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Self-Promotion by Non-Human Service Agents: An Examination of the Impact on Customer Satisfaction

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ABSTRACT

This study examines one specific form of presentation content for digital service agents, self-promotion. It is frequently occurring among humans in various settings and it is likely to be richly represented in the training material for digital agents. Two experiments, in which customer satisfaction was the dependent variable, were conducted to manipulate a digital agent's level of self-promotion (relatively low vs. relatively high) in initial service encounters with potential users. The results show that a relatively high level of self-promotion attenuated customer satisfaction, and that the agent's perceived self-focus, warmth, and competence mediated this negative impact.

KEYWORDS

Service encounters; chatbots; virtual assistants; digital coaches; anthropomorphism; self-promotion; self-focus; warmth; competence; customer satisfaction

Introduction

Various forms of digital non-human service agents are expected to become more common in several areas (Marchesi et al., 2019; Wiese et al., 2017) and chatbots have become particularly prevalent (Cheng & Jiang, 2022; Kull et al., 2021; Luo et al., 2019). Chatbots are software programs that use natural language to engage in real-time conversations with customers (Kull et al., 2021; Youn & Jin, 2021). Many current chatbots are used as a digital frontline employee to help the customers of one particular company with specific tasks, such as taking orders, recommending products, and answering questions about the company's assortment and policies. For some tasks, for example, persuading a customer to renew a loan, chatbots have been shown to be as effective as proficient humans (Luo et al., 2019). For other chatbots, however, such as ChatGPT, the conversation with the bot *is* the service. It can be expected that many virtual agents of the latter type will be developed within specific domains, such as cooking, physical training, relationship management, pedagogy assistance and life coaching (cf. Biancardi et al., 2019). In the present study, our focus is on this type of agent.

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Firms that develop such agents face the same challenge as other firms whose offer is based on new technology: there is a need to convince the user that he or she should use the agent. This need is of course particularly strong in those cases in which the user will have to pay for the agent's services. In this situation, firms have many options if they choose to rely on research highlighting factors that can boost users' adoption of new technology (e.g., research inspired by Davis, 1989). In the present study, however, we examine a possibility in a digital agent context that to date has received limited attention in the literature on adoption of new technology, namely agent behavior within the frame of a service encounter.

We assume that what the agent is doing when it is introducing itself to potential users would be a particularly salient source of arguments for adoption decisions. More specifically, in the present study, we examine effects of a non-human service agent's self-presentation in its initial interaction with potential users. Our point of departure is the same as in Bitner et al. (1990): the agent's behavior in the service encounter *is* the service from the customer's perspective. Given this, and in order for a service agent to successfully persuade the customer to actually use the service, the agent needs to provide information about what the service is about. In this situation, it is natural for the agent to engage in self-presentation activities. Several such activities are possible (Jones & Pittman, 1982), and in the present study our focus is on one of them, namely self-promotion. It comprises making positive statements about oneself, one's future plans, or one's past accomplishments to boost the impression one makes on others (Barrick et al., 2009; Korzynski et al., 2025; Krings et al., 2023; Schreurs et al., 2018; Stevens & Kristof, 1995). Self-promotion is especially useful in situations in which the self-promoter is not well-known and is competing against others for scarce resources (Tobback, 2019), and these characteristics seem to be at hand when a digital service agent is introducing itself to a user. It may be noted that there have already been attempts to design virtual agents that can "choose" between various forms of self-presentation strategies (Biancardi et al., 2019). The main reasons for our specific focus on self-promotion are that (a) it is likely to become a common element in digital service agents' self-presentations. Yet, (b) it is far from clear, in the light of existing research, that it would result in positive impressions of agents from the user's point of view.

With respect to the common element argument, self-promotion is something that people (i.e., real humans) often engage in (Barrick et al., 2009), and they do so particularly frequently in high-stake situations such as job interviews (Krings et al., 2023) and in working life (Gross et al., 2021). In addition, and of specific interest for the present study, major tech companies heavily promote their AI abilities (Vorobeva

et al., 2025). It may also be assumed that the self-promotion content is increasing in human-to-human interactions. One reason is that narcissism is on the rise (Ang, 2025; O'Mara et al., 2019). Another reason is that social media platforms, such as LinkedIn, enable unprecedented levels of self-expression (Ang, 2025) and self-presentation (Korzynski et al., 2025). An increase in individualism, with an emphasis on self-direction and autonomy (Santos et al., 2017), is also likely to boost self-promotion content. Embeddedness in a society in which self-promotion is common, we believe, would make it natural for those who design and program virtual agents to make the agents engage in self-promotion. More specifically, given the idea that “what-is-humanlike-is-good” in the development of humanlike non-human agents (Söderlund & Oikarinen, 2021), self-promotion is one humanlike attribute that can contribute to making non-human agents more humanlike. In other words, given humans' urge to present themselves in public in a positive light (van Zoonen et al., 2018), a non-human who is doing the same is likely to enhance its perceived humanlikeness. In addition, given the prevalence of self-promotion in human-to-human contexts, there is a voluminous “text” with human self-promotion content (e.g., posts on social media and recordings of telephone conversations between customers and salespersons) that AI-powered agents can be exposed to while they are trained. We assume that such agents' imitation of human language usage will comprise the imitation of self-promotion, too.

