 0.339] | 0.260 (SE: 0.037; *t*: 7.117), $p = 0.000$ [0.188; 0.331] |
| Effort exp. → Cust. engagement | H2b | | 0.063 (SE: 0.027; *t*: 2.285), $p = 0.023$ [0.009; 0.117] | 0.057 (SE: 0.028; *t*: 2.077), $p = 0.038$ [0.003; 0.111] |
| Indirect effects | | | | |
| AI authenticity → Performance exp. → Cust. engagement | H3a | | 0.105 (Boot SE: 0.021) [0.065; 0.147] | 0.076 (BootSE: 0.026) [0.032; 0.133] |
| AI authenticity → Effort exp. → Cust. engagement | H3b | | 0.019 (BootSE: 0.011) [0.000; 0.042] | 0.056 (BootSE: 0.024) [0.014; 0.108] |
| Interaction | | | | |
| AI authenticity × Personalization → Performance exp. | H4a | | | 0.119 (SE: 0.089; *t*: 1.344), $p = 0.180$ [−0.055; 0.294] |
| AI authenticity × Personalization → Effort exp. | H4b | | | 0.342 (SE: 0.120; *t*: 2.851), $p = 0.005$ [0.106; 0.578] |
| Performance exp. × Speciesism → Cust. engagement | H5a | | | 0.020 (SE: 0.070; *t*: 0.292), $p = 0.770$ [−0.117; 0.158] |
| Effort exp. × Speciesism → Cust. engagement | H5b | | | 0.105 (SE: 0.054; *t*: 1.956), $p = 0.051$ [−0.001; 0.210] |
| Control variables | | | | |
| Gender | | −0.038 (SE: 0.100; *t*: −0.379), $p = 0.705$ [−0.235; 0.159] | 0.046 (SE: 0.093; *t*: 0.496), $p = 0.620$ [−0.137; 0.230] | 0.060 (SE: 0.093; *t*: 0.646), $p = 0.519$ [−0.123; 0.242] |
| Age | | −0.015 (SE: 0.099; *t*: −0.150), $p = 0.881$ [−0.210; 0.181] | −0.037 (SE: 0.093; *t*: −0.401), $p = 0.688$ [−0.220; 0.145] | −0.040 (SE: 0.092; *t*: −0.434), $p = 0.664$ [−0.222; 0.141] |

(Continues)

**TABLE 3** | (Continued)

| Variables | Hypotheses | Main effects model | Parallel mediation model | Full model |
|---|---|---|---|---|
| Education | | 0.015 (SE: 0.098; *t*: −0.155), $p = 0.877$ [−0.177; 0.207] | 0.072 (SE: 0.092; *t*: 0.785), $p = 0.433$ [−0.109; 0.254] | 0.066 (SE: 0.092; *t*: 0.713), $p = 0.476$ [−0.115; 0.246] |
| Experience | | 0.041 (SE: 0.036; *t*: −1.141), $p = 0.255$ [−0.029; 0.111] | 0.032 (SE: 0.034; *t*: 0.955), $p = 0.000$ [−0.034; 0.098] | 0.022 (SE: 0.034; *t*: 0.653), $p = 0.514$ [−0.044; 0.088] |
| F-statistic | | 19.665, $p = 0.000$ | 19.665, $p = 0.000$ | 14.747, $p = 0.000$ |
| $R^2$ | | 0.237 | 0.237 | 0.251 |

*Note:* Main effects model is multiple regression analysis SPSS; parallel mediation is Hayes's PROCESS Model 4; full moderated mediation is Process Model 21. Sample size is 452; t-values are denoted in parentheses; where the PROCESS does not report the *p*-values, CIs at the 95% level are in square brackets; 5000 samples were used for bootstrapping; we conducted two-sided tests for significance; and all statistical analyses were performed using SPSS Version 26. For simplicity of presentation, indirect effects in the full model are reported as the moderated indirect effects.

## 7 | Discussion

Firms are increasingly adopting AI agents to interact with customers. Although research highlights the benefits of AI (Guha et al. 2021), customers may prefer engaging in interactions with real human employees over AI agents. As such, the current study unites different research streams to argue that AI authenticity is the future path of next-generation, AI-enabled marketing interactions. By addressing the effect of AI authenticity on customer expectations and engagement, the study offers nuanced insights to help managers comprehend customers' preferences vis-à-vis AI, narrow the AI–human gap, and foster enhanced customer engagement.

Our study reveals that AI authenticity has the potential to meet customer expectations, enabling deeper and more meaningful customer engagement. Still, the realization of this potential depends on understanding the components of AI authenticity. For example, credibility is critical in establishing reliability, which is straightforwardly beneficial for customer expectations and engagement. But facets like realism and social presence, while contributing to positive customer perceptions, require careful management to avoid perceptions of manipulation. Overemphasizing these traits may lead customers to question the AI's intentions or transparency. Our conceptualization and findings provide a more granular understanding of how components of AI authenticity intersect to influence customer outcomes.

### 7.1 | Theoretical Contributions

The study makes several theoretical contributions to the marketing and management literature streams on AI. First, despite the importance of authenticity in facilitating customer engagement in other research contexts (Chen et al. 2023), scholars have overlooked authenticity's relevance in the AI context for enhancing customer engagement. Further, although previous studies have highlighted the importance of customer interactions with AI agents (Huang and Rust 2021; Pantano and Scarpi 2022), they have not provided empirical guidance on how seemingly unfeeling AI can present as authentic and like human employees. Against this backdrop, our study is the first to provide a comprehensive conceptualization and operationalization for AI authenticity. Based on a diverse literature review (e.g., covering branding and advertising) and qualitative insights, we provide evidence for operationalizing AI authenticity as a set of conceptually related but independent components: accuracy, connectedness, realism, credibility, social presence, and individualism.

Second, our qualitative study enabled a quantitative exploration of AI authenticity, as well as its nomological net, for the first time. Drawing on the theory of mind perception (Byom and Mutlu 2013) and social exchange theory (Blau 1986), we propose and test a novel mechanism through which AI authenticity influences customer engagement. Humanizing an AI agent using authenticity creates a social exchange with the expectation of benefits and costs. As such, we find that AI authenticity is positively associated with performance expectation (Blut et al. 2021), implying that customers perceive AI entities with authentic features as more competent than AI entities without them. We also observe that AI authenticity is positively linked to

effort expectation; greater effort is required to learn about and interact with authentic AI devices (Glikson and Asscher 2023; Zhang et al. 2021), which is consonant with a developing social relationship.

