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RESEARCH ARTICLE

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Matching digital companions with customers: The role of perceived similarity

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Abstract

Digital companions are an advanced form of digital agents that do not only provide advice and support but accompany people on their day-to-day customer journeys. This article sheds light on the psychological processes underlying customers' responses to these digital companions (i.e., virtual friends or co-consumers). We propose that framing them as matched with customers on goal-relevant attributes (i.e., attributes related to customers' consumption goals) fosters positive customer outcomes (i.e., consumption enjoyment and positive word-of-mouth), mediated by perceived similarity in these attributes. Importantly, in this matching context, humanlikeness serves as a boundary condition for perceived similarity to occur. Furthermore, the effect of perceived similarity on customer outcomes is driven by perceived connectedness. In Study 1, in the context of experiential learning, we identified shared interest and personality as goal-relevant attributes underlying perceived similarity. With the manipulation of the match frame and humanlike versus artificial voice of the digital companion, Study 2 supports our propositions and highlights shared interest, but not personality, as the core driver. We provide recommendations on how to design and market digital companions to foster connection and favorable customer outcomes.

KEYWORDS

co-consumers, consumption enjoyment, digital agents, digital companions, human-likeness, perceived connectedness, perceived goal-relevant similarity, virtual friends

1 | INTRODUCTION

With the advancements of Technologies 4.0, artificial intelligence (AI)-enabled digital agents such as chatbots and shopping assistants have permeated everyday life (Belanche et al., 2020). While they were initially adopted for their convenience and functional benefits, the experiential benefits of AI such as their emotional and social roles are gaining attention (Puntoni et al., 2021). Marketers have also started to steer away from presenting digital agents merely as *digital assistants*, that is, salespersons or employees, who provide service and advice. Instead, mirroring the idea of the customer journey as a series of purchase-related touchpoints (Becker & Jaakkola, 2020), virtual agents such as Alexa or Siri are increasingly understood as *digital companions* that accompany people on their day-to-day customer journeys. Some firms explicitly position their digital agents as virtual friends (e.g., German Autolabs promoting them as "driving with a friend"; Kickstarter, 2022) or caring lifetime buddies (e.g., Replika, "the AI companion who cares" and is "always on your side";

https://replika.com/, 2023). Some consumers perceive these companions as partners rather than servants (Schweitzer et al., 2019), integrate them into their lives as if they were companions, share their thoughts, seek their opinions, and build relationships with them (Pitardi & Marriott, 2021). Some users even believe that digital companions are sentient and feel emotions (Tiku, 2022).

Despite this increasing role of digital companions and different forms of relationships with them, we do not know much about what makes consumers feel connected to these companions, and thus, fosters positive customer outcomes. This is because prior marketing research has focused mainly on digital assistants and has just started to address digital companions only recently. To the best of our knowledge, there is only one exploratory study from communication research suggesting that similarity is key for establishing a friendship, but is difficult to achieve with a digital companion (Brandtzaeg et al., 2022). By examining how to increase similarity perceptions with digital companions, the present research follows a recent call to identify factors and processes of human relationships with artificial intelligence (Pentina et al., 2023). It offers novel insights by first identifying drivers of positive responses to digital assistants and then testing the factors that are important in the context of digital companions. We argue that perceived similarity (e.g., Nass & Lee, 2001) and perceived humanlikeness (e.g., Blut et al., 2021) are highly relevant in a friendship context, thus for digital companionship. Specifically, we examine their distinctive roles on customer outcomes and examine the mechanism underlying these effects.

We contribute to the marketing literature, particularly the burgeoning literature on digital firm–customer interactions, in several ways. First, we address the effectiveness of digital companions as a growing, but underresearched type of digital agents. While prior research on digital assistants found direct positive effects of perceived similarity (e.g., Aksoy et al., 2006; You & Robert, 2018) and humanlikeness (Blut et al., 2021) on customer outcomes and sometimes even uses "being humanlike" and "being similar" interchangeably (e.g., Ahn et al., 2021), we show that applying the implied rule of "a similar *or* humanlike agent is good" to digital companions seems premature. We also reveal an important boundary condition for these virtual buddies: Presenting them as matched to customers will only foster perceived similarity and subsequent positive customer outcomes if they are perceived as humanlike.

Second, we uncover the mechanism for this effect. Drawing on the concept of homophily (Lazarsfeld et al., 1954), we suggest that similarity creates connection (McPherson et al., 2001). By extending prior research in brick-and-mortar retailing, which shows connectedness as a mechanism underlying the effect of similarity on customer attitude (Crosby et al., 1990; Dwyer et al., 1998; Jiang et al., 2010), we demonstrate that perceived connectedness is key in driving customer reactions to perceived similarity in the digital realm. This finding is noteworthy as it shows that people can feel connected with nonhuman, digital entities.

Third, as an exploratory contribution, we study the attributes that are central to similarity perceptions. Prior research demonstrates that perceived similarity can arise from multiple shared attributes, such as personality, personal taste and preferences, religion, or ethnicity (Launay & Dunbar, 2015; Montoya et al., 2008), but that it is goal-relevant similarity that matters the most in consumption contexts (e.g., attributes related to consumers' buying goals; Arndt et al., 2021). We examine what comprises goal-relevant similarity during a customer journey with a digital companion. Managerially, we provide recommendations on how to present and market digital companions to foster positive customer outcomes.

The subsequent sections encompass the theoretical foundation regarding digital assistants and companions, as well as our conceptual model. We then present Study 1 as an exploratory pilot study to identify relevant dimensions of goal-relevant similarity and Study 2 to test the hypotheses. We conclude with implications and avenues for future research.

2 | THEORETICAL BACKGROUND

2.1 | The relevance of prior research on digital assistants for digital companions

Prior research on digital assistants has identified positive customer perceptions (e.g., perceived humanlikeness, similarity, competence, warmth) as key drivers of the acceptance of these agents. Largely, these perceptions explain how customer and assistant characteristics (e.g., their gender, personality, decision-making processes) contribute to favorable customer outcomes (e.g., enjoyment, positive word-of-mouth, usage intentions; see Table 1 for an overview).

Among these customer perceptions, we focus on the agent's perceived similarity and humanlikeness as these factors hold particular significance in the context of digital companionship. As a departure from the exchange relationship implied in digital assistants, digital companions represent friends or buddies albeit in the virtual space. In building friendship, the extent to which a partner is *perceived to be similar* to themselves (Montoya et al., 2008) is crucial as people create their social activities and environments to match and reinforce their dispositions, preferences, and self-perceptions (e.g., Snyder & Ickes, 1985). Individuals have a fundamental need for a consistent worldview, and similar people validate and reinforce each other's ideas, eliciting positive feelings (McPherson et al., 2001; Montoya & Horton, 2013). Other constructs explored in the context of digital assistants such as (automated) social presence (i.e., the perceived presence of another social entity; van Doorn et al., 2017), perceived competence, and perceived warmth (Fiske et al., 2007) are not directly linked to perceptions of shared grounds with others, and thus, may be less relevant in the context of friendship.

Furthermore, we argue that *perceived humanlikeness* (i.e., people's tendency to attribute human characteristics to nonhuman agents due to their innate desire for social connection and bonding; Epley et al., 2007) is a necessary boundary condition for evoking similarity perceptions in a companionship context. This is because companionship is rooted in a communal relationship rather than an exchange-based one, emphasizing a higher level of mutual concern (Clark &

TABLE 1 Major variables in prior research on digital assistants.

Characteristics of customer and assistant	Positive customer perceptions	Positive customer outcomes
Customer characteristics Age (e.g., Blut et al., 2021) Gender (e.g., Romero et al., 2021) Decision-making (e.g., Al-Natour et al, 2011) Personality (e.g., Nass & Lee, 2001) Prior experience (e.g., Blut et al., 2021) Technology readiness (e.g., van Doorn et al., 2017) Assistant characteristics Nonphysical features (e.g., gender, gesture, emotion, personality, voice) (e.g., Blut et al., 2021; Nass & Lee, 2001) Physical features (e.g., cuteness, embodiment, design, size) (e.g., Blut et al., 2021)	Autonomy (e.g., Schepers et al., 2022) Competence (e.g., Belanche et al., 2021) Credibility (e.g., Flavián et al., 2023) Empathy (e.g., Pozharliev et al., 2021) Humanlikeness (e.g., Blut et al., 2021) Interaction opportunity (e.g., Letheren et al., 2021) Playfulness (e.g., Mishra et al., 2022) Similarity (e.g., Al-Natour et al., 2011) Social presence (e.g., Jiang et al., 2022) Usefulness (e.g., Flavián et al., 2023) Warmth (e.g., Belanche et al., 2021)	Attitude (e.g., Akdim et al., 2023) Enjoyment (e.g., Hernandez-Ortega & Ferreira, 2021) Intention to (re-)use/visit (e.g., Romero et al., 2021) Loyalty (e.g., Belanche et al., 2021) Positive/negative emotions (e.g., Schepers et al., 2022) Purchase intention (e.g., Flavián et al., 2023) Satisfaction (e.g., Pozharliev et al., 2021) Trust (e.g., You & Robert, 2018) Usage (e.g., Mishra et al., 2022) Word-of-mouth (e.g., Pitardi & Marriott, 2021)

Note: Constructs listed in alphabetical order.