In terms of existing research, however, it is not clear that self-promoting agents would produce a positive user experience. First, there have been very few studies of the effects of self-promotion strategies used by machines (Stanley et al., 2021). Second, there are not many studies of self-promotion in human-to-human service settings. Manzur and Jogaratnam (2007) report relatively low levels of customer satisfaction when hotel and restaurant employees engage in self-promotion, while Chiang and Chen (2014) identified a positive association between tour leader self-promotion and tourists' perceptions of the quality of the interaction with the tour leader. Third, in human-to-human settings beyond service encounters (e.g., job interviews and intra-organizational interactions), conflicting results have been reported, too. Several studies indicate negative effects for the self-promotor (Godfrey et al., 1986; O'Mara et al., 2019; Schreurs et al., 2018), while some studies indicate that self-promotion can produce beneficial effects for the self-promotor or his/her organization (Chiang & Chen, 2014; Stevens & Kristof, 1995). In addition, the meta-analysis (of studies in an organizational setting) by Higgins et al. (2003) indicates that the effect of self-promotion is zero, while the Barrick et al. (2009) meta-analysis (in a job interview setting) show that interviewees' self-promotion has a positive impact on interview ratings.

Given this, the purpose of the present study is to assess how a non-human service agent's self-promotion activities affect customer satisfaction when the potential customer is given a chance to have an initial interaction with the agent. The downstream variable in the present study, then, is customer satisfaction (in a transaction-specific sense; i.e., the customer's overall evaluation of one specific encounter with an offer; cf. Anderson et al., 1994). A main rationale behind our choice of this particular dependent variable is its dominant role in many studies of services and its ability to influence cumulative satisfaction (Keiningham et al., 2014), which is assumed to have positive implications for performance at the firm level (e.g., Fornell, 1992; Fornell et al., 1996). In addition, we make an attempt to examine mechanisms by which a digital service agent's self-promotion activities influence customer satisfaction. Three mediation variables are included: perceived warmth, competence, and self-focus.

In methodological terms, we used an experimental approach in which a non-human service agent's self-promotion was manipulated (relatively low level vs. relatively high level). The specific setting comprised participants who were given a chance to test a chatbot with domain-specific expertise (it provided help with managing personal relationships). Two experiments along such lines were conducted.

Our examination is intended to address several gaps in the literature. First, few existing studies have examined self-promotion by a service provider in a service encounter setting. Previous studies of self-promotion effects in a human-to-human context have comprised job interviews (i.e., the interviewee is self-promoting; e.g., Barrick et al., 2009; Krings et al., 2023; Pai et al., 2023; Schreurs et al., 2018; Stevens & Kristof, 1995), entrepreneurs' pitches (Pai et al., 2023), internal organization settings (Bolino et al., 2014; Den Hartog et al., 2020; Gross et al., 2021; Higgins et al., 2003), and everyday settings (Godfrey et al., 1986; O'Mara et al., 2019). Second, the conflicting findings in the existing literature with respect to the effects of self-promotion content on the receiver call for additional examinations. Third, although several studies have examined effects of virtual agents' communication behaviors on human receivers (e.g., Shumanov & Johnson, 2021; Youn & Jin, 2021), the effects of self-promoting content in a non-human agent's speech have been understudied (Stanley et al., 2021).

Theoretical framework and hypotheses

Anthropomorphism and non-human agents

Anthropomorphism has to do with attributing humanlike traits to non-humans; it is a frequently occurring response tendency fueled by similarity

between humans in general and a non-human target (Epley et al., 2007; Epley, 2018). Examples of similarities that can set anthropomorphism in motion are a humanlike face, voice, speech pattern, and movements (Epley, 2018). This has implications for studies of how we humans react to non-humans, because such studies can be informed by theory about perceptions of human targets in human-to-human settings. It is in this way that we use theory in the present study. We use arguments from several theoretical fields developed for human-to-human settings (social influence theory, the stereotype content model, relationship style theory, and service encounter theory) as sources for developing hypotheses about humans' reactions to self-promotion by (humanlike) non-human agents.

Self-promotion

In general, people want to make a good impression on others (Holoien & Fiske, 2013) and several self-presentation strategies are available for this purpose (Jones & Pittman, 1982). One such strategy, which we focus on in the present study, is self-promotion. It entails highlighting one's qualities, strengths, contributions, and taking credit for positive outcomes such as successes and accomplishments (Bolino et al., 2016; Den Hartog et al., 2020; Korzynski et al., 2025; Krings et al., 2023; Scopelliti et al., 2015). A general purpose of self-promotion is to emphasize specific attributes of oneself, particularly competence in terms of some ability or skill (Godfrey et al., 1986; Jones & Pittman, 1982; Stevens & Kristof, 1995). Clearly, the self-promoter can engage in this activity to a varying extent, so self-promotion should be seen as a variable rather than a dichotomy.

Self-promotion by a service agent and its impact on customer satisfaction

An increasingly common approach in studies based on an anthropomorphism assumption is to acknowledge that a (humanlike) non-human agent can be ascribed warmth and competence (e.g., Biancardi et al., 2019; Carolus et al., 2019; Kolbl et al., 2019; Söderlund, 2024a). In a human-to-human context, warmth and competence are universal person perception dimensions; they represent attribution dimensions from the observer's point of view when a target is to be made sense of (Fiske et al., 2007). They also represent the top impressions that a target person seeks to evoke in his or her self-presentation activities (Holoien & Fiske, 2013). As argued below, these two variables are likely to be affected by self-promotion. And both are likely to affect customer satisfaction when an agent is proving service, so we view them as potential mediators in the present study. However, there are reasons to believe that a self-promoting agent can also elicit perceptions of self-focus versus other-focus (and this variable is likely

to have an impact on customer satisfaction, too). Given this, the present study comprises three possible routes by which an agent's self-promotion activities can influence customer satisfaction.

