

Some Agents are more Similar than Others

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Some agents are more similar than others: customer orientation of frontline robots and employees

Customer
orientation

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Abstract

Purpose – The impact of frontline robots (FLRs) on customer orientation perceptions remains unclear. This is remarkable because customers may associate FLRs with standardization and cost-cutting, such that they may not fit firms that aim to be customer oriented.

Design/methodology/approach – In four experiments, data are collected from customers interacting with frontline employees (FLEs) and FLRs in different settings.

Findings – FLEs are perceived as more customer-oriented than FLRs due to higher competence and warmth evaluations. A relational interaction style attenuates the difference in perceived competence between FLRs and FLEs. These agents are also perceived as more similar in competence and warmth when FLRs participate in the customer journey's information and negotiation stages. Switching from FLE to FLR in the journey harms FLR evaluations.

Practical implications – The authors recommend firms to place FLRs only in the negotiation stage or in both the information and negotiation stages of the customer journey. Still then customers should not transition from employees to robots (vice versa does no harm). Firms should ensure that FLRs utilize a relational style when interacting with customers for optimal effects.

Originality/value – The authors bridge the FLR and sales/marketing literature by drawing on social cognition theory. The authors also identify the product categories for which customers are willing to negotiate with an FLR. Broadly speaking, this study's findings underline that customers perceive robots as having agency (i.e. the mental capacity for acting with intentionality) and, just as humans, can be customer-oriented.

Keywords Customer orientation, Social cognition, Competence, Warmth, Frontline robots, Interaction style, Customer journey

Paper type Research paper

Introduction

Frontline robots (FLRs) are autonomous and adaptable interfaces that interact, communicate and deliver service to customers (Wirtz *et al.*, 2018, p. 909). Because FLRs offer a consistent service quality at a lower cost than their human counterparts, renowned retailers like Lowe's and Nescafé deploy FLRs on the shopping aisles to exchange product information with customers (Stock and Merkle, 2017; Rafaeli *et al.*, 2017). However, robots can negotiate deals, too (e.g. Cruz-Maya and Tapus, 2018). Thus, FLRs can substitute humans in more than one customer journey stage. Today service managers face the essential

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decision of whether and when to staff their frontline with FLRs or frontline employees (FLEs).

To guide managers, one research stream has studied the drivers of customer (continuous) adoption of FLRs (e.g. [Belanche et al., 2019](#); [Schwede et al., 2022](#); [Schepers et al., 2022](#); [Van Pinxteren et al., 2019](#); [Song and Kim, 2022](#)). Another stream has examined how robots compare to humans in the frontline concerning customers' satisfaction ([Choi et al., 2019](#); [Fan et al., 2022](#); [Mende et al., 2019](#); [Pozharliev et al., 2021](#)) or willingness to pay ([Ivanov and Webster, 2021](#); [Seyitoğlu et al., 2021](#)). Results show that many customers are in favor of robot-delivered services due to, but not limited to, reasons related to public health (e.g. [Kim et al., 2021](#)), the environment (e.g. [Hou et al., 2021](#)) and the service task at hand ([Giebelhausen et al., 2014](#)).

However, research on how the type of frontline agent (i.e. FLR or FLE) influences customer orientation perceptions of this actor remains limited. This is remarkable because FLRs may be perceived as not very customer oriented, given that customers may associate frontline technology with cost-cutting initiatives ([Nijssen et al., 2016](#)) and pre-programmed routines ([Keating et al., 2018](#)). A robotized frontline may thus signal an inconsistent configuration of the marketing mix for firms that otherwise aim to be customer oriented. Still, there may be contingency factors that managers can use to mitigate the problem of FLRs' poorer customer orientation.

Against this backdrop, the aim of this research is threefold: (1) to examine the impact of FLRs on customers' perceptions of the customer orientation of the agent, (2) to uncover its underlying mechanisms, and (3) to research how managers can influence these mechanisms to, ultimately, prevent FLRs from harming agent customer-orientation judgments. Specifically, we build on social cognition theory ([Fiske et al., 2007](#)) to argue that perceived competence and warmth mediate between the frontline agent type and their customer orientation perceptions. Social cognition focuses on how people process, store, and apply information about others. It argues that interpersonal impressions form along two dimensions: warmth and competence. We identify interaction style and customer journey stage as the managerial levers to alter the mechanisms that relate frontline agents to customer orientation (see the third aim above). [Figure 1](#) displays our research model.