Mills, 1979). For such a relationship to evolve with an artificial entity, perceived similarity may require that this entity be capable of bonding, that is, possess humanlike characteristics.

Next, we conceptualize perceived similarity and humanlikeness and explain their positive effects on customer outcomes, as evidenced in prior research on digital assistants. We then formulate hypotheses tailored to the context of digital companionship.

2.2 | The concept of similarity

In the social psychology literature, it is well established that similarity between people (i.e., sharing attributes with another person) positively affects their interpersonal relationship. The effect can be explained by the *similarity-attraction theory*, which posits that we like others who are similar to ourselves (Byrne et al., 1967). From an information processing perspective, people generally have a positive self-evaluation, and as a result, they perceive others who share similar attributes as attractive (Montoya & Horton, 2013).

The concept of similarity has been applied to marketing contexts. Prior work has demonstrated the positive effects of customer–employee similarity on various outcomes, encompassing interactions with human employees (e.g., Crosby et al., 1990; Dwyer et al., 1998; Jiang et al., 2010) and digital assistants (e.g., Nass & Lee, 2001; You & Robert, 2018). Despite some contextual boundaries (e.g., Lee et al., 2011; Staffa et al., 2021), these positive effects are widely accepted. Prior marketing research on human/digital employee–customer relationships has also shown that similarity can be observed across a range of attributes. These attributes include observable characteristics such as gender (Dwyer et al., 1998), ethnicity (Boshoff, 2012), age (Dwyer et al., 1998), life-stage (Smith, 1998), and appearance (Crosby et al., 1990), as well as internal attributes, such as interest (Kleijnen et al., 2009), personality (Dion et al., 1995), decision-making (Aksoy et al., 2006), and working style (You & Robert, 2018). Given this diverse array of attributes, two particular findings warrant attention.

First, in both human–human (Montoya et al., 2008) and customer–employee relationships (Arndt et al., 2016; Dion et al., 1995), *perceived similarity* matters more than actual similarity. In other words, the perception of sharing certain attributes with firm representatives contributes to a positive relationship, even if there may not be much in common in reality. Indeed, prior research shows that customers make various inferences about digital assistants, for example, regarding their personality traits (Garcia et al., 2018; Nass & Lee, 2001). This tendency opens up the possibility for firms to foster perceptions of similarity by communicating that a digital companion is matched with a customer on relevant characteristics.

Second, building on psychological research that key attributes produce greater liking than less relevant ones (Montoya & Horton, 2013), Arndt et al. (2021) recently highlighted the role of *goal-relevant similarity* (vs. incidental similarity) in marketing contexts. Goal-relevant similarity refers to attributes directly related to consumers' buying or consumption goals (e.g., shared gender with a fitness trainer), whereas incidental similarity does not (e.g., shared birthday with a fitness trainer). Since goal-relevant similarity is diagnostic of the employee's overall performance (i.e., a trainer of same gender better understands customer needs), it may be particularly relevant when consumers are making significant decisions such as choosing between different service providers. It is important to note that goal-relevance is context-dependent, for example, with gender playing a role in fitness, but not in a restaurant context (Arndt et al., 2021).

2.3 | The concept of anthropomorphism or humanlikeness

Humanlikeness originates from anthropomorphism, which is defined as "imbuing the imagined or real behavior of nonhuman agents with

humanlike characteristics, motivations, intentions and emotions" (Epley et al., 2007, p. 864). At the core of this definition is the tendency to perceive something that is not human as humanlike, which is why, in line with other work (e.g., Letheren et al., 2021; Zhang et al., 2022), we use both terms interchangeably. The tendency for people to anthropomorphize nonhuman objects stems from their sociality motivation, which reflects the fundamental human need to connect with others. By ascribing human attributes to nonhuman objects, such as assigning them motivations and emotions, individuals allow themselves to build social connections with these objects (Epley et al., 2007; Zhang et al., 2022).

Prior marketing research has supported the positive evaluation of brands that are perceived as humanlike (Aggarwal & McGill, 2007). This positive role has also been extended to digital assistants within the marketing context, where the motivation for sociality is heightened due to a lack of social interactions in digital environments. A recent meta-analysis has supported anthropomorphism as a primary driver of customers' positive downstream behavior, indicating that the more humanlike a digital assistant appears, the more inclined consumers are to use the associated service (Blut et al., 2021). Thus, humanlikeness is likely to play a significant role in forming social interactions between humans and digital assistants (Chong et al., 2021; Letheren et al., 2021).

In sum, consumers generally respond positively to both the perceived similarity and humanlikeness of a digital assistant. In the subsequent section, we will propose that, for digital companions, humanlikeness serves as a boundary condition for the perceptions of similarity to arise.

3 | HYPOTHESES DEVELOPMENT

3.1 | Overview of conceptual model

Figure 1 depicts our conceptual model. It presents *perceived similarity* in goal-relevant attributes as driving customer outcomes. We hypothesize that this effect can be triggered by a *match frame* on these attributes, but only for a *humanlike companion* (H1). We further aim to elucidate the proposed mechanism for a humanlike companion by suggesting that the positive effect of a *match frame*, driven by similarity perceptions, on customer outcomes is further mediated by perceived connectedness (H2).

The customer outcomes selected in our framework are derived from those examined in prior research on digital assistants (see Table 1). First, we consider *enjoyment*, which represents the extent to which the interaction with the digital agent is perceived as enjoyable (Pitardi & Marriott, 2021). This assessment focuses on the hedonic quality of consumers' interaction with the digital agent (Qiu & Benbasat, 2009), which directly relates to the experiential customer journey. Furthermore, enjoyment serves as a motivator for individuals to continue using a service (El Shamy & Hassanein, 2017), making it a significant criterion for success in technology acceptance research (Bruner & Kumar, 2005). Second, we consider *positive word-of-mouth (WOM)*, which refers to customers' behavioral intentions to recommend a service to other (potential) users. In the context of digital assistants (e.g., Hernandez-Ortega & Ferreira, 2021), positive WOM has been demonstrated to strongly correlate with other favorable outcomes, such as loyalty, satisfaction, and advocacy (Pozharliev et al., 2021), thus promoting the diffusion of new technologies (Mishra et al., 2022).

3.2 | Distinctive roles of perceived similarity and humanlikeness for digital companions

The aforementioned findings from prior similarity research (Arndt et al., 2021; Montoya et al., 2008) point to the importance of customers' perceptions of shared goal-relevant attributes (i.e., attributes directly related to customers' buying or consumption goals) with a digital companion. Given this premise, we propose that a *goal-relevant match frame* (i.e., marketing effort to present a digital companion as matching customers on attributes directly related to their consumption goals) can induce these similarity perceptions. This is because when users interact with digital agents, they not only treat them as social characters by employing human social norms (Pitardi & Marriott, 2021), but they also attribute certain characteristics, such as personality traits, to them (Garcia et al., 2018; Nass & Lee, 2001). Given such attribution processes, customers may be open to marketing communications that highlight a digital companion's characteristics—particularly, shared characteristics as they increase

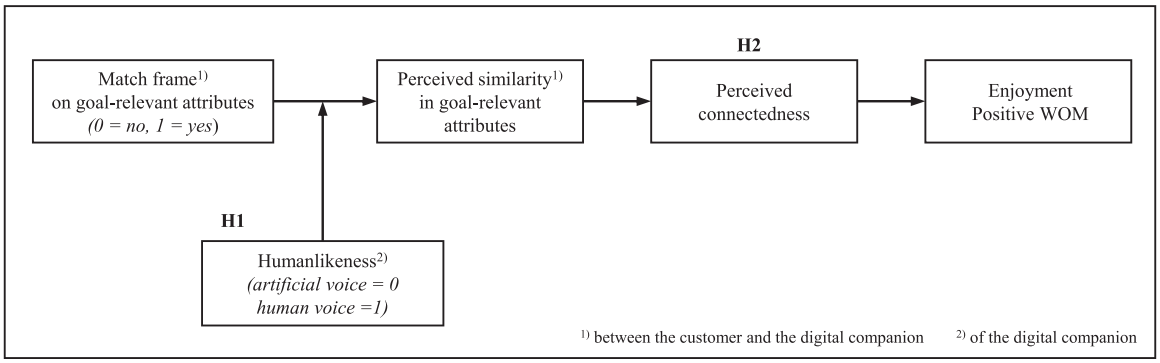

FIGURE 1 Conceptual model.

attractiveness (Byrne et al., 1967) and goal-relevant attributes as they indicate an agent's capabilities to effectively support customers' consumption processes (Arndt et al., 2021). In support of this, research in an offline context has shown that customers feel greater intimacy with frontline employees who share personal experiences related to the promoted products with them (Park & Yi, 2023).