The theory of mind perception supports the presence of a second humanizing factor, personalization (Söderlund 2022), which we frame as a boundary condition of AI authenticity's ability to set customer expectations. Our findings reveal that personalization positively moderates the relationship between AI authenticity and effort expectation but not the path to performance expectation. One explanation for this non-significant finding is that if customers have well-defined expectations based on their experiences, and additional personalized features are not recognized or required by them, personalization might not condition their performance expectations. With respect to effort expectation, customers faced with the daunting prospect of psychological and learning costs from using authentic AI see personalization as a guarantor of the efficacy of the effort they anticipate making (Appel et al. 2020). Personalization delivered by an AI agent can also pose a threat to the customer's ability to maintain their privacy. In response, they are prepared to exert additional psychological effort to adapt when interacting with AI devices that exhibit authenticity (Steinhoff and Martin 2023).

Third, we provide novel evidence that both performance and effort expectations drive customer engagement and thus mediate the link between AI authenticity and customer engagement. The results furnish a more comprehensive view of how customers' expectations for AI influence their engagement with it. Straightforwardly, performance expectation has beneficial consequences for customer engagement. When customers trust that AI will perform well or exceed their expectations, they are more likely to engage with it over time (Mishra et al. 2022). Yet our finding of the positive effect of effort expectation on customer engagement challenges the notion of new technologies needing to offer ease of use (Chi et al. 2022; Evanschitzky et al. 2015). Customers are more likely to view authentic AI assistants optimistically and engage with them when they anticipate gains but also heightened effort as per the normal process of social exchange.

Fourth, limited studies (Fiestas Lopez Guido et al. 2024; Schmitt 2019) have investigated the transfer of speciesism bias from the human–animal relationship to the human–AI relationship. Because speciesism promotes a social ideology ranking humans above all others and disregards the human-like qualities of nonhuman agents (Caviola et al. 2019), it is highly relevant in the context of the threat posed by AI to human uniqueness. We extend knowledge on speciesism by testing the role of AI-related speciesism as a moderator of expectations to engagement relationships. The findings show that speciesism moderates the link between effort expectation and engagement but not the equivalent path from performance expectation.[3] With respect to the non-significant finding, evidently, customer engagement can be enhanced by an AI device's ability to meet performance expectations (Zierau et al. 2023), irrespective of speciesism. For effort expectation's link to engagement, we observe a positive moderation effect of speciesism that refutes our hypothesized prediction. For a speciesist consumer who views humans as superior to AI, if the normalcy of effort expectations for the AI agent is similar to those during interactions with human agents, that is, there is an evident downside, they could feel less threatened and experience less strain during engagement (Uysal et al. 2022). Speciesist customers may prefer AI devices with more human-like traits and that incur costs, and so fully engage with them (Elmashhara et al. 2024).

## 7.2 | Managerial Implications

Our findings also have implications for management practice. By unpacking how AI authenticity drives customer engagement in health services, our article addresses the global societal challenge of healthcare delivery inefficiencies (McKinsey 2024). Healthcare interactions involve high-stakes decisions, making patient engagement essential. The use of authentic AI systems that can handle routine inquiries and follow-ups allows professionals to focus on more complex patient needs, thus improving operational efficiency while boosting levels of patient engagement.

In particular, practitioners need to understand that AI authenticity can increase customer performance and effort expectations and that it enhances customer engagement via these expectations. Managers should align AI authenticity capabilities with expectations to enhance engagement, thereby increasing the value derived from AI agents. Managers can personalize AI interactions through the provision of information tailored to the customer based on their preferences, context, and history. Personalization, which can help make customers perceive AI agents as being similar to dedicated employees (Mende et al. 2024), strengthens the link between AI authenticity and effort expectation. It is also important that managers note that a speciesism bias favoring humans over AI strengthens effort expectation's link to customer engagement.

We show that practitioners can control certain components that characterize authenticity when implementing AI strategies. Managers can induce authenticity by increasing both the functional (e.g., accuracy) and emotional (e.g., realism) facets of the AI. Indeed, managers need to recognize that while accuracy is a key feature of technology-led systems, its role in AI extends beyond technical precision to meeting contextual and relational expectations. Rather than treating AI updates as a routine task, managers should focus on strategic refinements that ensure that AI agents not only provide accurate responses but also align with evolving customer expectations regarding, for instance, connectedness and realism. In customer-facing applications, accuracy must be integrated with other components of authenticity to create seamless user experiences that resonate with users on a relational level. In healthcare settings, in which trust is paramount for patient engagement with and adherence to medical advice, managers have to prioritize both the accuracy and credibility of AI agents. This involves assessing AI for biases and addressing disparities in predictions, such as health risk assessments or treatment proposals, to ensure they meet the needs of diverse patients. AI-powered virtual health assistants should be updated with the latest medical research, treatment guidelines, and health trends. Doing so ensures that their outputs are seen by patients as relevant and credible. AI agents could also be supervised by medical professionals before final decisions are made to avoid inaccurate information or unreliable service.

Indeed, managers and designers can enhance customer engagement by focusing on the various components of AI authenticity. To improve the connectedness of AI agents, managers can enable these agents to recall previous conversations and interactions with customers to evoke a sense of personal history and continuity. An authentic AI assistant would be expected to remember previous interactions, such as the patient's medical history or preferences, and use that context to offer tailored advice. To help patients feel understood and valued, a virtual health assistant might suggest, "I noticed you mentioned concerns about managing your diabetes last time. Would you like updated resources or support for monitoring your blood sugar levels today?" Likewise, to create a sense of realism, managers may integrate emotional intelligence, such that the AI detects the emotional tone of a patient's responses and adjusts its communication accordingly (Huang and Rust 2024). For example, if a patient expresses anxiety about a treatment, the AI could reply, "I understand this might be stressful, but I'll guide you through every step." Here, real-time, interactive dialogue serves to engage patients in genuine conversations.