Our study makes three significant contributions to literature. First, despite ample research on the adoption and customer perceptions of FLRs, a cursory review shows that attention to

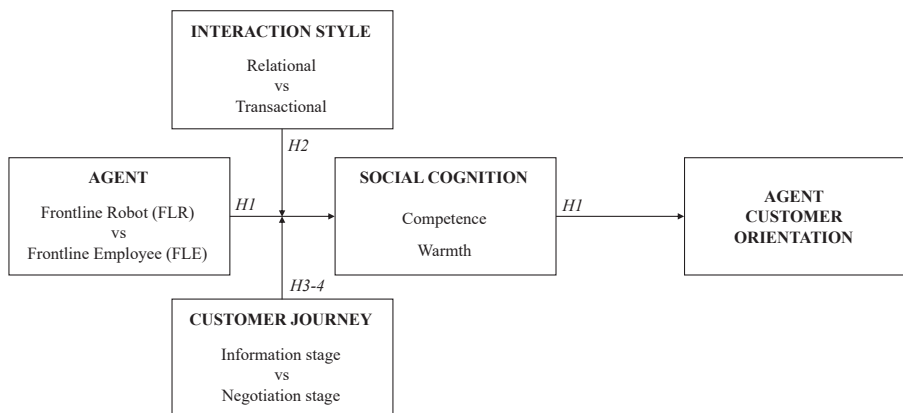


Figure 1.
Conceptual model

Source(s): Figure by authors

FLR customer orientation is lacking. While [McLeay et al. \(2021\)](#) focus on how robots may influence the reputation of the frontline (i.e. in ethical/societal terms), most other research has focused on technology adoption, customers' satisfaction with the service or purchase intentions. By studying the customer perceptions towards FLRs and their effect on customer orientation of the agent, we bridge the service robot and modern marketing and sales literature that consider customer orientation a cornerstone of success in the marketplace. Drawing on social cognition theory, we explore warmth and competence as mediating mechanisms.

Second, apart from the agent being human or robotic, the style employed by the agent may ultimately affect how customers evaluate the agent's customer orientation ([Homburg et al., 2011](#)). Relational and transactional interaction styles have been distinguished ([Geiger and Finch, 2011](#)). In relational interactions, frontline agents build trust, long-term relationships and personalize the customer interaction. In transactional interactions, agents swiftly complete the task using standardized offers in a straightforward mode. Using these two styles as a contingency factor in our model, we bridge literature streams on frontline selling interactions and FLRs.

Third, we identify the customer journey stage(s) in which the FLR operates as a significant contingency. Prior FLR studies have focused on a single stage (e.g. information exchange; [Belanche et al., 2020](#)) or did not explicitly distinguish between stages (e.g. hotel check-in and check-out were considered as one process; [Yam et al., 2020](#)). In contrast, we explicitly differentiate between the information and negotiation stages of the customer journey. The information stage refers to the interaction process wherein an agent provides the background for a customer to form an attitude toward a provider's product or service. The negotiation stage involves the cooperative process whereby participants try to reach a deal. Empirically, we first examine the product categories in which customers would generally be willing to negotiate and in which of these categories they would also be open to negotiating with FLRs. Based on these findings, we employ an automotive context and demonstrate the effects of implementing FLRs throughout the customer journey.

We first present the theoretical background of our research and develop our hypotheses. We then offer five studies that employ various settings (e.g. furniture stores, automobile dealerships and consumer electronics stores). The results demonstrate that, compared to employees, FLRs are associated with lower perceptions of customer orientation. However, FLRs' interaction style and the customer journey stage in which the robot is active can alleviate the difference by equalizing the perceptions of FLE/FLR-agent competence and warmth. In other words, some agents are perceived as more similar than others.

Theoretical background

Three literature streams in frontline service

[Figure 2](#) provides an overview of relevant literature and the positioning of our research. Although the figure does not provide an exhaustive list of all studies per domain, it illustrates the key streams and gaps.

Three important streams in frontline service are recognized as most relevant to our work: (1) studies that explicitly contrast robotic and human service, (2) studies that employ social cognition concepts to understand customer responses to frontline service (including robotic service) and (3) studies that take a sales perspective, for instance by considering customer journey stages or interaction styles.