We further propose that the "match frame–perceived similarity" link is conditional on the humanlikeness of the digital companion such that it only occurs when the companion is perceived to be *humanlike*. Prior research on digital assistants shows that perceived similarity alone is sufficient to induce positive customer outcomes (e.g., Aksoy et al., 2006). Yet, digital assistants may evoke an exchange relationship norm by taking the role of service employees. In contrast, digital companions are considered more as friends who accompany users on their customer journey. This characterization is likely to evoke a *communal relationship* norm, where consumers perceive the agent more as a social entity that cares about them and with whom they wish to build a relationship (Cheng, 2022; Clark & Mills, 1979). To build such a relationship, a proposed match between the digital entity and the customer may not be sufficient, but require additional components (Pentina et al., 2023). Specifically, we argue that this match frame is likely to induce goal-relevant similarity perceptions only when the virtual counterpart is felt as humanlike. Only such an anthropomorphized entity is perceived as being able to experience emotions, understand human needs, and build a communal relationship (Cheng, 2022; Epley et al., 2007; Zhang et al., 2022). Yet, humanlikeness by itself is not sufficient to induce similarity perceptions either because an anthropomorphized face, voice, and body movement alone does not necessarily evoke the perception of sharing consumption goal-relevant characteristics with the companion.

We thus propose humanlikeness as a boundary condition for a match frame to foster perceived similarity—a departure from the simple additive positive effect of humanlikeness observed in prior research on task-driven digital assistants in exchange relationships. Furthermore, considering that similarity fosters attractiveness (Byrne et al., 1967), we expect that the perceived similarity of a digital companion contributes to a positive service experience (i.e., enjoyment of service usage) and results in a favorable service evaluation (i.e., positive WOM). In summary, we propose H1:

H1 A match frame between the customer and the digital companion on goal-relevant attributes (vs. no match frame) increases perceived similarity, positively influencing enjoyment and positive WOM. This positive effect only occurs when the digital companion is humanlike (vs. not humanlike).

3.3 | Perceived connectedness as a mechanism underlying perceived similarity

H2 delves into the process underlying the proposed effect for humanlike companions, explaining why perceived similarity, driven by a match frame, leads to positive customer outcomes. We propose that this relationship is explained by perceived connectedness, defined as felt emotional closeness between the self and another entity (Lee & Robbins, 1995). This mechanism is derived from the concept of homophily, initially introduced by Lazarsfeld et al. (1954) to describe the consequences of (perceived) similarity in friendship relationships. In essence, "similarity breeds connection" (McPherson et al., 2001, p. 415). This is because people believe that they share knowledge with similar others, expecting easier communication and coordination of activities, thereby fostering a sense of connection (McPherson et al., 2001). As such, perceived connectedness fulfills the fundamental human need to belong (Baumeister & Leary, 1995), and is therefore likely to generate positive effects in individuals.

In our context, the perceived similarity with a humanlike digital companion triggered by a match frame is likely to foster perceived connectedness, which in turn leads to enjoyment as an experiential benefit and, in a broader scope, to positive WOM as a way of complimenting the service that has fulfilled the need to belong. Formally, we state:

H2 The effect of a goal-relevant match frame between the customer and the humanlike digital companion (vs. no match frame) on enjoyment and positive WOM through perceived similarity is further driven by perceived connectedness.

4 | STUDY 1: EXPLORATORY PILOT STUDY

4.1 | Purpose

We conducted an exploratory pilot study for two reasons. First, the key variable in our conceptual framework is perceived similarity on goal-relevant attributes. Prior research highlights that goal-relevant similarity with a partner (or service provider) is context-specific (Arndt et al., 2021). We thus aim to identify goal-relevant attributes that are perceived as important in the context of a customer journey involving a digital companion. Second, we seek to gain insights for developing an appropriate experimental design involving a match frame and perceived humanlikeness in Study 2.

4.2 | Method

Given the burgeoning e-learning platforms with an estimated global revenue of more than $50bn in 2022 (Statista, 2022), we created an engaging wine learning platform. It enabled participants to travel online with a digital companion to several global wine regions (France, South Africa, and New Zealand). At each destination, information about specific production methods and grapes growing in each region was provided. All participants traveled together with a digital companion named Jenny. At the beginning of the journey, she introduced herself ("Hi, I am Jenny, and I am excited to be joining you for our trip. I can't wait to learn more about wine with you.") and

made several comments throughout the trip. In some cases, she asked participants rhetorical questions (e.g., "Have you ever been to New Zealand before?"). See Supporting Information: Web Appendix 1 for design and manipulations.

To address the generalizability of our findings and explore different companion types for Study 2 design, we created four different versions of Jenny, based on those commonly seen in practice. Across the four versions, we conveyed the same communication content through (1) a human voice; (2) an artificial voice; (3) speech bubbles; or (4) speech bubbles coming from an embodied, animated companion. In the human voice condition, Jenny spoke with the voice of an American female, whereas in the artificial voice condition, Jenny spoke with a female artificial voice created on a platform for professional voiceovers (https://www.kukarella.com/, Kukarella, 2022). The embodied avatar was created using the video editing software DaVinci Resolve (https://www.blackmagicdesign.com, 2022). Participants were assigned randomly to one of these four versions and took on a virtual wine tour. After the interaction, participants indicated their perceived similarity with the companion ("How similar do you think Jenny, your virtual companion, is to you?" 1 =*not at all*, 7 = *very much*), followed by an open-ended question probing the reasons why she was (rather) similar (for those with similarity ratings ≥4) or why not similar (ratings <4). These answers were content analyzed by first screening all answers for possible categories, to which all answers were then assigned. Second, these categories were discussed and condensed. Third, all answers were coded again by two independent coders, based on the new categories (Krippendorff, 2019). The inter-coder reliability was 87.3%, and inconsistencies were resolved through discussion (Perreault & Leigh, 1989). Participants also indicated that they perceived the platform as realistic, with a mean value of 5.2 across all versions (p >0.12) on a two-item, 7-point scale (e.g., "A wine app like this could exist in reality," α = 0.89).

We recruited 638 US-based adults via the crowdsource platform Prolific, in exchange for monetary compensation, of which 611 participants (female: 50.1%, mean age: 36.8 years) passed an attention check.

4.3 | Results

Out of 611 participants, 324 participants (53%) perceived the companion Jenny as (rather) similar to themselves and provided 378 reasons; 287 participants (47%) perceived it to be not similar, providing 351 reasons. The overall perception of similarity did not vary across conditions (F(3,607) = 1.823, p =0.142; see Table 2). We content analyzed the reported reasons for (dis)similarity (see Table 2). By far, the most frequent *reason for similarity* was related to a shared interest (in wine or traveling) with Jenny (40.8%), followed by a shared personality (22.5%). Frequent *reasons for not being similar* were also related to their interests (17.1%) and personality (17.9%) not being shared with Jenny. Yet, the most important reason for dissimilarity concerned Jenny's lack of humanlikeness; with 34.8% of the answers elaborating on Jenny not being a real person, but somewhat "robotic," "artificial," or "unreal." In contrast, shared humanlikeness (e.g., "She sounded humanlike and engaging. Made the experience feel a bit personable.") was only one of many other miscellaneous reasons for similarity (2.1%). Overall, the percentages do not vary significantly across companion versions for similarity reasons (χ^2 = 11.68, p =0.069). For the dissimilarity reasons, the percentages tend to vary (χ^2 = 61.90, p ≤0.001) but the patterns remain the same, with one exception: Respondents in the artificial voice version most often indicated a lack of humanlikeness (64.0% vs. 22.1%–25% for the other versions).

The overall similarity perception was independent of participants' gender (F(1,609) = 0.292, p =0.589) and age (F(53,557) = 1.193, p =0.173). Furthermore, only 7.4% and 4.8% of those who perceived Jenny as similar and dissimilar, respectively, mentioned gender as a reason.

4.4 | Discussion

Study 1 served two purposes. First, in the context of a wine learning platform, it explored the drivers of perceived goal-relevant similarity with a digital companion during a customer journey. Participants mentioned *interest* (in wine and travel) and *personality* most often (with interest being the most frequent category—both as reasons why they do or do not consider Jenny as similar. Hence, shared interest and personality with a companion are goal-relevant attributes in an experiential learning context. This important finding adds to the prior finding that goal-relevant similarity is context-dependent (Arndt et al., 2021). For digital assistants, attributes such as the same gender exerted positive effects (e.g., Romero et al., 2021; Zogaj et al., 2023), but the role of gender is not likely a key driver of goal-relevant similarity perceptions for experiential learning with companions.

Second, our findings help us design Study 2. They suggest that shared interest (in wine and travel) and personality as potential drivers of the match frame manipulation. Furthermore, we gain design-relevant insights for the four companion versions. All companions are perceived as equally similar, but missing humanlikeness is mentioned most often for the artificial voice companion. Therefore, we used an artificial voice, together with human voice as its natural counterpart, to manipulate low versus high humanlikeness in Study 2. We also learn that gender matching is not necessary in our context. There were no significant differences between males and females in their perceived similarity of Jenny's female voice, and gender was hardly indicated as a reason for perceived similarity or dissimilarity. Hence, we used a female voice in Study 2.

5 | STUDY 2: HYPOTHESES TESTING

5.1 | Purpose

Study 2 tests H1—whether a customer-companion match frame on goal-relevant attributes (vs. no match frame) fosters enjoyment and

TABLE 2 Results of content analysis (Study 1).