To build the AI agent's level of individualism, managers are advised to predefine the parameters of its personality to include uniqueness and originality. The stakes are high for customers when their personal health decisions are being made. Against this backdrop, it is advisable to make AI–customer interactions feel unique and exclusive. For instance, the AI might vary its language style (e.g., factual, formal tone vs. fun, informal tone), according to the particular patient's concerns and context. Further, programming AI agents to simulate natural conversation patterns, rather than relying on overly mechanical and scripted responses, can foster warmer and more sensitive interactions that convey social presence.

Managers from across service sectors should tailor authentic AI strategies to prioritize the authenticity components based on the specific customer needs and contextual demands faced. For example, healthcare applications might emphasize connectedness and credibility, whereas retail applications may benefit more from social presence and individualism. Finally, efforts to build and use AI authenticity, irrespective of the sector, must be balanced with transparency and trust to avoid perceptions of customer manipulation. Beyond standard system updates for accuracy and safety, managers should proactively audit AI systems for biases, engage diverse customer panels during development, and establish predictive maintenance systems to sustain trust over time. Hybrid models combining AI with human oversight can enhance accountability, which is especially important in sectors that involve high-stakes decision-making.

## 8 | Limitations and Future Research Directions

The study findings should be considered in light of limitations stemming from the research design. First, because our study introduces AI authenticity as a critical driver of engagement, it raises new questions about potential trade-offs. Future research should investigate the ethical and psychological tensions surrounding AI authenticity, such as whether greater authenticity enhances trust or raises concerns about AI overreach in decision-making. Second, future studies could examine AI authenticity in other service contexts, such as tourism or retail. For example, in tourism, engaging in authentic experiences has traditionally been a key aspect of travelers' goals. Research could investigate how travelers respond to AI agents embodying authenticity, offering insights into important customer segments and the boundaries of adopting authenticity in customer interactions. Third, the current study and the data and testing therein established AI authenticity as a second-order construct. Nonetheless, future research could use qualitative comparative analysis to scrutinize how AI authenticity's dimensions interact and combine to affect customer outcomes. Fourth, while our study measures engagement through cognitive, affective, and behavioral components, future research could also develop and validate measures capturing both direct (e.g., usage, repurchase) and indirect (e.g., word of mouth, feedback) engagement types.

Fifth, it could be beneficial for studies to apply factorial designs to systematically manipulate AI authenticity. Such work might manipulate authenticity and human likeness to assess their combined effects on engagement. Experimental approaches can provide deeper causal insights into optimizing AI design for stronger user engagement. Other causal relationships can be fruitfully tested too. While we conceptualized effort expectation as a precursor to engagement, reverse causality is possible, with greater engagement leading to an increased willingness to invest effort. Plus, part of the value of engagement is in providing additional inputs for AI to learn from, potentially leading to improved authenticity (i.e., a virtuous circle). Sixth, studies should explore whether AI authenticity effects follow a nonlinear pattern, considering the uncanny valley effect of AI. Finally, we did not distinguish between newer and experienced users of AI agents, which limits our understanding of how engagement and perceptions vary by familiarity. Future research could address this gap by including survey questions about AI agent usage duration and frequency or conducting retrospective analyses using available engagement metrics. Customers who are familiar with and understand how to interact with the AI assistant may feel more comfortable and experience fewer negative reactions.


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### Ethics Statement

The authors have read and agreed to the Committee on Publication Ethics (COPE) international standards for authors.

### Conflicts of Interest

The authors declare no conflicts of interest.

### Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## Endnotes

[1] Consistent with previous studies (Gama and Magistretti 2025; Huang and Rust 2022), our interviewees asserted that service delivery standardization through AI ensures consistent performance. Yet we were also told that uniformity can make customers feel that the interaction is fabricated and inauthentic. In some cases, such as in healthcare settings, customers prefer services delivered by human providers over AI providers out of concerns that the unique facets of their cases will be neglected due to standardization. Introducing "programmed heterogeneity" could help to counteract the issue by incorporating diverse perspectives. The individualism of the AI device may facilitate such diversity.

[2] Customers engaging with authentic AI do not actually believe these entities are human. Rather, features like natural language and interactivity prompt responses that follow human social norms. As a result, customers often treat authentic AIs as social beings. Such AIs can build and sustain relationships with customers by continuously improving and adapting to them (Schmitt 2020); much like how health practitioners cultivate ongoing relationships with their patients.

[3] The fact that neither of the proposed moderators in this study conditions relationships involving performance expectations presents an intriguing opportunity for future research.

## References


Aggarwal, P., and A. L. McGill. 2007. "Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products." *Journal of Consumer Research* 34, no. 4: 468–479.

Ahmed, A., A. Hassan, S. Aziz, et al. 2023. "Chatbot Features for Anxiety and Depression: A Scoping Review." *Health Informatics Journal* 29, no. 1: 14604582221146719.

Alimamy, S., and W. Nadeem. 2022. "Is This Real? Cocreation of Value Through Authentic Experiential Augmented Reality: The Mediating Effect of Perceived Ethics and Customer Engagement." *Information Technology & People* 35, no. 2: 577–599.

Appel, G., L. Grewal, R. Hadi, and A. T. Stephen. 2020. "The Future of Social Media in Marketing." *Journal of the Academy of Marketing Science* 48, no. 1: 79–95.

Ballantyne, R., A. Warren, and K. Nobbs. 2006. "The Evolution of Brand Choice." *Journal of Brand Management* 13, no. 4: 339–352.

Basoglu, N., T. Daim, and E. Polat. 2014. "Exploring Adaptivity in Service Development: The Case of Mobile Platforms." *Journal of Product Innovation Management* 31, no. 3: 501–515.

Becker, M., N. Wiegand, and W. J. Reinartz. 2019. "Does It Pay to Be Real? Understanding Authenticity in TV Advertising." *Journal of Marketing* 83, no. 1: 24–50.

Belk, R., M. Humayun, and M. Brouard. 2022. "Money, Possessions, and Ownership in the Metaverse: NFTs, Cryptocurrencies, Web3 and Wild Markets." *Journal of Business Research* 153: 198–205.

Beverland, M. B., and F. J. Farrelly. 2010. "The Quest for Authenticity in Consumption: Consumers' Purposive Choice of Authentic Cues to Shape Experienced Outcomes." *Journal of Consumer Research* 36, no. 5: 838–856.