Warmth has to do with the extent to which a person's intentions are seen as good or bad (Fiske et al., 2007), and it encompasses traits such as friendliness, sincerity and helpfulness (Fiske et al., 2007; Fiske, 2015; Judd et al., 2005). Since a self-promoting person can be perceived as arrogant and conceited (Krings et al., 2023; Tice et al., 1995), having a negative view of other persons (Hoorens et al., 2012; Van Damme et al., 2016), distrustful of others (Colvin et al., 1995), lacking an appropriate level of humility (Krings et al., 2023), manipulative (Schreurs et al., 2018), and being a braggart (Scopelliti et al., 2015), we expect that a self-promoting person will be perceived as less warm. In addition, we assume that the just mentioned reactions can signal that a self-promoting person has unfriendly motives, which represent an important source of information for inferences about warmth (Fiske et al., 2007). This motive aspect, then, is expected to contribute to a negative impact of self-promotion on warmth perceptions. Empirically, a negative impact of explicit self-promotion on warmth has been reported, for example, by Krings et al. (2023) and Pai et al. (2023).

The second route involves competence—the extent to which a person is seen as able to enact his or her intentions (Fiske et al., 2007). Traits such as intelligence, knowledge, expertise, confidence, assertiveness, and efficacy indicate that competence is at hand (Chaudhry & Loewenstein, 2019; Dandotiya et al., 2024; Fiske et al., 2007; Fiske, 2015). Given that a self-promoting person can be perceived as unbelievable (Tice et al., 2012), and as a violator of social norms regarding politeness and humility (Hoorens et al., 2012; Tobbach, 2019), we expect that a person's self-promoting activities will reduce the person's perceived competence. Furthermore, if Jones and Pittman (1982) are right when they state that most of us would be inclined to believe that self-promotion comprising claims about one's own high competence is more likely when one's competence is shaky, it can be expected that explicit competence claims can produce an attenuated view of a person's competence. In any event, empirical results indicating that the self-promoter is perceived as less competent are presented in Godfrey et al. (1986) and Pai et al. (2023).

The third route has to do with the individual's orientation toward the social world, in terms of the individual's relationship styles, which can be conceptualized in terms of a self-focus versus an other-focus (Neff & Harter, 2003). A high level of self-focus implies an emphasis on the individual's own needs and feelings (Neff & Harter, 2003) as well as egocentricity, a sense of independence or separateness from others, high agency (Konrath & Luminet, 2022), and self-compassion (Chen, 2024). In contrast, a high level of other-focus implies an emphasis on others' needs and feelings (Neff & Harter, 2003), empathy, altruism, and genuine concern for others (Chen,

2024). Given that self-promoting persons can evoke an image of themselves as self-interested (Bolino et al., 2014), we assume that a person's self-promotion activities can enhance the perceived self-focus of the person.

Both warmth and competence are perception dimensions for which high levels typically have a positive charge (Fiske et al., 2007). Therefore, we expect that they are positively associated with the overall evaluation of a target person. Empirical evidence for this has been supplied by, for example, Seiter et al. (2010) and Wong and Tjosvold (1995). In contrast, a self-focused target person is typically perceived as less empathic and less willing to help others (Lei et al., 2021) and can be seen as narcissistic (Den Hartog et al., 2020). These attributes are negatively charged. Therefore, we assume that a person's perceived self-focus is negatively associated with the overall evaluation of the person (particularly in a situation in which the person's task is to provide service to others). We also assume that a person's perceived other-focus is positively associated with the evaluation of the person. Indirect evidence for the latter is that other-focused strategies by subordinates in an organization can increase managers' liking of subordinates (Peck & Levashina, 2017). Results pointing in the same direction for a virtual agent target are provided by Brave et al. (2005); they show that a virtual agent (which played Black Jack with the user) is liked more when it displays an empathic concern for the user compared to when it displays self-only concerns.

Moreover, in a service context, the person who represents the service firm (such as the frontline employee with whom the customer interacts) is a main source of information for the customer when it comes to his or her view of the service firm (Bitner et al., 1990). Therefore, we expect that an evaluation of the service person has a valence-congruent impact on customer satisfaction. Taken together, then, and given anthropomorphism (i.e., a humanlike non-human agent is expected to elicit similar reactions as a real human), we assume that a (humanlike) non-human service agent engaging in self-promotion would result in attenuated perceptions of warmth and competence and enhanced perceptions of being self-focused. These outcomes, we assume, negatively impact customer satisfaction. Hence, the following is hypothesized:

H1: Self-promotion by a non-human service agent attenuates customer satisfaction

Since our reasoning regarding the three routes imply that the influence of a non-human service agent is mediated by perceptions of the agent's warmth, competence and self-focus, we also hypothesize the following:

H2: The influence of self-promotion by a non-human service agent on customer satisfaction is mediated by perceptions of the agent's warmth, competence, and self-focus

We assessed H1 and H2 in two studies in which we manipulated a non-human service agent's level of self-promotion in a service encounter. Perceived warmth, competence, self-focus and customer satisfaction were measured variables. In Study 1, our focus is on the role of warmth and competence as potential mediators; in Study 2 we added self-focus as a potential mediator.

Study 1

Research approach and stimuli

We used a between-subjects experiment in which we manipulated the level of self-promotion (relatively low level vs. relatively high level) in the speech of a chatbot. The specific service provided by the chatbot was coaching with the purpose of improving romantic relationships. We employed a role-play approach in which the participants were asked to assume the role of a user who had been given the chance to test the chatbot. Scenario-based stimuli of this type have been used in previous examinations of the effects of self-promotion (in human-to-human contexts). Examples are Den Hartog et al. (2020), Krings et al. (2023), Pai et al. (2023), and Schreurs et al. (2018).