	Category	Representative quote	Separated by condition: Human voice	Artificial voice	Companion + speech bubbles	Speech bubbles	Sum (%)
	Mean similarity perception (overall sample)		3.47	3.29	3.45	3.75	3.49 ($F(3,607) = 1.823$, $p = 0.142$)
(Rather) similar (378 responses from 324 participants)	Shared interest	"We both like wine."; "Likes to travel."	35 (36.5%)	32 (43.8%)	37 (38.1%)	52 (44.8%)	156 (40.8%)
		Mean similarity perception	4.66	5.00	4.65	4.67	4.73 ($F(3,152) = 1.378$, $p = 0.252$)
	Shared personality	"She has an exciting personality, which relates a lot to mine."	25 (26.0%)	12 (16.4%)	16 (16.5%)	33 (28.4%)	86 (22.5%)
		Mean similarity perception	4.84	4.92	4.94	4.67	4.80 ($F(3,82) = 0.477$, $p = 0.699$)
	Miscellaneous Σ10 categories	"Because she's female like me."; "She is about my age."	36 (37.5%)	29 (39.7%)	44 (45.4%)	31 (26.7%)	40 (36.6%)
	Mean similarity perception		4.87	5.12	4.91	4.77	4.90 ($F(3,320) = 1.835$, $p = 0.141$)
	Σ		Σ 96	Σ 73	Σ 97	Σ 116	382 (100%)
Not similar (351 responses from 287 participants)	No shared interest	"I am not very passionate about wine."	15 (17.4%)	11 (11.0%)	20 (19.8%)	14 (21.9%)	60 (17.1%)
		Mean similarity perception	2.13	2.09	2.20	1.86	2.08 ($F(3,56) = 0.484$, $p = 0.694$)
	No shared personality	"She was more bubbly and excited, whereas I'm more reserved."	24 (27.9%)	12 (12.0%)	14 (13.8%)	13 (20.3%)	63 (17.9%)
		Mean similarity perception	2.17	2.00	2.43	2.23	2.21 ($F(3,59) = 0.545$, $p = 0.654$)
	No humanlikeness	"Jenny is virtual—I am real."	19 (22.1%)	64 (64.0%)	23 (22.8%)	16 (25.0%)	122 (34.8%)
		Mean similarity perception	1.58	1.69	1.52	1.50	1.61 ($F(3,118) = 0.389$, $p = 0.761$)
	Miscellaneous Σ 9 categories	"I'm not a teenager."; "We come from different backgrounds."	28 (32.6%)	13 (13.0%)	44 (43.6%)	21 (32.8%)	106 (30.2%)
	Mean similarity perception		1.90	1.81	1.99	1.89	1.90 ($F(3,283) = 0.554$, $p = 0.646$)
	Σ		Σ 86	Σ 100	Σ 101	Σ 64	351 (100%)

Note: Only frequencies above 10% are reported. Sums might not add up to 100% due to rounding differences.

positive WOM through perceived similarity on these attributes, but only for a humanlike (vs. nonhumanlike) companion. Further, it serves to test H2, which proposes that for a humanlike companion, the effect of a match frame on customer outcomes through perceived similarity is further driven by perceived connectedness.

5.2 | Method

Participants were introduced to the same wine learning platform as in Study 1 and met a digital companion named Jenny (see Supporting Information: Web Appendix 2 for design and manipulations). In this study, we used a voice agent for the following reasons. Voice agents are becoming a dominant form of digital agents on various applications and are being used regularly (Moriuchi, 2019). Further, by not having to visualize a physical appearance, they are likely to reduce potential idiosyncratic confounds that may occur when presenting a static or animated avatar. Finally, our exploratory Study 1 showed that artificial voices, which are commonly used in practice, are particularly perceived as not humanlike.

Study 2 adopted a 2 (goal-relevant match frame: yes vs. no) × 2 (humanlikeness: humanlike vs. artificial companion voice) between-subjects design. *Match frame* was manipulated before the tour, based on the two goal-relevant attributes identified in Study 1—shared interest and personality. For this purpose, all participants were asked questions about their interest in wine and traveling ("I'm interested in wine" and "I'm interested in traveling"; 1 = *not at all*, 9 = *very much*) and personality (10 questions representing the Big 5 inventory; Rammstedt & John, 2007). In the *match frame* condition, participants were then introduced to their travel companion by being told that they were matched with a companion who was similar to them in terms of their stated interests and personality. In the *no match frame* condition, participants answered the same questions on their personality and interests, but no information on matching was provided. In both conditions, participants were presented with an identical version of a digital companion.

Humanlikeness was manipulated using a humanlike versus artificial voice of a digital companion presented during the tour. Both voices were retained from Study 1. After taking the wine tour, all participants responded to our dependent variables—enjoyment ("Did you enjoy using this wine platform?"; Kim et al., 2016) and positive WOM ("I would recommend using this wine platform"; Gelbrich, 2011).

Perceived similarity in the two goal-relevant attribute dimensions was captured by asking "How similar do you think Jenny, your virtual companion, is to you in terms of her interests?" (interest) and "How similar do you think Jenny, your virtual companion, is to you in terms of her character?" (personality). Participants further indicated the extent to which they felt connected while using the platform (e.g., "While using this platform, I felt like I was connected"; α = 0.97; a composite measure of six items adapted from McFerran & Argo, 2014) (see Supporting Information: Web Appendix 3 for all items). As a manipulation check measure, participants were asked about the humanlikeness of their companion ("How humanlike did Jenny, your virtual companion, sound"; adapted from Schroeder et al., 2017). A 2 × 2 analysis of variance (ANOVA) revealed that the human voice was perceived as more humanlike than the artificial voice (M_{human} = 6.28, SD = 2.20/$M_{artificial}$ = 3.92, SD = 2.43; p <0.001). Hence, the manipulation was successful. The manipulation check for *match frame* was not necessary since presenting the companion as matching versus not matching to the user is a direct and observable form of manipulation (Perdue & Summers, 1986). In all subsequent analyses, we used age and gender as controls because they can affect customer responses, specifically in the context of digital agents (Hernandez-Ortega & Ferreira, 2021). In our study, the perceptions of similar interest and personality, as well as our dependent variables, are independent of participants' gender and age, and the results hold without these controls, indicating robustness.

We recruited 440 US-based adults on the crowdsource platform Prolific for monetary compensation. Eleven participants did not pass an attention check, leaving 429 participants (female: 50.1%, mean age: 33.9 years) for analyses.

5.3 | Results

Before hypotheses testing, we ran a 2 (match frame: yes vs. no) × 2 (humanlikeness: human vs. artificial voice) analysis of covariance (ANCOVA) on enjoyment and positive WOM. The results for *enjoyment* show nonsignificant main effects of match frame (F(1,425) = 1.02, p =0.314; M_{match} = 6.40, SD = 2.09/$M_{no\text{-}match}$ = 6.20, SD = 2.25) and humanlikeness (F(1,425) = 1.25, p =0.264; M_{human} = 6.42, SD = 2.10/$M_{artificial}$ = 6.18, SD = 2.24) and an expected positive interaction (F(1,423) = 5.36, p =0.021; M_{human_match} = 6.77, SD = 1.97/ $M_{human\_no\text{-}match}$ = 6.08, SD = 2.18, $M_{artificial\_match}$ = 6.04, SD = 2.16/ $M_{artificial\_no\text{-}match}$ = 6.32, SD = 2.31). Planned contrasts show that the match frame has a positive effect on enjoyment for the human voice (F(1,423) = 5.58, p =0.019, η^2 =0.013), but not for the artificial voice (F (1,423) = 0.815, p =0.367).

The ANCOVA results for *positive WOM* reveal the same pattern: nonsignificant main effects of match frame (F(1,425) = 1.38, p =0.241; M_{match} = 6.02, SD = 2.23/$M_{no\text{-}match}$ = 5.77, SD = 2.41) and humanlikeness (F(1,425) = 0.729, p =0.394; M_{human} = 6.00, SD = 2.31/$M_{artificial}$ = 5.80, SD = 2.34) and an expected significant interaction (F (1,423) = 5.37 p =0.021; M_{human_match} = 6.39, SD = 2.12/$M_{human\_no\text{-}match}$ = 5.60, SD = 2.43, $M_{artificial\_match}$ = 5.66, SD = 2.29/$M_{artificial\_no\text{-}match}$ = 5.94, SD = 2.39). Planned contrasts indicate a positive effect of match frame for the human voice (F(1,423) = 6.15, p =0.014, η^2 =0.014) but not for the artificial voice (F(1,423) = 0.618, p =0.432) (see Figure 2).