Several observations can be made. First, many frontline studies have used a social cognitive approach and thus incorporated the competence and warmth dimensions. However, they mainly focus either on FLEs or FLRs. For example, [Habel et al. \(2017\)](#) scrutinize how service rules enforcement make customers cognize FLEs' competence and warmth

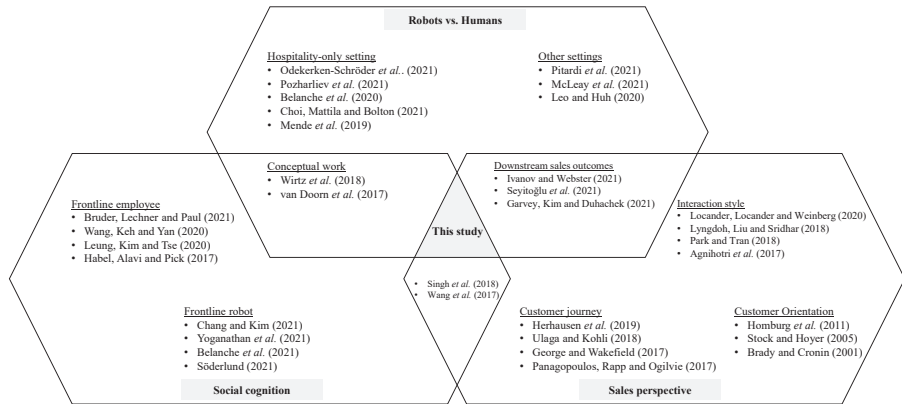


Figure 2.
Research demarcation
within the frontline
service literature

Source(s): Figure by authors

differently, while [Brenngman *et al.* \(2021\)](#) benchmark FLRs with other technologies. Apart from studies in healthcare (e.g. [Čaić *et al.*, 2020](#)), we did not find empirical studies that have contrasted robots and humans in commercial frontlines and adopted this theoretical backdrop.

Second, comparisons between FLRs and FLEs have predominantly occurred in hospitality settings (e.g. [Mende *et al.*, 2019](#); [Belanche *et al.*, 2020](#); [Choi *et al.*, 2019](#)). Other settings are underrepresented (e.g. [Leo and Huh, 2020](#); [McLeay *et al.*, 2021](#); [Pitardi *et al.*, 2021](#)). However, more knowledge about their impact would be welcome because robots are being implemented in other contexts, such as retail stores, to help customers.

Third, studies that contrast humans with robots and consider sales outcomes have not examined and uncovered the mechanisms underlying individuals' responses to human versus robotic agents. For instance, [Garvey *et al.* \(2021\)](#) investigated customers' purchase intentions of products and services offered by FLEs or FLRs, but focused on the expectations of the offer rather than customer perceptions of, for instance, customer orientation of the agent.

To fill the observed research gap (see [Figure 2](#), the center), we use a social cognitive perspective to understand the mechanisms underlying customers' evaluations of frontline agents' customer orientation. We uncover differences between customer perceptions of FLEs and FLRs contingent on two factors, i.e. interaction style and customer journey stage.

Frontline agents' customer orientation: a social cognitive approach

Customer-oriented frontlines set firms apart from competitors ([Parasuraman, 1987](#); [Shapiro, 1988](#)), enhance their image ([Bove and Johnson, 2000](#); [Brady and Cronin, 2001](#)), and foster superior and sustainable performance ([Slater and Narver, 1998](#)). Customer-oriented FLEs gather and respond to market intelligence by actively engaging with customers and serving them as best as possible. Customers appreciate such an approach and reciprocate through satisfaction and loyalty ([Brady and Cronin, 2001](#)).

Despite the importance of customer orientation of frontline agents, we do not know whether and how FLRs affect client perceptions of customer orientation. FLRs operate without any FLE intervention, can serve customers by performing both physical and social tasks ([Huang and Rust, 2021](#)), and benefit from systematic robot learning through, for instance, (joint) pattern recognition ([Wirtz *et al.*, 2018](#)). Because FLRs are also upgradeable and have unlimited memory, they can be competent performers of many frontline tasks. In contrast, FLEs require

recurrent training, learn primarily from their own experiences, have limited memory, and must “understand” before executing. However, employees have the advantage of their warm human touch (Van Doorn *et al.*, 2017). Thus, literature and practice suggest that customers will likely compare agents’ performance regarding competence and warmth.