In the first step, the participants were exposed to a video in which the chatbot presented itself. This video, which we created for the purpose of this study, depicted a female gendered chatbot, Sarah, who communicated in voice mode (see Figure 1).

In the next step, the participants read a user-chatbot dialogue—a dialogue scripted by us, in which Sarah had the opportunity to give specific advice to the user. For the manipulation of self-promotion, we created two versions of the same service encounter with Sarah by adding text to both the video part and to the dialogue part in such a way that Sarah engaged in more highlighting of her accomplishments, and more

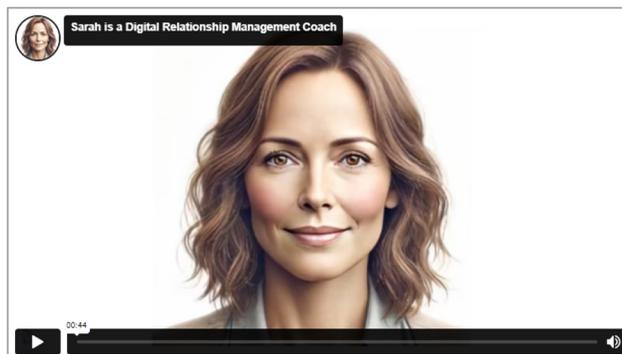


Figure 1. Still image from the video with the relationship coach.

credit-taking for positive outcomes, in the relatively high self-promotion condition. For example, in this condition, Sarah claimed to have a good track record in the area of giving relationship advice and to have a high level of relationship intelligence. That is to say, we made the relatively high self-promoting version of Sarah engage in the main characteristics of self-promotion (Bolino et al., 2016; Scopelliti et al., 2015). It should be noted that the setting involved a part in which Sarah actually delivered service to the user/participant, by providing specific relationship advice, and this part was kept constant between the two conditions. The videos and the dialogues are available in the [Supplementary Material](#).

Data collection and participants

The participants ($n=223$; $M_{age} = 40.31$; 113 women, 109 men, 1 other), who we recruited from Prolific, were randomly allocated to being exposed to one of the two versions of the service encounter with Sarah. After this service encounter, we collected the participants' responses with questionnaire items.

Measures

Scales with 10 points were used for the measures of all variables in the hypotheses, and Cronbach's alpha (CA) was computed to assess reliability.

Warmth was measured with the adjective pairs "cold-warm," "unfriendly-friendly," and "impolite-polite" (CA = .89). Similar items have been used, for example, by Hoorens et al. (2017), Judd et al. (2005), Krings et al. (2023), and Pai et al. (2023) for human targets. They have also been used in assessments of non-human agents, for example, in Biancardi et al. (2019), Carolus et al. (2019), and Kolbl et al. (2019).

Competence was measured with the adjective pairs "incompetent-competent," "unprofessional-professional," and "low knowledge-high knowledge" (CA = .93). Such items have been employed in several competence scales (e.g., Biancardi et al., 2019; Hoorens et al., 2017; Kolbl et al., 2019; Krings et al., 2023; Pai et al., 2023; Söderlund, 2024a). The relationship between warmth and competence is subject to debate in the literature, and it can be noted that these two variables were positively correlated in Study 1 ($r = .78$, $p < .01$). This is consistent with a halo effect demonstrated in previous research; this can be expected when a single target is subject to assessments (Biancardi et al., 2019; Holoiën & Fiske, 2013).

We measured *customer satisfaction* with three items adapted from Fornell (1992): "To what extent are you dissatisfied or satisfied with Sarah?" (1 = very dissatisfied, 10 = very satisfied), "To what extent does Sarah meet your expectations?" (1 = not at all, 10 = totally), and "Imagine a digital relationship coach that is perfect in every respect. How near or far from

this ideal do you find Sarah?” (1=very far from, 10=cannot get any closer; CA = .91). These three items have been used as a satisfaction measure in academic research and in many national customer satisfaction barometers since some 30 years (cf. Johnson et al., 2001). In our case, the focus is on transaction-specific satisfaction, not cumulative satisfaction (cf. Anderson et al., 1994; Keiningham et al., 2014).

As a manipulation check, we used items designed to measure perceived *self-promotion* developed by (a) Bolino and Turnley (1999), originally employed in a human-to-human context and as a measure of the employee's self-promotion in an organization and (b) Chiang and Chen (2014) in an examination of perceived self-promotion by tour leaders. Similar items were also used by Korzynski et al. (2025). More specifically, we used these six items: “Sarah makes users aware of her talents,” “Sarah makes users aware of her skills and abilities,” “Sarah talks proudly about her past accomplishments,” “Sarah engages in self-promoting talk,” “Sarah is boasting,” and “Sarah's talk is focused on promoting herself” (1=do not agree at all, 10=agree completely, CA = .82).

Analysis and results

The manipulation check for self-promotion showed that the level was lower in the relatively low condition ($M=6.11$, $SD=1.55$) than in the relatively high condition ($M=7.33$, $SD=1.54$). The difference between the two conditions was significant (two-sided test, $t=5.88$, $p < .01$). The manipulation, then, behaved as intended.