5.3.1 | Test of H1

A moderated mediation analysis was conducted for the two dependent variables, using perceived similar interest and perceived

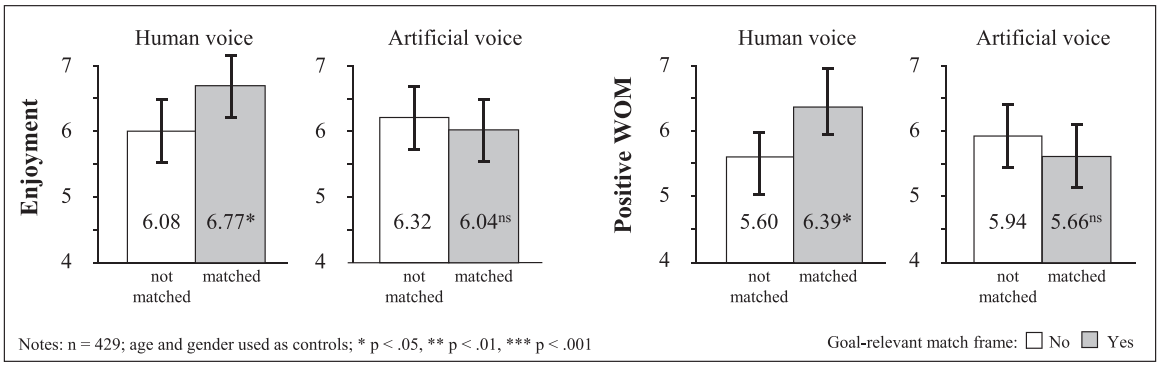

FIGURE 2 Analysis of covariance (ANCOVA) results for enjoyment and positive word-of-mouth (WOM) (Study 2).

similar personality as parallel mediators and humanlikeness as a moderator (Model 8; Hayes, 2022). Figure 3 depicts the results (Panel A for enjoyment; Panel B for positive WOM).

With *enjoyment* as a dependent variable, we find a nonsignificant effect of match frame on the first mediator *perceived similar interest* (β = –0.388, t = –1.27, p =0.204) and a significant positive match frame by humanlikeness interaction (β = 1.08, t = 2.47, p =0.014). There is also a significant positive effect of perceived similar interest on enjoyment (β = 0.424, t = 6.86, p <0.0001). The corresponding index of moderated mediation is positive and significant (β = 0.455, SE =0.204, 95% CI = [0.088–0.888]). The effect of match frame on enjoyment through perceived similar interest is significant for the human voice (β = 0.291, SE =0.138, (95% CI = [0.036–0.575]), but nonsignificant for the artificial voice (β = -0.164, SE =0.143, 95% CI = [–0.474 to 0.103]).

For the second mediator, *perceived similar personality*, neither the effect of match frame (β = 0.088, t =0.284, p =0.776) nor the interaction on perceived similar personality is significant (β = 0.454, t = 1.03, p =0.304). The effect of perceived similar personality on enjoyment is positive and significant (β = 0.272, t = 4.48, p <0.0001). The corresponding index of moderated mediation is nonsignificant (β = 0.124, SE =0.131, 95% CI = [–0.106 to 0.412]), with non-significant indirect effects for both the human (β = 0.148, SE =0.096, 95% CI = [–0.015 to 0.363]) and artificial voice (β = 0.024, SE =0.090, 95% CI = [–0.159 to 0.207]).

Results for *positive WOM* reveal the same patterns. Overall, these findings support H1 for perceived similar interest as a mediator. Importantly, a goal-relevant match frame only enhances enjoyment via increased similar interest perceptions when a digital companion is humanlike (vs. not humanlike). H1 is not supported for perceived similar personality.

5.3.2 | Test of H2

H2 proposes that for a humanlike voice, the effect of a match frame on customer outcomes via perceived similarity is further driven by perceived connectedness. Accordingly, we test this serial mediation hypothesis in the human voice condition (n = 211) using the HAYES process model 80.

Regressing *enjoyment* on the match frame alone yields a significant positive main effect (β = 0.340, t = 2.50, p =0.013). This effect becomes nonsignificant when including the two parallel mediators, perceived similar interest and personality, as well as the serial mediator, perceived connectedness (β = 0.112, t = 1.28, p =0.202). Importantly, the corresponding indirect effect for *perceived similar interest* is positive and significant (β = 0.092, SE =0.042, 95% CI = [0.016–0.180]); all single effects in this chain are significant, suggesting a full mediation. The corresponding indirect effect for *perceived similar personality* is nonsignificant (β = 0.059, SE =0.036, 95% CI = [–0.001 to 0.140]) since the match frame has no significant effect on this mediator (β = 0.259, t = 1.90, p =0.060). These findings also extend to *positive WOM* as the dependent variable (see Figure 4, Panel A & B for details).

5.4 | Discussion

Study 2 results support our hypotheses for *perceived similar interest*. Regarding H1, customers enjoy their experience with the platform more and are more willing to engage in positive WOM when a humanlike (vs. nonhumanlike) companion is portrayed as being matched with them. These results support humanlikeness as a boundary condition for a match frame to enhance similarity perceptions, leading to positive downstream effects. Regarding H2, the aforementioned relationship for a humanlike companion is serially mediated by perceived connectedness. A perceived similar interest engenders a sense of connection during the customer journey, which in turn fosters positive customer outcomes. We find no support for *perceived similar personality* as a mediator. We further discuss these findings in Section 6.

6 | GENERAL DISCUSSION

As digital agents become ubiquitous in daily life, they are increasingly marketed as companions that accompany consumers throughout their customer journey, extending beyond the conventional role of an assistant or service provider. Despite this increasing presence,

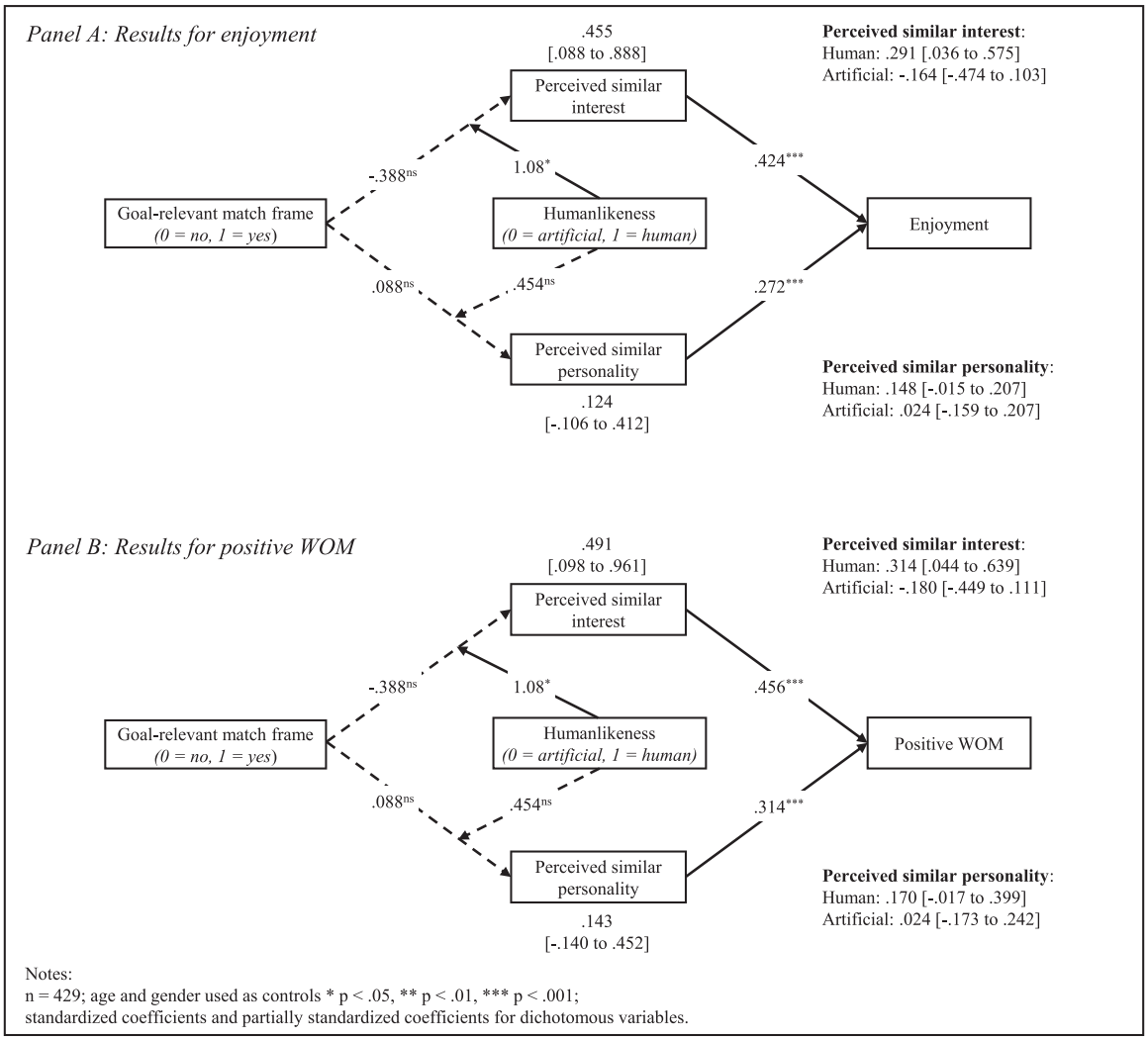

FIGURE 3 Moderated mediation results for enjoyment and positive word-of-mouth (WOM) (Study 2).

research on digital companionship (i.e., co-consumers) is still nascent. We take an initial step in this direction, exploring the context under which digital companions can create connection and greater consumption enjoyment. We find that presumably matching a user with a companion on goal-relevant dimensions positively affects customer outcomes, and this relationship is driven by perceptions of similarity and connectedness. It is also crucial that the companion is perceived as humanlike in order for such a match frame to foster similarity perceptions and positive downstream effects.