Blau, P. 1986. *Exchange and Power in Social Life*. Routledge.

Bleier, A., C. M. Harmeling, and R. W. Palmatier. 2019. "Creating Effective Online Customer Experiences." *Journal of Marketing* 83, no. 2: 98–119.

Blut, M., C. Wang, N. V. Wünderlich, and C. Brock. 2021. "Understanding Anthropomorphism in Service Provision: A Meta-Analysis of Physical Robots, Chatbots, and Other AI." *Journal of the Academy of Marketing Science* 49: 632–658.

Brakus, J. J., B. H. Schmitt, and L. Zarantonello. 2009. "Brand Experience: What Is It? How Is It Measured? Does It Affect Loyalty?" *Journal of Marketing* 73, no. 3: 52–68.

Brodie, R. J., L. D. Hollebeek, B. Jurić, and A. Ilić. 2011. "Customer Engagement: Conceptual Domain, Fundamental Propositions, and Implications for Research." *Journal of Service Research* 14, no. 3: 252–271.

Byom, L. J., and B. Mutlu. 2013. "Theory of Mind: Mechanisms, Methods, and New Directions." *Frontiers in Human Neuroscience* 7: 413.

Castelo, N., J. Boegershausen, C. Hildebrand, and A. P. Henkel. 2023. "Understanding and Improving Consumer Reactions to Service Bots." *Journal of Consumer Research* 50, no. 4: 848–863.

Caviola, L., and V. Capraro. 2020. "Liking but Devaluing Animals: Emotional and Deliberative Paths to Speciesism." *Social Psychological and Personality Science* 11, no. 8: 1080–1088.

Caviola, L., J. A. C. Everett, and N. S. Faber. 2019. "The Moral Standing of Animals: Towards a Psychology of Speciesism." *Journal of Personality and Social Psychology* 116, no. 6: 1011–1029.

Chen, L., Y. Yan, and A. N. Smith. 2023. "What Drives Digital Engagement With Sponsored Videos? An Investigation of Video Influencers' Authenticity Management Strategies." *Journal of the Academy of Marketing Science* 51, no. 1: 198–221.

Chi, O. H., D. Gursoy, and C. G. Chi. 2022. "Tourists' Attitudes Toward the Use of Artificially Intelligent (AI) Devices in Tourism Service Delivery: Moderating Role of Service Value Seeking." *Journal of Travel Research* 61, no. 1: 170–185.

Choudhary, V., A. Marchetti, Y. R. Shrestha, and P. Puranam. 2025. "Human-AI Ensembles: When Can They Work?" *Journal of Management* 51, no. 2: 536–569.

Collier, J. E., and S. E. Kimes. 2013. "Only If It Is Convenient: Understanding How Convenience Influences Self-Service Technology Evaluation." *Journal of Service Research* 16, no. 1: 39–51.

Davenport, T., A. Guha, D. Grewal, and T. Bressgott. 2020. "How Artificial Intelligence Will Change the Future of Marketing." *Journal of the Academy of Marketing Science* 48: 24–42.

De Freitas, J., A. K. Uğuralp, Z. Oğuz-Uğuralp, and S. Puntoni. 2024. "Chatbots and Mental Health: Insights Into the Safety of Generative AI." *Journal of Consumer Psychology* 34, no. 3: 481–491.

Degbey, W. Y., E. Pelto, C. Öberg, and A. Carmeli. 2024. "Customers Driving a Firm's Responsible Innovation Response for Grand Challenges: A Co-Active Issue-Selling Perspective." *Journal of Product Innovation Management* 41, no. 2: 379–402.

Deloitte. 2025. "Global Health Care Outlook". https://www2.deloitte.com/us/en/insights/industry/health-care/life-sciences-and-health-care-industry-outlooks/2025-global-health-care-executive-outlook.html.

Dhont, K., G. Hodson, and A. C. Leite. 2016. "Common Ideological Roots of Speciesism and Generalized Ethnic Prejudice: The Social Dominance Human–Animal Relations Model (SD–HARM)." *European Journal of Personality* 30, no. 6: 507–522.

Dwyer, F. R., P. H. Schurr, and S. Oh. 1987. "Developing Buyer-Seller Relationships." *Journal of Marketing* 51, no. 2: 11–27.

Elmashhara, M. G., R. De Cicco, S. C. Silva, M. Hammerschmidt, and M. L. Silva. 2024. "How Gamifying AI Shapes Customer Motivation, Engagement, and Purchase Behavior." *Psychology & Marketing* 41, no. 1: 134–150.

Epley, N., A. Waytz, and J. T. Cacioppo. 2007. "On Seeing Human: A Three-Factor Theory of Anthropomorphism." *Psychological Review* 114, no. 4: 864–886.

Evanschitzky, H., G. R. Iyer, K. G. Pillai, P. Kenning, and R. Schütte. 2015. "Consumer Trial, Continuous Use, and Economic Benefits of a

Retail Service Innovation: The Case of the Personal Shopping Assistant." *Journal of Product Innovation Management* 32, no. 3: 459–475.

Fiestas Lopez Guido, J. C., J. W. Kim, P. T. L. Popkowski Leszczyc, N. Pontes, and S. Tuzovic. 2024. "Retail Robots as Sales Assistants: How Speciesism Moderates the Effect of Robot Intelligence on Customer Perceptions and Behaviour." *Journal of Service Theory and Practice* 34, no. 1: 127–154.

Fornell, C., and D. F. Larcker. 1981. "Structural Equation Models With Unobservable Variables and Measurement Error: Algebra and Statistics." *Journal of Marketing Research* 18: 382–388.

Fotheringham, D., and M. A. Wiles. 2023. "The Effect of Implementing Chatbot Customer Service on Stock Returns: An Event Study Analysis." *Journal of the Academy of Marketing Science* 51, no. 4: 802–822.

Frank, D.-A., and T. Otterbring. 2024. "Autonomy, Power and the Special Case of Scarcity: Consumer Adoption of Highly Autonomous Artificial Intelligence." *British Journal of Management* 35, no. 4: 1700–1723.