Consistent with social cognition theory (Fiske *et al.*, 2007), we posit that competence and warmth are the two universal dimensions that people use to categorize an object as a friend or foe, and to derive their agent-customer orientation perceptions. In a recent overview of FLR research, De Keyser and Kunz (2022) identified social cognition theory as one of the leading theories to describe customer responses to FLRs. They list 55 theories used in the FLR field and note that social cognition and anthropomorphism stand out as the most practical perspectives. Because competence and warmth capture the lion’s share of variance of how customers perceive others, and because we will not manipulate robot looks and movements, social cognition is more applicable than anthropomorphism as theoretical grounding for our research.

In our frontline setting, perceived competence refers to an agent’s ability, intelligence, skill and efficacy in completing an action. Perceived warmth denotes the agent’s intent, friendliness, helpfulness, and sincerity in completing an action (Fiske *et al.*, 2007). Social cognition theory also holds that contextual factors influence how customers form competence and warmth perceptions in the frontline (e.g. Alhouti *et al.*, 2019; Habel *et al.*, 2017; Li *et al.*, 2019). Therefore, we also theorize contingency conditions that affect how customers cognize FLRs and FLEs.

Hypotheses

Social cognition as a mediating mechanism

As indicated, many customers feel that the introduction of frontline technology results from the firm’s cost-cutting initiatives (Nijssen *et al.*, 2016) and is made up of pre-programmed routines (Keating *et al.*, 2018). Therefore, we posit as a baseline expectation that FLRs may be perceived as less customer oriented than FLEs. In addition, prior research on FLRs has argued perceived competence and warmth as mediators of the effect of FLRs on value co-creation (Caić *et al.*, 2019), general attitudes towards FLRs (Van Doorn *et al.*, 2017), sales-oriented outcomes (Yoganathan *et al.*, 2021) and service value perceptions/expectations (Belanche *et al.*, 2021). We extend their mediating role to the domain of customer orientation of frontline agents.

Objectively speaking, modern FLRs should be just as competent as FLEs for many or most frontline service tasks. FLRs’ sophisticated sensors, connectivity and algorithms ensure that they can perform these tasks as competently as humans. However, FLEs represent the *status quo* (Kahneman *et al.*, 1991) that customers are used to in their service interactions. This may cause customers to overvalue the competency of the incumbent and undervalue that of the new, alternative agent, even if the new option would offer a higher utility (Falk *et al.*, 2007). Thus, as a deviation from common human-to-human interactions, robots are likely to trigger more negative customer perceptions about their competence.

Conversely, FLRs’ empathetic state-of-the-art lags behind, clearly distancing them from FLEs in their warmth. Robots’ ability to analyze human emotions and interactions is still poorly developed in the service field (Huang and Rust, 2018). Even in those exceptional cases where highly empathetic FLRs have been deployed (e.g. Sophia, the super human-like robot from Hanson Robotics), customers perceive less warmth due to feelings of uncanniness (Mori, 1970). Hence, given the prematurity of empathetic AI, robots are likely to elicit more negative customer perceptions about their warmth.

Research confirms competence and warmth as two fundamental aspects customers expect from service providers. For instance, Falk *et al.* (2010) demonstrate that in technology-mediated service interactions, both functional-utilitarian and emotional-hedonic elements are relevant

to customer perceptions of the service provider. Similarly, [Sirdeshmukh et al. \(2002\)](#) prove that competence and benevolence are key elements in FLE behavior for customers to perceive service value. Thus, frontline agents who are perceived to be competent and warm are likely perceived to satisfy customer needs better, that is, to have a higher customer orientation. We summarize our discussion by means of the following hypotheses:

- H1.* The effect of the type of frontline agent on perceived customer orientation is mediated by (a) competence and (b) warmth, such that evaluations of warmth and competence are less favorable for FLRs than FLEs.

The moderating role of interaction style

Interaction styles are typically categorized according to the relational-transactional continuum and thus embody a contrast between benign relationships with personalized offerings being made by agents to their customers and transactional operations where the aim is to achieve quick sales at a relatively low cost. Notably, the interaction style is independent of the service task. The service task of helping customers at a decoration store could be tackled by an agent using a transactional (e.g. Zara Home) or relational approach (e.g. Armani Casa) following customers' expectations ([Van Doorn et al., 2017](#)).