6.1 | Theoretical implications

By emphasizing the shift of digital assistants to digital companions, our research makes several important contributions to the marketing literature (see Figure 5). First, we study the effects of perceived similarity and humanlikeness jointly in the context of a digital companion and examine their distinctive roles in generating positive consumer outcomes. Prior research on digital agents points to converging findings that similar (Aksoy et al., 2006) and humanlike agents (Blut et al., 2021) exert positive effects on customer experiences. While humanlikeness of a digital assistant may be sufficient to exert positive effects on customers (e.g., Qiu & Benbasat, 2009), this does not seem to hold for digital companions that socially engage customers and form relationships with them. In such context, we find that perceived similarity is key in driving positive customer outcomes, whereas humanlikeness (represented as a human vs. artificial voice) is a necessary boundary condition to evoke similarity perceptions and their subsequent desired outcomes.

Second, we extend a well-established similarity mechanism from social psychology to human–agent interactions within the digital realm. We show that this similarity principle holds true for digital companions, as perceiving shared similar attributes increases felt connectedness, leading to greater enjoyment and WOM engagement. In other words, peoples' inherent need for belonging and forming connections with others (Baumeister & Leary, 1995) extends to developing a bond with a humanlike digital companion, yielding favorable effects on key performance indicators (KPIs) in marketing.

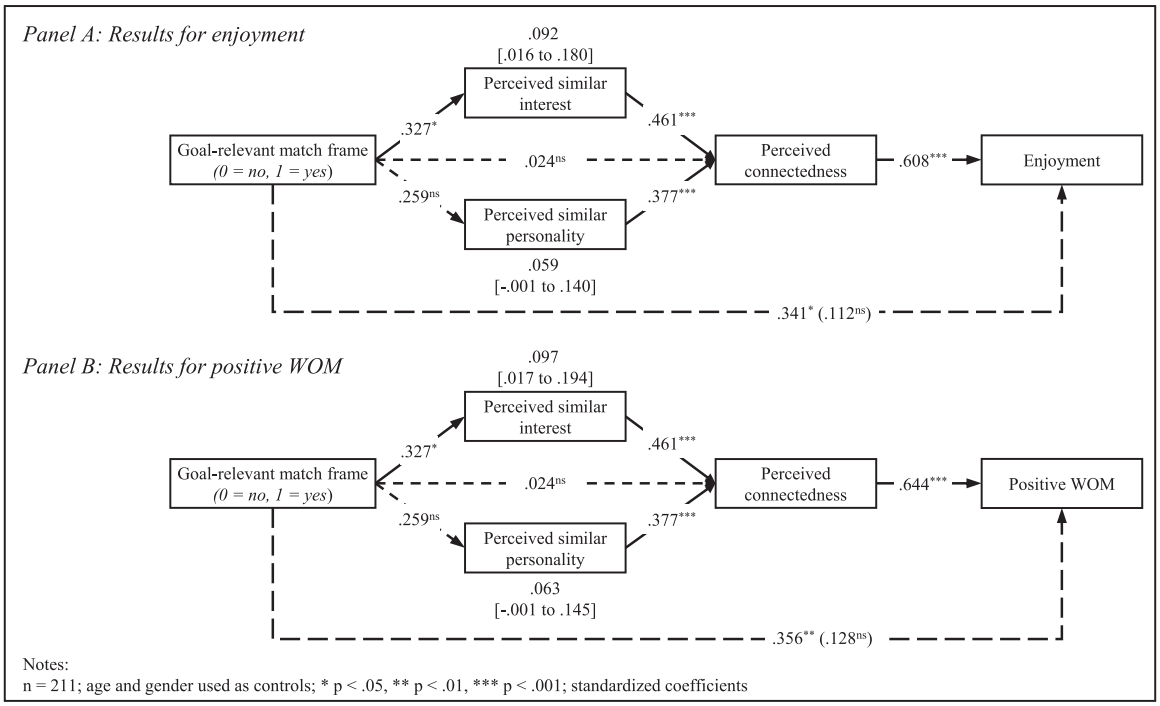

FIGURE 4 Serial mediation results for enjoyment and positive WOM (human voice only) (Study 2).

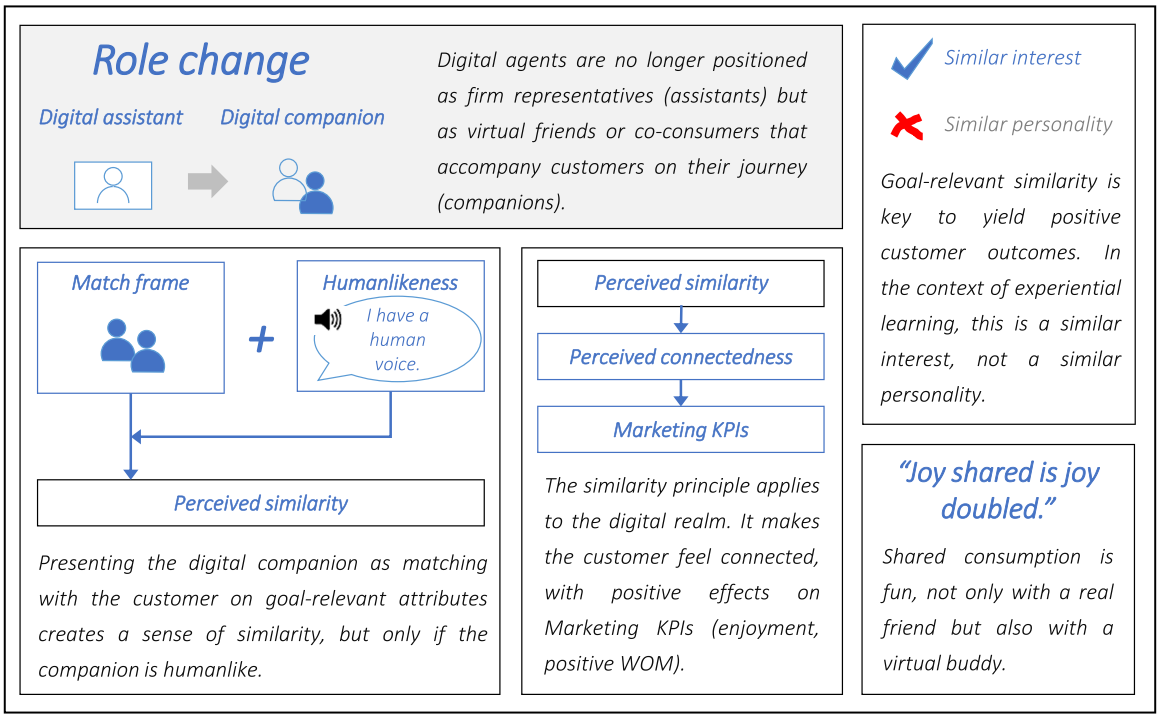

FIGURE 5 Contributions of the present research.

Third, our findings reveal a goal-relevant dimension of perceived similarity that plays a crucial role in generating positive consumer outcomes, at least in the context of experiential learning. The extent to which consumers perceive companions to be similar in their interest (in this case, in wine and traveling) was found to be more critical than perceived similarity in personality. This finding aligns with previous research highlighting the significance of the clarity of a companion's interest in the activity for fostering shared consumption experiences offline. This clarity enables consumers to focalize on the shared activity and socialize with the companion, increasing

enjoyment (Wu et al., 2021). Additionally, our findings add to the literature on goal-relevant similarity by highlighting its context-dependent nature (Arndt et al., 2021). For experiential learning, shared curiosity for the topic at hand emerged as a more significant goal-relevant factor, while variables such as personality traits and sociodemographic variables like gender and age are found to be less important. This finding is particularly intriguing regarding gender, as prior research has shown that gender congruence increases a sense of similarity with digital assistants (Romero et al., 2021; Zogaj et al., 2023). However, in the case of experiential learning, it appears that a companion's gender is not considered goal-relevant, suggesting that (virtual) friendship can transcend gender considerations in this particular context.

Fourth, we add to the marketing literature on shared consumption by extending the finding that consumption activities with others increase consumption enjoyment (Raghunathan & Corfman, 2006). We demonstrate that joint consumption activities with digital companions can also enhance consumption enjoyment through a sense of connection, especially when the digital companion possesses humanlike characteristics and shares a common interest with the consumer. In a world where consumers increasingly participate in more activities digitally, our findings suggest that digital companionship has the potential to foster connection and enhance enjoyment in these digitally mediated experiences. This marks a hopeful advancement.