Gama, F., and S. Magistretti. 2025. "Artificial Intelligence in Innovation Management: A Review of Innovation Capabilities and a Taxonomy of AI Applications." *Journal of Product Innovation Management* 42, no. 1: 76–111.

Gao, L., E. de Haan, I. Melero-Polo, and F. J. Sese. 2023. "Winning Your Customers' Minds and Hearts: Disentangling the Effects of Lock-In and Affective Customer Experience on Retention." *Journal of the Academy of Marketing Science* 51, no. 2: 334–371.

Glikson, E., and O. Asscher. 2023. "AI-Mediated Apology in a Multilingual Work Context: Implications for Perceived Authenticity and Willingness to Forgive." *Computers in Human Behavior* 140: 107592.

Guha, A., D. Grewal, P. K. Kopalle, et al. 2021. "How Artificial Intelligence Will Affect the Future of Retailing." *Journal of Retailing* 97, no. 1: 28–41.

Gursoy, D., O. H. Chi, L. Lu, and R. Nunkoo. 2019. "Consumers' Acceptance of Artificially Intelligent (AI) Device Use in Service Delivery." *International Journal of Information Management* 49: 157–169.

Gutuleac, R., G. Baima, C. Rizzo, and S. Bresciani. 2024. "Will Virtual Influencers Overcome the Uncanny Valley? The Moderating Role of Social Cues." *Psychology & Marketing* 41, no. 7: 1419–1431.

Han, E., D. Yin, and H. Zhang. 2023. "Bots With Feelings: Should AI Agents Express Positive Emotion in Customer Service?" *Information Systems Research* 34, no. 3: 1296–1311.

Haque, M. D. R., and S. Rubya. 2023. "An Overview of Chatbot-Based Mobile Mental Health Apps: Insights From App Description and User Reviews." *JMIR mHealth and uHealth* 11, no. 1: e44838.

Hollebeek, L. D., C. Menidjel, M. Sarstedt, J. Jansson, and S. Urbonavicius. 2024. "Engaging Consumers Through Artificially Intelligent Technologies: Systematic Review, Conceptual Model, and Further Research." *Psychology & Marketing* 41, no. 4: 880–898.

Hollebeek, L. D., V. Kumar, and R. K. Srivastava. 2022. "From Customer-, To Actor-, To Stakeholder Engagement: Taking Stock, Conceptualization, and Future Directions." *Journal of Service Research* 25, no. 2: 328–343.

Huang, M.-H., and R. T. Rust. 2018. "Artificial intelligence in service." *Journal of Service Research* 21, no. 2: 155–172.

Huang, M.-H., and R. T. Rust. 2021. "Engaged to a Robot? The Role of AI in Service." *Journal of Service Research* 24, no. 1: 30–41.

Huang, M.-H., and R. T. Rust. 2022. "A Framework for Collaborative Artificial Intelligence in Marketing." *Journal of Retailing* 98, no. 2: 209–223.

Huang, M.-H., and R. T. Rust. 2024. "The Caring Machine: Feeling AI for Customer Care." *Journal of Marketing* 88, no. 5: 1–23.

Huang, M.-H., R. Rust, and V. Maksimovic. 2019. "The Feeling Economy: Managing in the Next Generation of Artificial Intelligence (AI)." *California Management Review* 61, no. 4: 43–65.

Iveson, A., M. Hultman, and V. Davvetas. 2022. "The Product Life Cycle Revisited: An Integrative Review and Research Agenda." *European Journal of Marketing* 56, no. 2: 467–499.

Jago, A. S. 2019. "Algorithms and Authenticity." *Academy of Management Discoveries* 5, no. 1: 38–56.

Jago, A. S., G. R. Carroll, and M. Lin. 2022. "Generating Authenticity in Automated Work." *Journal of Experimental Psychology: Applied* 28, no. 1: 52–70.

Jeong, M., and H. H. Shin. 2020. "Tourists' Experiences With Smart Tourism Technology at Smart Destinations and Their Behavior Intentions." *Journal of Travel Research* 59, no. 8: 1464–1477.

Kamoonpuri, S. Z., and A. Sengar. 2024. "Love It or Hate It? Deconstructing Consumers' Attitudes Towards AI Enabled Voice Shopping." *Journal of Consumer Behaviour* 23, no. 5: 2395–2412.

Kervyn, N., S. T. Fiske, and C. Malone. 2022. "Social Perception of Brands: Warmth and Competence Define Images of Both Brands and Social Groups." *Consumer Psychology Review* 5, no. 1: 51–68.

Kim, H.-Y., and A. L. McGill. 2018. "Minions for the Rich? Financial Status Changes How Consumers See Products With Anthropomorphic Features." *Journal of Consumer Research* 45, no. 2: 429–450.

Kim, H., K. K. F. So, and J. Wirtz. 2022. "Service Robots: Applying Social Exchange Theory to Better Understand Human–Robot Interactions." *Tourism Management* 92: 104537.

Kim, J. H., M. Kim, D. W. Kwak, and S. Lee. 2022. "Home-Tutoring Services Assisted With Technology: Investigating the Role of Artificial Intelligence Using a Randomized Field Experiment." *Journal of Marketing Research* 59, no. 1: 79–96.

Koles, B., A. Audrezet, J. G. Moulard, N. Ameen, and B. McKenna. 2024. "The Authentic Virtual Influencer: Authenticity Manifestations in the Metaverse." *Journal of Business Research* 170, no. Jan: 114325.

Kozinets, R. V., and U. Gretzel. 2021. "Commentary: Artificial Intelligence: The Marketer's Dilemma." *Journal of Marketing* 85, no. 1: 156–159.

Kraemer, T., W. H. Weiger, S. Trang, and M. Trenz. 2023. "Deflected by the Tin Foil Hat? Word-Of-Mouth, Conspiracy Beliefs, and the Adoption of Innovative Public Health Apps." *Journal of Product Innovation Management* 40, no. 2: 154–174.

Kumar, V., B. Rajan, R. Venkatesan, and J. Lecinski. 2019. "Understanding the Role of Artificial Intelligence in Personalized Engagement Marketing." *California Management Review* 61, no. 4: 135–155.

Lambillotte, L., Y. Bart, and I. Poncin. 2022. "When Does Information Transparency Reduce Downside of Personalization? Role of Need for Cognition and Perceived Control." *Journal of Interactive Marketing* 57, no. 3: 393–420.