Since warmth and competence have been measured in numerous studies (with human targets), the level reached by these two variables in the present study are worth noting: both warmth ($M=7.19$, $SD=2.33$) and competence ($M=7.92$, $SD=2.22$) reached high levels. In human-to-human settings, this “high-high” combination is typically obtained for prototypic in-groups (e.g., the middle class), and it is associated with positive emotions such as admiration (Fiske, 2015). In any event, in the present study, warmth was significantly different between the two conditions; it was higher in the relative low self-promotion condition ($M=7.56$, $SD=2.20$) than in the relatively high self-promotion condition ($M=6.83$, $SD=2.41$). This difference was significant (two-sided test, $t=2.36$, $p < .05$). Competence was higher in the relatively low self-promotion condition ($M=8.14$, $SD=2.26$) than in the relatively high self-promotion condition ($M=7.71$, $SD=2.16$), but this difference was not significant (two-sided test, $t=1.46$, $p = .15$).

Turning to the hypotheses, the level of customer satisfaction was lower in the relatively high self-promotion condition ($M=5.90$, $SD=2.31$) than in the relatively low condition ($M=6.71$, $SD=2.18$). The difference was significant (two-sided test, $t=2.68$, $p < .01$). This means that Hypothesis 1 was supported.

For the mediation hypothesis, we used the experimental condition as the independent variable (scored as 1 = self-promotion is relatively low and 2 = self-promotion is relatively high). It should be noted that this independent variable was negatively correlated with both warmth ($r = -0.16$, $p < .05$) and competence ($r = -0.10$, $p = .14$). Moreover, warmth and competence were positively associated with customer satisfaction (warmth: $r = .64$, $p < .01$; competence: $r = .66$, $p < .01$). To assess mediation, we used Hayes' PROCESS macro with Model 4 (5,000 bootstrap samples) in an assessment with the experimental condition as the independent variable. Warmth and competence were (parallel) mediators, and customer satisfaction was the dependent variable. The results indicated that there was a significant indirect and negative effect of self-promotion on customer satisfaction *via* warmth (indirect effect: $b = -0.21$, $SE = 0.10$, $CI\ 95\% = [-0.43; -0.03]$). The indirect effect of competence (indirect effect: $b = -0.19$, $SE = 0.14$, $CI\ 95\% = [-0.51; 0.07]$), however, was not significant. The direct effect was not significant (direct effect: $b = -0.41$, $SE = 0.22$, $CI\ 95\% = [-0.85; 0.03]$). Thus, Hypothesis 2 was supported only for warmth.

Discussion

The results from Study 1 show that self-promotion displayed by a non-human service agent attenuated the perceived warmth of the agent. Moreover, warmth (but not competence) served as a significant mediator of the impact of self-promotion on customer satisfaction. The latter result is consistent with the notion that warmth is a relatively more important attribute than competence in person perception situations (Fiske et al., 2007; Holoien & Fiske, 2013; Pai et al., 2023). It is also consistent with Kull et al. (2021), who show that the warmth content in a chatbot's message, but not the competence content, influenced participants' reactions in terms of engagement with the brand that the chatbot represented. In addition, it is consistent with previous research showing a main effect of self-promotion on warmth but not on competence (Krings et al., 2023). According to Fiske et al. (2007), one main reason for the primacy of warmth, from an evolutionary perspective, is that another person's intent for good or ill is more important to survival than whether the other person can act on those intentions. In any event, the net result was a lower level of customer satisfaction when the agent engaged in self-promotion.

Study 1, however, examined only two of the three hypothesized mediators. Therefore, an additional study was conducted in order to examine all mediators within the frame of the same study (i.e., also the agent's perceived self-focus). Moreover, there are several ways for a service agent to engage in a relatively low level of self-promotion while talking about

a service, and Study 1 tested only one possible way to do so. Another possibility is to emphasize “we” (in terms of “you and me”), instead of “I,” when it comes to an agent’s service description. This way of describing a service is consistent with a view of services as co-produced by the customer and the service provider, particularly with respect to service production of the joint production type. That is to say, in joint production both parties participate in the production (cf. Bendapudi & Leone, 2003). Therefore, an additional purpose of Study 2 was to examine “we-emphasizing” of joint production as an alternative way for a service agent to engage in a relatively low level of self-promotion when talking about a service. In Study 2, we also made attempts to assess the validity of the customer satisfaction variable.

Study 2

Research approach and stimuli

We used a between-subjects experiment, in which we manipulated the digital coach’s self-promotion content (relatively low level vs. relatively high level), to test H1 and H2 (this time with all three hypothesized mediators). The same approach as in Study 1 was employed, but we created a new version of the condition in which self-promotion was relatively low. In Study 2, as already indicated, the digital coach’s description of the service emphasized “we” rather than “I,” both in the video presentation prior to the service encounter and in the service encounter itself (see [Supplementary Material](#)). We used the same material as in Study 1 for the condition in which self-promotion was relatively high.

Data collection and participants

Again, we collected data from the Prolific panel. The participants ($n = 221$; $M_{age} = 40.85$; 114 women, 107 men) were randomly allocated to one of the two versions of the service encounter. Their responses to what happened were captured with questionnaire items.

Measures

We used the same measures as in Study 1 for *warmth* ($CA = .82$) and *competence* ($CA = .80$). It should be noted that these two variables were subject to a significant positive correlation also in Study 2 ($r = .75$, $p < .01$), which again indicates a halo effect in the participants’ social perception (cf. Holoiën & Fiske, 2013). For *customer satisfaction*, we used the same items as in Study 1 ($CA = .93$). In an attempt to assess the

validity of the customer satisfaction variable, Study 2 comprised the question “Please write one word that captures your overall evaluation of Sarah” followed by an open-ended response space. We used the LIWC software (Tausczik & Pennebaker, 2010) to compute the emotional tone for each participant’s selected word. The emotional tone variable can take on values from 1 to 100; the algorithm is built so that the higher the number, the more positive the tone. In our sample, emotional tone ($M=45.17$, $SD=35.03$) was positively and significantly correlated with the satisfaction variable ($r=0.41$, $p < .01$). This indicates concurrent validity in our customer satisfaction measure.