6.2 | Managerial implications

Managerially, we present a viable and compelling strategy whereby perceived similarity and connectedness to a digital companion foster positive consumer outcomes. To create a similarity appeal to consumers, we recommend that marketers present digital companions as matched with users on a goal-relevant dimension for a specific task at hand (e.g., a shared interest). They may not need to match dimensions that are irrelevant to the goal at hand (e.g., gender in the context of an experiential learning). However, an important caveat is that even with a firm's effort to match a companion with a consumer by highlighting shared attributes, consumers will not necessarily perceive shared similarity if its presence lacks a humanlike trait. Hence, for a digital voice companion, we recommend introducing a match frame with a humanlike voice, but not with an artificial voice. Yet, the progress in AI-enabled technology may pave the way for artificially created voices, and our findings provide important implications for voice designers, highlighting the need to create more natural and humanlike voices to enhance the credibility of the match between consumers and digital companions. Beyond voice agents, companies may also explore other humanizing features, such as visual cues, in their effort to pair up a customer with a digital companion based on shared attributes.

We focused on demonstrating the feasibility and positive effect of a match frame with a simplistic, easy-to-implement approach without actually customizing each match. However, perceived similarity could also be achieved by employing AI to adapt the companions to users' behavioral patterns and preferences (Moriuchi, 2019) with more sophisticated personalization approaches. In response to ever-increasing customer needs for personalization, offering ways to customize a digital companion (with shared interest matching as one such approach) would prove to foster connection and engagement.

6.3 | Limitations and avenues for future research

Some limitations of this research provide promising avenues for future research. Our research created the use of a learning platform where participants embarked on a virtual tour to learn about different wines. While this context yielded valuable insights, it represents a specific scenario with its hedonic and high-involvement nature. Future research could explore how our findings extend to different contexts that reflect real-life behaviors and interactions more closely. Future research could also examine whether digital companions play a similar role in a more utilitarian context or a journey where emotional support is required. For example, consumers' need for connection is likely to be strong in healthcare contexts where patients undergo a virtual walk-through session before surgery. It will also be interesting to examine whether digital companions can foster the same outcomes when consumers have a goal to achieve while using digital services. For example, would a consumer running with a digital buddy (as in the Garmin app) matched on similar interests with them (e.g., health, wellness) feel a stronger connection and enjoy the experience more? Exploring the role of digital companions in such diverse contexts would also help uncover other goal-relevant dimensions for different contexts.

Future research could also examine actual consumer reactions in real and long-term interactions. In this research, we created a simulated environment and asked for felt enjoyment, but did not observe their actual behavior. While this conventional laboratory approach helps investigate the underlying mechanisms of similarity, which field experiments are harder to achieve due to their lack of control and reduced internal validity (Viglia et al., 2021), future research should address how this mechanism translates into actual behavior. It would be important to examine whether using similar companions over time in real life not only leads to enjoyment but also to continued use and recommendations to others.

Recent research found that the effect of AI on consumers' positive emotions becomes stronger as the AI type becomes more advanced, from mechanical and thinking to feeling AI. Feeling AI can recognize human emotions during service interaction and is suggested for use in relational and high-touch service contexts (Huang & Rust, 2021; Schepers et al., 2022). Our experiential setting offered an opportunity for consumers to consider digital companions as a social entity and develop a connection with them over the course of the customer journey, but the companion was not as interactive or spontaneous. With further advancement of an anthropomorphic feeling AI companion, capable of experiencing emotions and

understanding consumer needs, we expect consumers to have stronger similarity perceptions and connection. Future research needs to examine how such developments will affect the relationships between users and their companions.

Finally, human conversations are broadly classified into social or transactional conversation (Brown & Yule, 1983). Given our focus on digital companionship for an experiential customer journey, digital companion's conversations (scripts) were more social than transactional. For other types of activities that are more task-focused, such as creating an event on a calendar or checking the weather, transactional conversations may be more suitable (Yoon & McGrenere, 2022). As greater attention is paid to digital companion research in the fields of marketing and consumer psychology, we anticipate that the role of nuanced social chatters or natural dialogues, like a more friend-like and affable companion, will be studied more extensively.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

Aggarwal, P., & McGill, A. L. (2007). Is that car smiling at me? Schema congruity as a basis for evaluating anthropomorphized products. *Journal of Consumer Research*, *34*(4), 468–479.

Ahn, J., Kim, J., & Sung, Y. (2021). AI-powered recommendations: The roles of perceived similarity and psychological distance on persuasion. *International Journal of Advertising*, *40*(8), 1366–1384.

Akdim, K., Belanche, D., & Flavián, M. (2023). Attitudes toward service robots: analyses of explicit and implicit attitudes based on anthropomorphism and construal level theory. *International Journal of Contemporary Hospitality Management*, *35*(8), 2816–2837

Aksoy, L., Bloom, P. N., Lurie, N. H., & Cooil, B. (2006). Should recommendation agents think like people? *Journal of Service Research*, *8*(4), 297–315.

Al-Natour, S., Benbasat, I., & Cenfetelli, R. T. (2011). The adoption of online shopping assistants: Perceived similarity as an antecedent to evaluative beliefs. *Journal of the Association for Information Systems*, *12*(5), 347–374. https://doi.org/10.17705/1jais.00267

Arndt, A. D., Karande, K., & Glassman, M. (2016). How context interferes with similarity attraction between customers and service providers. *Journal of Retailing and Consumer Services*, *31*, 294–303.

Arndt, A. D., Karande, K., Harrison, K., & Khoshgadam, L. (2021). Goal-relevant versus incidental similarity when choosing between multiple service providers. *Journal of Business Research*, *126*, 556–564.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.

Becker, L., & Jaakkola, E. (2020). Customer experience: Fundamental premises and implications for research. *Journal of the Academy of Marketing Science*, *48*(4), 630–648.

Belanche, D., Casaló, L. V., Flavián, C., & Schepers, J. (2020). Service robot implementation: A theoretical framework and research agenda. *The Service Industries Journal*, *40*(3–4), 203–225.

Belanche, D., Casaló, L. V., Schepers, J., & Flavián, C. (2021). Examining the effects of robots' physical appearance, warmth, and competence in frontline services: The Humanness-Value-Loyalty model. *Psychology & Marketing*, *38*(12), 2357–2376.

Blackmagic Design. (2022). *DaVinci Resolve 18 | Blackmagic Design*. Retrieved April 17, 2022, from https://www.blackmagicdesign.com/de/products/davinciresolve/

Blut, M., Wang, C., Wünderlich, N. V., & Brock, C. (2021). Understanding anthropomorphism in service provision: A meta-analysis of physical robots, chatbots, and other AI. *Journal of the Academy of Marketing Science*, *49*(4), 632–658.

Boshoff, C. (2012). A neurophysiological assessment of consumers' emotional responses to service recovery behaviors. *Journal of Service Research*, *15*(4), 401–413.

Brandtzaeg, P. B., Skjuve, M., & Følstad, A. (2022). My AI friend: How users of a social chatbot understand their human–AI friendship. *Human Communication Research*, *48*(3), 404–429.

Brown, G., & Yule, G. (1983). *Discourse analysis* (20. print), *Cambridge textbooks in linguistics*. Cambridge University Press. https://doi.org/10.1017/CBO9780511805226

Bruner, G. C., & Kumar, A. (2005). Explaining consumer acceptance of handheld Internet devices. *Journal of Business Research*, *58*(5), 553–558.

Byrne, D., Griffitt, W., & Stefaniak, D. (1967). Attraction and similarity of personality characteristics. *Journal of Personality and Social Psychology*, *5*(1), 82–90.

Cheng, L. -K. (2022). The effects of smartphone assistants' anthropomorphism on consumers' psychological ownership and perceived competence of smartphone assistants. *Journal of Consumer Behaviour*, *21*(2), 427–442.

Chong, T., Yu, T., Keeling, D. I., & de Ruyter, K. (2021). AI-chatbots on the services frontline addressing the challenges and opportunities of agency. *Journal of Retailing and Consumer Services*, *63*, 102735.

Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, *37*(1), 12–24.

Crosby, L. A., Evans, K. R., & Cowles, D. (1990). Relationship quality in services selling: An interpersonal influence perspective. *Journal of Marketing*, *54*(3), 68–81.

Dion, P., Easterling, D., & Miller, S. J. (1995). What is really necessary in successful buyer/seller relationships? *Industrial Marketing Management*, *24*(1), 1–9.

van Doorn, J., Mende, M., Noble, S. M., Hulland, J., Ostrom, A. L., Grewal, D., & Petersen, J. A. (2017). Domo arigato mr. roboto: Emergence of automated social presence in organizational frontlines and customers' service experience. *Journal of Service Research*, *20*(1), 43–58.

Dwyer, S., Orlando, R., & Shepherd, D. C. (1998). An exploratory study of gender and age matching in the salesperson-prospective customer dyad: Testing similarity-performance predictions. *Journal of Personal Selling & Sales Management*, *18*(4), 55–69.

Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, *114*(4), 864–886.

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, *11*(2), 77–83.

Flavián, C., Akdim, K., & Casaló, L. V. (2023). Effects of voice assistant recommendations on consumer behavior. *Psychology & Marketing*, *40*(2), 328–346.

Garcia, M. P., Lopez, S. S., & Donis, H. (2018). Voice activated virtual assistants personality perceptions and desires: Comparing personality evaluation frameworks. In *Electronic Workshops in Computing*. BCS Learning & Development. https://www.scienceopen.com/document_file/0ce3279a-3d5f-47fa-88ed-16575ce3a57b/ScienceOpen/BHCI-2018_Perez%20Garcia.pdf

Gelbrich, K. (2011). I have paid less than you! The emotional and behavioral consequences of advantaged price inequality. *Journal of Retailing*, *87*(2), 207–224.