Lindell, M. K., and D. J. Whitney. 2001. "Accounting for Common Method Variance in Cross-Sectional Research Designs." *Journal of Applied Psychology* 86, no. 1: 114–121.

Ling, E. C., I. Tussyadiah, A. Tuomi, J. Stienmetz, and A. Ioannou. 2021. "Factors Influencing Users' Adoption and Use of Conversational Agents: A Systematic Review." *Psychology & Marketing* 38, no. 7: 1031–1051.

Liu-Thompkins, Y., S. Okazaki, and H. Li. 2022. "Artificial Empathy in Marketing Interactions: Bridging the Human-AI Gap in Affective and Social Customer Experience." *Journal of the Academy of Marketing Science* 50, no. 6: 1198–1218.

Longoni, C., A. Bonezzi, and C. K. Morewedge. 2019. "Resistance to medical artificial intelligence." *Journal of Consumer Research* 46, no. 4: 629–650.

Lou, C., S. T. J. Kiew, T. Chen, T. Y. M. Lee, J. E. C. Ong, and Z. X. Phua. 2023. "Authentically Fake? How Consumers Respond to the Influence of Virtual Influencers." *Journal of Advertising* 52, no. 4: 540–557.

McKinsey & Company. 2024a. Harnessing AI to Reshape Consumer Experiences in Healthcare. https://www.mckinsey.com.br/industries/healthcare/our-insights/harnessing-ai-to-reshape-consumer-experiences-in-healthcare.

McKinsey. 2022a. "The Role of Personalization in the Care Journey: An Example of Patient Engagement to Reduce Readmissions." https://www.mckinsey.com/industries/healthcare/our-insights/the-role-of-personalization-in-the-care-journey-an-example-of-patient-engagement-to-reduce-readmissions.

McKinsey. 2022b. Consumer Health Insights: How Respondents Are Adapting to the "New Normal." https://www.mckinsey.com/industries/healthcare/our-insights/covid-19-consumer-healthcare-insights-what-2021-may-hold.

McKinsey. 2023. "Driving Growth Through Consumer Centricity in Healthcare." https://www.mckinsey.com/industries/healthcare/our-insights/driving-growth-through-consumer-centricity-in-healthcare.

McKinsey. 2024. "Consumers Rule: Driving Healthcare Growth With a Consumer-Led Strategy." https://www.mckinsey.com/industries/healthcare/our-insights/consumers-rule-driving-healthcare-growth-with-a-consumer-led-strategy.

Mende, M., M. L. Scott, J. Van Doorn, D. Grewal, and I. Shanks. 2019. "Service Robots Rising: How Humanoid Robots Influence Service Experiences and Elicit Compensatory Consumer Responses." *Journal of Marketing Research* 56, no. 4: 535–556.

Mende, M., M. L. Scott, V. O. Ubal, C. M. K. Hassler, C. M. Harmeling, and R. W. Palmatier. 2024. "Personalized Communication as a Platform for Service Inclusion? Initial Insights Into Interpersonal and AI-Based Personalization for Stigmatized Consumers." *Journal of Service Research* 27, no. 1: 28–48.

Meyer, K. E., A. Van Witteloostuijn, and S. Beugelsdijk. 2017. "What's in a p? Reassessing Best Practices for Conducting and Reporting Hypothesis-Testing Research." *Journal of International Business Studies* 48: 535–551.

Millet, K., F. Buehler, G. Du, and M. D. Kokkoris. 2023. "Defending Humankind: Anthropocentric Bias in the Appreciation of AI Art." *Computers in Human Behavior* 143: 107707.

Mishra, S., M. T. Ewing, and H. B. Cooper. 2022. "Artificial Intelligence Focus and Firm Performance." *Journal of the Academy of Marketing Science* 50, no. 6: 1176–1197.

Morhart, F., L. Malär, A. Guèvremont, F. Girardin, and B. Grohmann. 2015. "Brand Authenticity: An Integrative Framework and Measurement Scale." *Journal of Consumer Psychology* 25, no. 2: 200–218.

Mostafa, R. B., and T. Kasamani. 2022. "Antecedents and Consequences of Chatbot Initial Trust." *European Journal of Marketing* 56, no. 6: 1748–1771.

Musarra, G., M. J. Robson, and C. S. Katsikeas. 2023. "Machiavellianism in Alliance Partnerships." *Journal of Marketing* 87, no. 2: 168–189.

Napoli, J., S. J. Dickinson, M. B. Beverland, and F. Farrelly. 2014. "Measuring Consumer-Based Brand Authenticity." *Journal of Business Research* 67, no. 6: 1090–1098.

Nass, C., and Y. Moon. 2000. "Machines and Mindlessness: Social Responses to Computers." *Journal of Social Issues* 56, no. 1: 81–103.

Newman, G. E., and R. K. Smith. 2016. "Kinds of Authenticity." *Philosophy Compass* 11, no. 10: 609–618.

NHS. 2024. "NHS artificial intelligence (AI) giving patients better care and support". https://www.england.nhs.uk/2024/12/nhs-ai-giving-patients-better-care-and-support/.

Nishant, R., T. Nguyen, T. S. H. Teo, and P.-F. Hsu. 2024. "Role of Substantive and Rhetorical Signals in the Market Reaction to Announcements on AI Adoption: A Configurational Study." *European Journal of Information Systems* 33, no. 5: 802–844.

Noble, S. M., and M. Mende. 2023. "The Future of Artificial Intelligence and Robotics in the Retail and Service Sector: Sketching the Field of Consumer-Robot-Experiences." *Journal of the Academy of Marketing Science* 51, no. 4: 747–756.

Nunes, J. C., A. Ordanini, and G. Giambastiani. 2021. "The Concept of Authenticity: What It Means to Consumers." *Journal of Marketing* 85, no. 4: 1–20.

Obadia, C., and M. J. Robson. 2021. "The Two Sides of Cooperation in Export Relationships: When More Is Not Better." *Journal of International Business Studies* 52, no. 8: 1616–1627.

Olabode, O. E., N. Boso, M. Hultman, and C. N. Leonidou. 2022. "Big Data Analytics Capability and Market Performance: The Roles of Disruptive Business Models and Competitive Intensity." *Journal of Business Research* 139: 1218–1230.