The additional hypothesized mediator, *self-focus*, was measured with the question “What is your impression of Sarah, the digital coach?” It was followed by the items “other-focused–self-focused,” “is concerned about others–is concerned about herself,” “low egocentricity–high egocentricity,” “high interest in helping others–low interest in helping others,” “social–unsocial,” and “positive view of others–negative view of others” ($CA = .84$). We developed this scale for the purpose of the present study, and the items were based on the conceptual reasoning about the self-focus construct in Konrath and Luminet (2022) and Lei et al. (2021).

Moreover, we used the same measures as in Study 1 for the manipulation check of self-promotion ($CA = .77$).

Analysis and results

The manipulation check for self-promotion showed that the level was lower in the relatively low self-promotion condition ($M=5.91$, $SD=1.44$) than in the relatively high condition ($M=7.23$, $SD=1.44$). The difference between the two conditions was significant (two-sided test, $t=6.80$, $p < .01$). The manipulation, then, behaved as intended. It may be observed that the “we-emphasizing” version of the chatbot’s presentation content in Study 2 produced a lower level of perceived self-promotion ($M=5.91$) than the relatively low self-promotion condition in Study 1 ($M=6.11$).

Again, the levels reached by warmth and competence are worth noting. As in Study 1, both warmth ($M=7.38$, $SD=1.72$) and competence ($M=7.57$, $SD=1.50$) reached high levels, which is a common result for prototypical in-groups when humans are the targets (Fiske, 2015). Similar to Study 1, warmth was higher in the relatively low self-promotion condition ($M=7.59$, $SD=1.72$) than in the relatively high self-promotion condition ($M=7.19$, $SD=1.71$). This difference was marginally significant (two-sided test, $t=1.72$, $p = .09$). Competence was higher in the relatively low self-promotion condition ($M=7.68$, $SD=1.53$) than in the relatively high self-promotion condition ($M=7.47$, $SD=1.47$), but this difference was not significant (two-sided test, $t=1.05$, $p = .29$). As for the additional mediator,

perceived self-focus, the level was lower in the relatively low self-promotion condition ($M=3.42$, $SD=1.34$) than in the relatively high self-promotion condition ($M=4.18$, $SD=1.67$). This difference was significant (two-sided test, $t=3.62$, $p<.01$).

The level of customer satisfaction was lower in the condition in which self-promotion was relatively high ($M=6.11$, $SD=2.22$) than in the condition in which self-promotion was relatively low ($M=6.86$, $SD=2.07$). The difference between the two conditions was significant (two-sided test, $t=2.59$, $p=.01$). Hypothesis 1, then, was supported.

For the mediation analysis, we used the experimental condition as the independent variable (scored as 1=self-promotion is relatively low and 2=self-promotion is relatively high). This independent variable was negatively correlated with warmth ($r=-0.12$, $p=.09$) and competence ($r=-0.07$, $p=.29$), and it was positively correlated with self-focus ($r=.24$, $p<.01$). Moreover, each of these variables was significantly associated with customer satisfaction (warmth: $r=.78$, $p<.01$; competence: $r=.77$, $p<.01$; self-focus: $r=-0.57$, $p<.01$).

The mediation hypothesis was tested in two ways. First, and similar to Study 1, we used Hayes' PROCESS macro with Model 4 (5,000 bootstrap samples) in an assessment with the experimental condition as the independent variable; warmth, competence and self-focus were (parallel) mediators; and customer satisfaction was the dependent variable. The results indicated that the indirect impact *via* warmth was not significant (indirect effect: $b=-0.20$, $SE=0.13$, $CI\ 95\%=[-0.46; 0.04]$) and that the indirect impact *via* competence was not significant (indirect effect: $b=-0.12$, $SE=0.11$, $CI\ 95\%=[-0.35; 0.11]$). The indirect impact *via* self-focus, however, was significant (indirect effect: $b=-0.16$, $SE=0.06$, $CI\ 95\%=[-0.30; -0.05]$). The direct effect was not significant (direct effect: $b=-0.27$, $SE=0.16$, $CI\ 95\%=[-0.59; 0.05]$). In the light of this analysis, then, H2 was supported only for self-focus as a mediating variable.

Second, the larger magnitude of the zero-order correlation between self-promotion and self-focus ($r=.24$) compared to warmth ($r=-0.12$) and competence ($r=-0.07$) can indicate a time asymmetry between the hypothesized mediators (i.e., self-focus may be an antecedent to warmth and competence). To examine this possibility we assessed the potential for serial mediation of the forms (1) self-promotion—self-focus—warmth—customer satisfaction and (2) self-promotion—self-focus—competence—customer satisfaction. For this analysis, we used Hayes' PROCESS macro with Model 6 (5,000 bootstrap samples). The analysis showed that the indirect impact of self-promotion on customer satisfaction in terms of chain (1) was negative and significant (indirect effect: $b=-0.37$, $SE=0.11$, $CI\ 95\%=[-0.60; -0.17]$). The direct effect was not significant (direct effect: $b=-0.21$, $SE=0.18$, $CI\ 95\%=[-0.56; 0.15]$).

For chain (2), the indirect effect was significant, too (indirect effect: $b = -0.32$, $SE = 0.10$, $CI\ 95\% = [-0.54; -0.15]$). The direct effect was not significant (direct effect: $b = -0.30$, $SE = 0.18$, $CI\ 95\% = [-0.66; 0.06]$). These results, then, provide support for H2 with respect to each of the three hypothesized mediators.