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis - A regression-based approach* (Third edition). The Guilford Press.

Hernandez-Ortega, B., & Ferreira, I. (2021). How smart experiences build service loyalty: The importance of consumer love for smart voice assistants. *Psychology & Marketing*, *38*(7), 1122–1139.

Huang, M. H., & Rust, R. T. (2021). Engaged to a robot? The role of AI in service. *Journal of Service Research*, *24*(1), 30–41.

Jiang, K., Qin, M., & Li, S. (2022). Chatbots in retail: How do they affect the continued use and purchase intentions of Chinese consumers? *Journal of Consumer Behaviour*, *21*(4), 756–772.

Jiang, L., Hoegg, J., Dahl, D. W., & Chattopadhyay, A. (2010). The persuasive role of incidental similarity on attitudes and purchase intentions in a sales context. *Journal of Consumer Research*, *36*(5), 778–791.

Kickstarter. (2022). Chris: Your digital co-driver with Artificial Intelligence von German Autolabs. Retrieved December 6, 2022, from https://www.kickstarter.com/projects/germanautolabs/chris-your-digital-co-driver-with-artificial-intel

Kim, S., Chen, R. P., & Zhang, K. (2016). Anthropomorphized helpers undermine autonomy and enjoyment in computer games. *Journal of Consumer Research*, *43*(2), 282–302.

Kleijnen, M., Lievens, A., de Ruyter, K., & Wetzels, M. (2009). Knowledge creation through mobile social networks and its impact on intentions to use innovative mobile services. *Journal of Service Research*, *12*(1), 15–35.

Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (Fourth Edition). SAGE.

Kukarella. (2022). *Kukarella: Text to voice—audio to text*. Retrieved April 9, 2022, from https://www.kukarella.com/

Launay, J., & Dunbar, R. I. M. (2015). Playing with strangers: Which shared traits attract us most to new people? *PLoS One*, *10*(6), e0129688.

Lazarsfeld, P. F., Merton, R. K., Berger, M., Abel, T., & Page, C. H. (1954). Friendship as a social process: A substantive and methodological analysis, *Freedom and control in modern society* (pp. 18–66). Van Nostrand.

Lee, K. M., Jung, Y., & Nass, C. (2011). Can user choice alter experimental findings in human–computer interaction? Similarity attraction versus cognitive dissonance in social responses to synthetic speech. *International Journal of Human-Computer Interaction*, *27*(4), 307–322.

Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The social connectedness and the social assurance scales. *Journal of Counseling Psychology*, *42*(2), 232–241.

Letheren, K., Jetten, J., Roberts, J., & Donovan, J. (2021). Robots should be seen and not heard…sometimes: Anthropomorphism and AI service robot interactions. *Psychology & Marketing*, *38*(12), 2393–2406.

McFerran, B., & Argo, J. J. (2014). The entourage effect. *Journal of Consumer Research*, *40*(5), 871–884.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415–444.

Mishra, A., Shukla, A., & Sharma, S. K. (2022). Psychological determinants of users' adoption and word-of-mouth recommendations of smart voice assistants. *International Journal of Information Management*, *67*, 102413.

Montoya, R. M., & Horton, R. S. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships*, *30*(1), 64–94.

Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*(6), 889–922.

Moriuchi, E. (2019). Okay, google! An empirical study on voice assistants on consumer engagement and loyalty. *Psychology & Marketing*, *36*(5), 489–501.

Nass, C., & Lee, K. M. (2001). Does computer-synthesized speech manifest personality? Experimental tests of recognition, similarity-attraction, and consistency-attraction. *Journal of Experimental Psychology: Applied*, *7*(3), 171–181.

Park, J., & Yi, Y. (2023). The influence of frontline employee self-disclosure about products in a retail store on customer trust in the retailer in the context of service encounters. *Psychology & Marketing*, *40*(7), 1417–1430.

Pentina, I., Xie, T., Hancock, T., & Bailey, A. (2023). Consumer–machine relationships in the age of artificial intelligence: Systematic literature review and research directions. *Psychology & Marketing*, *40*(8), 1593–1614.

Perdue, B. C., & Summers, J. O. (1986). Checking the success of manipulations in marketing experiments. *Journal of Marketing Research*, *23*(4), 317.

Perreault, W. D., & Leigh, L. E. (1989). Reliability of nominal data based on qualitative judgments. *Journal of Marketing Research*, *26*(2), 135–148.

Pitardi, V., & Marriott, H. R. (2021). Alexa, she's not human but… Unveiling the drivers of consumers' trust in voice-based artificial intelligence. *Psychology & Marketing*, *38*(4), 626–642.

Pozharliev, R., de Angelis, M., Rossi, D., Romani, S., Verbeke, W., & Cherubino, P. (2021). Attachment styles moderate customer responses to frontline service robots: Evidence from affective, attitudinal, and behavioral measures. *Psychology & Marketing*, *38*(5), 881–895.

Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective. *Journal of Marketing*, *85*(1), 131–151.

Qiu, L., & Benbasat, I. (2009). Evaluating anthropomorphic product recommendation agents: A social relationship perspective to designing information systems. *Journal of Management Information Systems*, *25*(4), 145–182.

Raghunathan, R., & Corfman, K. (2006). Is happiness shared doubled and sadness shared halved? Social influence on enjoyment of hedonic experiences. *Journal of Marketing Research*, *43*(3), 386–394.

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German. *Journal of Research in Personality*, *41*(1), 203–212.

Replika. (2023). *Replika: The AI companion who cares*. Retrieved August 18, 2023, from https://replika.com/

Romero, J., Ruiz-Equihua, D., Loureiro, S. M. C., & Casaló, L. V. (2021). Smart speaker recommendations: Impact of gender congruence and amount of information on users' engagement and choice. *Frontiers in Psychology*, *12*, 659994.

Schepers, J., Belanche, D., Casaló, L. V., & Flavián, C. (2022). How smart should a service robot be? *Journal of Service Research*, *25*(4), 565–582.

Schroeder, J., Kardas, M., & Epley, N. (2017). The humanizing voice: Speech reveals, and text conceals, a more thoughtful mind in the midst of disagreement. *Psychological Science*, *28*(12), 1745–1762.

Schweitzer, F., Belk, R., Jordan, W., & Ortner, M. (2019). Servant, friend or master? The relationships users build with voice-controlled smart devices. *Journal of Marketing Management*, *35*(7–8), 693–715.

El Shamy, N., & Hassanein, K. (2017). A meta-analysis of enjoyment effect on technology acceptance: The moderating role of technology conventionality. In *Proceedings of the 50th Hawaii International Conference on System Sciences (2017)*. http://hdl.handle.net/10125/41661

Smith, J. B. (1998). Buyer-Seller relationships: Smilarity, relationship management, and quality. *Psychology & Marketing*, *15*(1), 3–21.

Snyder, M., & Ickes, W. (1985). Personality and social behavior. In G. Lindzey, & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., pp. 883–947). Random House.

Staffa, M., Rossi, A., Bucci, B., Russo, D., & Rossi, S. (2021). Shall I be like you? Investigating robot's personalities and occupational roles for personalised HRI. *13th International Conference, ICSR 2021, Singapore, Proceedings*, 718–728. https://link.springer.com/chapter/10.1007/978-3-030-90525-5_63

Statista. (2022, April). *E-learning platforms—Worlwide*. Retrieved October 29, 2022, from https://de.statista.com/outlook/dmo/eservices/online-bildung/e-learning-plattform/weltweit

Tiku, N. (2022, June 11). The Google engineer who thinks the company's AI has come to life. *The Washington Post*. https://onlinelibrary.wiley.com/doi/pdf/10.1002/pra2.431

Viglia, G., Zaefarian, G., & Ulqinaku, A. (2021). How to design good experiments in marketing: Types, examples, and methods. *Industrial Marketing Management*, *98*, 193–206.

Wu, Y., Hamilton, R. W., Kim, N. Y. J., & Ratner, R. K. (2021). Navigating shared consumption experiences: Clarity about a partner's interests increases enjoyment. *Journal of Marketing Research*, *58*(3), 439–455.

Yoon, D., & McGrenere, J. (2022, September 15). *Making virtual assistants sound human poses a challenge for designers*. Retrieved November 19, 2022, from https://theconversation.com/making-virtual-assistants-sound-human-poses-a-challenge-for-designers-161240

You, S., & Robert, Jr. L. P. (2018). Human-robot similarity and willingness to work with a robotic co-worker. In T. Kanda, S. Ŝabanović, G. Hoffman, & A. Tapus (Eds.), *Proceedings of the 2018 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 251–260). ACM.

Zhang, S., Lin, X., Li, X., & Ren, A. (2022). Service robots' anthropomorphism: Dimensions, factors and internal relationships. *Electronic Markets*, *32*(1), 277–295.

Zogaj, A., Mähner, P. M., Yang, L., & Tscheulin, D. K. (2023). It's a match! The effects of chatbot anthropomorphization and chatbot gender on consumer behavior. *Journal of Business Research*, *155*, 113412.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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