Ostrom, A. L., J. M. Field, D. Fotheringham, et al. 2021. "Service Research Priorities: Managing and Delivering Service in Turbulent Times." *Journal of Service Research* 24, no. 3: 329–353.

Panch, T., and N. Bhojwani. 2021. "How AI Vendors Can Navigate the Health Care Industry." Harvard Business Review. https://hbr.org/2021/05/how-ai-vendors-can-navigate-the-health-care-industry.

Pantano, E., and D. Scarpi. 2022. "I, Robot, You, Consumer: Measuring Artificial Intelligence Types and Their Effect on Consumers Emotions in Service." *Journal of Service Research* 25, no. 4: 583–600.

Park, E. H., K. Werder, L. Cao, and B. Ramesh. 2022. "Why Do Family Members Reject AI in Health Care? Competing Effects of Emotions." *Journal of Management Information Systems* 39, no. 3: 765–792.

Park, S., and S. Gupta. 2012. "Handling Endogenous Regressors by Joint Estimation Using Copulas." *Marketing Science* 31, no. 4: 567–586.

Perez-Vega, R., V. Kaartemo, C. R. Lages, N. B. Razavi, and J. Männistö. 2021. "Reshaping the Contexts of Online Customer Engagement Behavior via Artificial Intelligence: A Conceptual Framework." *Journal of Business Research* 129: 902–910.

Preacher, K. J., and A. F. Hayes. 2008. "Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models." *Behavior Research Methods* 40, no. 3: 879–891.

Qin, S., N. Jia, X. Luo, C. Liao, and Z. Huang. 2023. "Perceived Fairness of Human Managers Compared With Artificial Intelligence in Employee Performance Evaluation." *Journal of Management Information Systems* 40, no. 4: 1039–1070.

Rather, R. A., S. Tehseen, M. H. Itoo, and S. H. Parrey. 2021. "Customer Brand Identification, Affective Commitment, Customer Satisfaction, and Brand Trust as Antecedents of Customer Behavioral Intention of Loyalty: An Empirical Study in the Hospitality Sector." In *Consumer Behaviour in Hospitality and Tourism*, 44–65. Routledge.

Schepers, J., D. Belanche, L. V. Casaló, and C. Flavián. 2022. "How Smart Should a Service Robot Be?" *Journal of Service Research* 25, no. 4: 565–582.

Schmitt, B. 2019. "From Atoms to Bits and Back: A Research Curation on Digital Technology and Agenda for Future Research." *Journal of Consumer Research* 46, no. 4: 825–832.

Schmitt, B. 2020. "Speciesism: An Obstacle to AI and Robot Adoption." *Marketing Letters* 31, no. 1: 3–6.

Sharma, R., A. Shishodia, A. Gunasekaran, H. Min, and Z. H. Munim. 2022. "The Role of Artificial Intelligence in Supply Chain Management: Mapping the Territory." *International Journal of Production Research* 60, no. 24: 7527–7550.

Singh, J., and R. G. Bridge. 2023. "Interfaces, Interactions, Time, and the Frontline Nexus: Foundational Constructs and Focus for the Field of Organizational Frontlines." *Journal of Service Research* 26, no. 3: 310–329.

Singh, J., S. Nambisan, R. G. Bridge, and J. K.-U. Brock. 2021. "One-Voice Strategy for Customer Engagement." *Journal of Service Research* 24, no. 1: 42–65.

Sirianni, N. J., M. J. Bitner, S. W. Brown, and N. Mandel. 2013. "Branded Service Encounters: Strategically Aligning Employee Behavior With the Brand Positioning." *Journal of Marketing* 77, no. 6: 108–123.

Södergren, J. 2021. "Brand Authenticity: 25 Years of Research." *International Journal of Consumer Studies* 45, no. 4: 645–663.

Söderlund, M. 2022. "Service Robots With (Perceived) Theory of Mind: An Examination of Humans' Reactions." *Journal of Retailing and Consumer Services* 67: 102999.

Stanko, M. A., and A. Rindfleisch. 2023. "Digital Manufacturing and Innovation." *Journal of Product Innovation Management* 40, no. 4: 407–432.

Steinhoff, L., and K. D. Martin. 2023. "Putting Data Privacy Regulation Into Action: The Differential Capabilities of Service Frontline Interfaces." *Journal of Service Research* 26, no. 3: 330–350.

Torous, J., S. Bucci, I. H. Bell, et al. 2021. "The Growing Field of Digital Psychiatry: Current Evidence and the Future of Apps, Social Media, Chatbots, and Virtual Reality." *World Psychiatry* 20, no. 3: 318–335.

Uysal, E., S. Alavi, and V. Bezençon. 2022. "Trojan Horse or Useful Helper? A Relationship Perspective on Artificial Intelligence Assistants With Humanlike Features." *Journal of the Academy of Marketing Science* 50, no. 6: 1153–1175.

Valsesia, F., and K. Diehl. 2022. "Let Me Show You What I Did Versus What I Have: Sharing Experiential Versus Material Purchases Alters Authenticity and Liking of Social Media Users." *Journal of Consumer Research* 49, no. 3: 430–449.

Wang, C., J. Harris, and P. Patterson. 2013. "The Roles of Habit, Self-Efficacy, and Satisfaction in Driving Continued Use of Self-Service Technologies: A Longitudinal Study." *Journal of Service Research* 16, no. 3: 400–414.

Wang, W., and K. Siau. 2019. "Artificial Intelligence, Machine Learning, Automation, Robotics, Future of Work and Future of Humanity: A Review and Research Agenda." *Journal of Database Management* 30, no. 1: 61–79.

Wang, Y.-C., and M. Uysal. 2024. "Artificial Intelligence-Assisted Mindfulness in Tourism, Hospitality, and Events." *International Journal of Contemporary Hospitality Management* 36, no. 4: 1262–1278.

Wetzel, H. A., S. Hattula, M. Hammerschmidt, and H. J. van Heerde. 2018. "Building and Leveraging Sports Brands: Evidence From 50 Years of German Professional Soccer." *Journal of the Academy of Marketing Science* 46: 591–611.

wired.com. 2025. "Babylon Disrupted the UK's Health System. Then It Left". https://www.wired.com/story/babylon-disrupted-uk-health-system-then-left/.