Discussion

Study 2 corroborated the findings from Study 1 when it comes to the net result of self-promotion by a non-human service agent in a service encounter: the level of customer satisfaction was attenuated when the agent engaged in a relatively high level of self-promotion. In contrast to Study 1, however, the Study 2 results indicate that (a) both warmth and competence were mediators, given that (b) self-focus is included as an additional (and antecedent) mediator.

General discussion

Contributions

In both our experiments, a relatively high level of self-promotion from a digital agent in an initial service encounter attenuated customer satisfaction. The finding provides additional evidence to the part of the literature on self-promotion indicating that this form of self-presentation can have a negative impact on the receiver's view of the self-promoter. It should be underlined that the majority of previous studies of self-promotion effects has comprised a target who is an organizational member or a potential organizational member (i.e., a job applicant). The present study, however, is one of the relatively few studies in which the self-promoter is providing services to customers. This service situation, we believe, has some specific characteristics that makes it different from an organizational setting. First, the customer is typically paying for usage. Second, the tie between the customer and the agent is presumably weaker than between parties in an organization (e.g., a customer who does not like what the agent is doing can easily exit from the interaction). In addition, there is one general alternative to using (a self-promoting) service agent: the customer him/herself is typically a main competitor to service firms (Normann, 1984). It should also be noted that the specific service in the present study had to do with relationship advice, which represents an area in which the customer can be vulnerable and sensitive to the agent's ways to conduct a conversation. Despite these differences, the results of the present study are consonant with results from many studies in other settings: self-promotion creates negative consequences for the self-promoter (e.g., Godfrey

et al., 1986; O'Mara et al., 2019; Schreurs et al., 2018). The present study, then, broadens the scope in relation to previous research by providing evidence that self-promotion can be negatively charged also in a service encounter setting.

Moreover, several studies have examined the impact of various communication behaviors of virtual agents on human receivers. It has been shown, for example, that an informal versus a formal communication style of a chatbot's speech content increases satisfaction with the chatbot relationship (Youn & Jin, 2021). It has also been shown that a chatbot's conversation content influences variables closely related to the evaluation of the brand that the chatbot represents (Shumanov & Johnson, 2021). To date, however, the effects of self-promoting content in a non-human agent's speech have been understudied (Stanley et al., 2021). One of the few previous studies, by Biancardi et al. (2019), shows that a conversational agent's self-promotion did not produce a different level of relationship satisfaction compared to a mix of other presentation strategies. This is thus in conflict with the results of the present study. Another previous study, in which the stimulus agent (a conversational agent) did not provide any particular service for the user, indicates that a self-promoting agent was liked less compared to when it delivered the same basic messages without self-promotion (Derrick & Ligon, 2014). This result, then, is similar to what was obtained in the present study. It may be noted that one of the few studies of self-promotion at the *company* level, and with respect to the effects of a company's self-promotion of its AI capabilities, produced similar results as the present study: company self-promotion attenuated customers' willingness to engage with the service produced by the company (Vorobeve et al., 2025).

Turning to the mechanisms behind the impact of a digital agent's self-promotion on customer satisfaction, warmth and competence were included as potential mediators in the present study. As indicated above, these two universal person perception dimensions in human-to-human settings (Fiske et al., 2007) have become common variables in studies of humans' perceptions of humanlike non-human agents (e.g., Biancardi et al., 2019; Carolus et al., 2019; Kolbl et al., 2019; Kull et al., 2021; Söderlund, 2024a). This reflects the dominant anthropomorphism paradigm in studies of the latter type. In the present study, however, the contribution of these two variables was relatively modest (i.e., in Study 1, only warmth was a significant mediator; in Study 2, neither warmth nor competence was a significant mediator in the analysis of parallel mediation). However, our results indicate that they indeed contribute to the impact of self-promotion on customer satisfaction if they are seen as effects of an additional mediator, namely the agent's perceived self-focus. There are indeed several

general reasons why perceived self-focus should be viewed as a causally potent variable in the setting that we examined.

First, from an evolutionary point of view, one may assume that we humans have been hardwired to be sensitive to others' self-focus, because high levels of self-focus can mitigate the satisfaction of various fundamental human social needs such as affiliation, cooperation, mate retention, and parenting (cf. Kenrick et al., 2010). Second, a target person's high level of self-focus can signal that this person's ability to focus on others' mental activities is impaired. If this encompasses a disability to understand the mental states of others, it means that there are limitations in the person's theory of mind (Baron-Cohen, 1999; Premack & Woodruff, 1978). Many aspects of well-functioning social interactions, however, are dependent on that the interacting parties have theory of mind (Baron-Cohen, 1999). Indeed, a target's perceived deficits in such abilities can indicate that the target will be less easy to interact with, and less easy to exchange resources with, and this would imply lower satisfaction for a customer when the target is a service provider. Empirically, Söderlund (2024b) shows that attributions of theory of mind to a service agent is positively associated with customer satisfaction.

In addition, from the point of view of a perceiver, a target's strong self-focus can suggest that the target has a self-concept. And to have a self-concept is an advanced ability, because a distinct self is a prerequisite for several capabilities of the human mind (Rochat et al., 2012). Yet, although participants in studies typically attribute at least some level of mind and some level of theory of mind to humanlike non-humans (Söderlund, 2024b), most humans are likely to question if a non-human really can have a self. If a non-human nevertheless *acts* as if it has a self-concept, by stressing various aspects of itself in its speech, it may be perceived as a deception attempt (even if there is no explicit intent to deceive; Sharkey & Sharkey, 2021). Alternatively, if the non-human creates thoughts suggesting that it indeed *has* a self, it can signal that it is (or can become) autonomous. And once a non-human agent is seen as autonomous, it can be perceived as threatening in several ways. Examples of threatening activities are the subjugation of humans and taking over human jobs (Federspiel et al., 2023; Złotowski et al., 2017). Deception and threats are negatively charged aspects, and they may thereby contribute to producing negative reactions when a non-human agent is self-focused.