Wu, Y., Y. Mou, Z. Li, and K. Xu. 2020. "Investigating American and Chinese Subjects' Explicit and Implicit Perceptions of AI-Generated Artistic Work." *Computers in Human Behavior* 104: 106186.

Yu, K.-H., A. L. Beam, and I. S. Kohane. 2018. "Artificial Intelligence in Healthcare." *Nature Biomedical Engineering* 2, no. 10: 719–731.

Zhang, M., D. Gursoy, Z. Zhu, and S. Shi. 2021. "Impact of Anthropomorphic Features of Artificially Intelligent Service Robots on Consumer Acceptance: Moderating Role of Sense of Humor." *International Journal of Contemporary Hospitality Management* 33, no. 11: 3883–3905.

Zhang, M., Y. Li, Y. Li, and X. Ren. 2023. "Beyond Presence: Creating Attractive Online Retailing Stores Through the Cool AR Technology." *International Journal of Consumer Studies* 47, no. 3: 1139–1156.

Zierau, N., C. Hildebrand, A. Bergner, F. Busquet, A. Schmitt, and J. M. Leimeister. 2023. "Voice Bots on the Frontline: Voice-Based Interfaces Enhance Flow-Like Consumer Experiences & Boost Service Outcomes." *Journal of the Academy of Marketing Science* 51, no. 4: 823–842.

Złotowski, J., K. Yogeeswaran, and C. Bartneck. 2017. "Can We Control It? Autonomous Robots Threaten Human Identity, Uniqueness, Safety, and Resources." *International Journal of Human-Computer Studies* 100: 48–54.

## Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Appendix S1:** Supporting Information.

## Biographies

**Pantea Foroudi is** the Director of Research in the Business Analytics and Marketing Department (since 2025), and a Reader in Marketing and Corporate Brand Management. She is also the Director of the Sustainable Digital Economy Area of Excellence and a Member of the School Management Board (2024). Pantea serves as the Head of the Research Group in Marketing and Corporate Brand Management (2023–2025). Prior to her current academic leadership roles, she worked as the Business Manager and Solution Architect at Foroudi Consultancy (2013–2023). Since 1996, Pantea has built extensive experience in design, branding, and marketing, establishing herself as a creative innovator and practical problem-solver in visual identity, graphic design, and branding across various sectors. Pantea's primary research interests focus on consumer behavior, using a multidisciplinary approach across two key areas: (i) corporate brand design and identity and (ii) sustainable development goals (SDGs). Her research has been widely published in leading international academic journals, including the British Journal of Management, Regional Studies, International Journal of Management Reviews, Journal of Business Research, European Journal of Marketing, International Journal of Hospitality Management, and more. Pantea's scholarly impact has been recognized globally. She was listed as the FIRST in "top scholarly output" in the United Kingdom and Europe and ranked FOURTH worldwide for the period 2016–2022 (December 2022). She has also been featured in Stanford University's Top 2% of Scientists ranking, as per Elsevier's Scopus database (2024, 2023, and 2022). In addition to her academic achievements, Pantea has extensive editorial experience as an associate and senior editor for renowned journals, including the International Journal of Hospitality Management, Journal of Business Research, International Journal of Contemporary Hospitality Management, European Journal of International Management, and more. Her work continues to make significant contributions to the fields of marketing, corporate branding, and sustainability.

**Matthew J. Robson** is Head of the Marketing & Strategy Section at Cardiff Business School (CARBS). He earned his PhD and began his academic career at CARBS before leaving for Leeds University Business School. Prof. Robson rejoined CARBS in January 2019, after a 10-year spell at Leeds. Prof. Robson spent six of these as their Head of the Marketing Division. In this capacity, he helped to establish the ESRC-funded Consumer Data Research Centre, was a founder member of the Leeds Institute for Data Analytics, and was founding Programme Director of MSc Consumer Analytics and Marketing Strategy. He has been involved as Primary or Co-Investigator in funded research projects that total approximately seven million pounds. Prof. Robson's teaching and research interests focus on international, strategic, relationship, and retail marketing. He has won a number of awards for teaching and research. Prof. Robson has published in many journals of international repute including British Journal of Management, International Marketing Review, Journal of the Academy of Marketing Science, Journal of Business Ethics, Journal of International Business Studies, Journal of International Marketing, Journal of Marketing, Journal of World Business, Management International Review, and Organization Science. He currently serves as Associate Editor of Journal of International Marketing and is on the Editorial Advisory Board of British Journal of Management, International Marketing Review, and Journal of International Business Studies. His classroom teaching and doctoral supervision work spans several areas of (international) marketing strategy. Prof. Robson is vastly experienced in doctoral student supervision, having supervised over 20 students through to successful completion. He believes very strongly in building the academy. Finally, Prof. Robson has been involved in consultancy work for Cummins, Holiday Inn, General Motors, and Marks and Spencer, among other firms.

**Reza Marvi** is a lecturer (Assistant Professor) in Marketing and Entrepreneurship at Aston Business School and the Online MBA Programme Director at Aston University. Prior to joining Aston, he was an Associate Lecturer in Marketing and Branding at Middlesex Business School in London, UK. Reza has accumulated several years of professional experience delivering marketing consultancy projects and leading Knowledge Transfer Partnerships (KTPs) across the United Kingdom, collaborating closely with industry partners to drive innovation and business growth. His research takes a multidisciplinary approach to understanding consumer behavior, with a particular emphasis on customer engagement, the customer experience, and how these influence brand relationships and business performance. Reza's research focuses on consumer behavior from a multidisciplinary perspective, particularly on customer engagement and the customer experience. His work has been published in leading journals, including the British Journal of Management, Journal of Business Research, European Journal of Marketing, and International Journal of Contemporary Hospitality Management, among others.

**Stavroula Spyropoulou** is Professor of Marketing at Leeds University Business School. Her research focuses on international marketing, competitive strategies and performance, cross-cultural buyer–seller relationships, and marketing strategy. Stavroula has published in the Journal of the Academy of Marketing Science, the Journal of International Business Studies, the Journal of International Marketing, and the Journal of Marketing, and in many other journals.