In any event, and in relation to studies that have discussed or examined the influence of self-promotion on the attribution of general characteristics of a target, such as warmth and competence (e.g., Godfrey et al., 1986; Krings et al., 2023; Pai et al., 2023), the present study contributes by showing that a self-focus, an additional general person perception characteristic, adds to our understanding of the downstream effects of

self-promotion. The present study also indicates that theories stressing the universal nature of warmth and competence in social perception settings, such as the stereotype content model (Fiske et al., 2007), may benefit from increased explanatory power if they allow for the presence of a self-focus variable (as an antecedent to warmth and competence).

Implications for practitioners

For those who develop commercial non-human service agents, and who want them to be positively evaluated by the user, particularly after an initial interaction phase, the implication of the present study is straightforward: service agents should be programmed (or trained to teach themselves) so that they do not engage in high levels of self-promotion. Thus, the agents should avoid highlighting their own accomplishments and credit-taking for positive outcomes. Given the prevalence of such activities in human-to-human interactions (Barrick et al., 2009; Gross et al., 2021), which can serve as the basis for the training of digital agents, specific attention is needed for unsupervised training of AI-based digital agents. In practical terms, one way to monitor a specific agent's level of self-promotion is to ask users about their perceptions of self-promotion with questions of the same type that we used in the present study. It may also be possible for an AI-based system to engage in self-monitoring by teaching it the common ways in which humans engage in self-promotion (e.g., making positive statements about themselves, their future plans, and past accomplishments; Barrick et al., 2009; Schreurs et al., 2018; Stevens & Kristof, 1995). Moreover, our results indicate that an agent's self-focus contributes negatively to consumers reactions. Since a self-focus can exist without a high level of self-promotion (e.g., when someone talks excessively about him/herself in neutral or negative terms), it seems reasonable to issue a call for caution also for self-focused digital service agents.

Limitations and suggestions for further research

The present study examined one specific impression management tactic (i.e., self-promotion). There are other such tactics, however, and they are unlikely to be equally effective (Higgins et al., 2003). More specifically, other impression management tactics may be more effective in indicating the presence of other-focus rather than self-focus and more effective in enhancing warmth and competence. Therefore, they can have other effects on the evaluation of a target than those revealed in the present study. Examples of such tactics are ingratiation (Wayne & Ferris, 1990), indirect self-promotion by highlighting connections to successful others (Schreurs et al., 2018), and humorbragging (Pai et al., 2023). Further research, then,

is needed to identify if other self-presentation tactics than self-promotion would have the same or other effects when they are used by a non-human service agent.

It should also be noted that Sarah, the stimulus non-human agent in our study, was female gendered (which is a common industry practice; Luo et al., 2019). Previous research in a human-to-human context, however, shows that the gender of a self-enhancing individual can influence receivers' reactions. For example, if a female is self-enhancing, she is likely to be perceived as someone who keeps others at a distance, regards herself as physically attractive, and as someone who transfers blame. A male self-enhancer, in contrast, is likely to be seen as deceitful, distrustful of others, and having fluctuating moods (Colvin et al., 1995). It has also been shown that older female candidates in job interviews who engaged in high self-promotion were seen as less warm and received lower interview ratings (Krings et al., 2023). Given that such gender aspects are parts of anthropomorphizing a non-human agent, more precision in the picture of the effects of self-promotion would be obtained if stimuli agents' gender is allowed to be an additional variable.

With respect to mediating variables that may explain the impact of self-promotion on customer satisfaction, the present study comprised perceived warmth, competence, and self-focus. Although the non-significant direct effects in our mediation analyses do not indicate the presence of other mediators, additional mediators are indeed likely in the light of previous research on the effects of self-promotion. Examples are perceived humility (Krings et al., 2023), perceived trust in others (Colvin et al., 1995), perceived credibility (Tice et al., 1995), and perceived manipulation intent (Schreurs et al., 2018). These variables, then, can be examined as potential mediators in further studies.

Moreover, it may be noted that the setting in the present study involved a situation in which self-promotion tactics are particularly likely (in a human-to-human context): our setting comprised the interaction between strangers, and there was a knowledge asymmetry between the interacting parties (cf. Barrick et al., 2009). In contrast, one may expect that self-promotion in an interaction would be less likely within long-term relationships between parties who are familiar with each other (cf. Peck & Levashina, 2017). This type of setting may materialize when a user has a continuous relationship with a non-human service agent, and it may produce different effects of the agent's self-promotion compared to what we obtained in the present study. Thus, further studies are needed to establish if the effects of a service agent's self-promotion activities would be the same or different for users who have established a relationship with an agent.

Finally, in our study the influencer was the service agent and the influencee was the participant. Given that self-presentation activities with the

purpose of influencing others are prevalent in human-to-human interactions (Barrick et al., 2009), one would expect that *users* of non-human agents can engage in self-promotion, too. Weiste et al. (2022) indeed indicate that also the receiver of services can engage in self-promotion. The effects of such self-promotion activities on the service agent, and the effects of the agent's responses to them in terms of its own self-promotion and other activities, call for examinations in further studies.

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