However, a frontline agent's interaction style will determine how customers cognize service interactions. Transactional interactions make individuals calculative, expecting to receive benefits comparable to what they have provided ([Li et al., 2019](#)). It causes a *quid pro quo* attitude making customers more critical of the agent's competence ([Clark and Mils, 1993](#)). This implies that a robot using a transactional interaction style will amplify the earlier noted difference in competence between FLEs and FLRs.

In contrast, frontline agents who use a relational interaction style help customers feel less like "*being just a number*" ([Arli et al., 2018](#)). As a result, customers will be more lenient towards the imperfect service competencies of their counterparts ([Li et al., 2019](#)). We expect this competence-enhancing effect of interaction style to be stronger for robots than for employees. Customers are more familiar with human than robotic services and thus are less likely to adjust their long-run competence perceptions for FLEs based on a one-time relational interaction. Therefore, a relational interaction style may reduce the gap in competence perceptions between human and robotic agents. We therefore hypothesize:

- H2a.* The difference between FLEs' and FLRs' perceived competence is smaller under a relational than transactional interaction style.

A transactional interaction style moves customers' attention away from rapport-building elements in service delivery (cf. [Li et al., 2019](#)). Under such decreased perceptual focus, individuals tend to rely on their implicit expectations rather than actual experiences ([Habel et al., 2016](#)). A transactional interaction style thus is unlikely to change the pattern where customers perceive FLEs to be warmer than FLRs. In contrast, frontline agents who use a relational interaction style stimulate a mutual understanding of the qualities and viewpoints of both parties in the interaction ([Hancock et al., 2020](#)). As a result, customers will perceive the agent as warmer. However, customers may be less surprised by a relational FLE than FLR. Since customers may have experienced relational styles from FLEs in the past, they will neither be deeply impressed nor perceive, suddenly, higher levels of warmth. Relational FLRs may be more surprising. Such surprise creates positive customer arousal, which leads to a more positive evaluation of the FLR's warmth (cf. [Vanhamme and Snelders, 2001](#)). Thus, we hypothesize:

- H2b.* The difference between FLEs' and FLRs' perceived warmth is smaller under a relational than transactional interaction style.

The moderating role of the customer journey stage

Successful firms carefully manage the customer journey (Lemon and Verhoef, 2016). The transit customers go through when making a purchase can be conceptualized as a set of stages. We recognize that there are multiple types of customer journeys and conceptualizations. For instance, Lemon and Verhoef (2016) consider three stages: prepurchase, purchase and postpurchase. In contrast, Santana *et al.* (2020) use a conventional four-stage model incorporating need recognition, information search and evaluation, purchase and post-purchase behavior from Puccinelli *et al.* (2009).

We build on this conventional four-stage model, but we exclude those steps in which frontline agents are less likely to play an active role. In particular, the early stages of need recognition and the more cognitive customer activities such as consideration or mentally making a final choice were considered less applicable and thus ignored. For the same reason, we exclude the post-purchase stage. Finally, given our envisioned experimental setup, we confined ourselves to two steps only (i.e. two levels of our “customer journey stage factor”) because considering more steps would lead to a complex experimental design. Our choice concurs with the importance of these stages in customer journey literature in brick-and-mortar retail settings (e.g. Gauri *et al.*, 2021) and automobile purchases (Marutschke and Gournelos, 2020).

Consequently, we focus on the information search and negotiation stages of the customer journey. In the information stage, customers generally doubt which product/service to purchase and which marketing channel to use. Consequently, they will look for cues that can provide certainty on how well their needs will be addressed (Tax *et al.*, 2013). However, since the journey has just begun, customers draw heavily on their existing cognitive associations of the marketing channel in general and frontline agents in specific (Swan and Nolan, 1985). We posit that such baseline associations lead customers to perceive FLRs as less competent and warm than FLEs.

In the negotiation stage, customer attention focuses on improving the offer’s price point and payment conditions (Armstrong *et al.*, 2014). Sales-oriented activities characterize interactions associated with this stage. Customers know that agents will try to close the sale while getting the most profitable deal (Alavi *et al.*, 2016). Based on this, we anticipate that an FLE’s warmth may now be perceived as a means to an end to win the psychological game. Customers expect that FLEs will use their competence to benefit the firm rather than the customer; such negative connotations toward salespeople are well-documented (Holmes *et al.*, 2017).

In contrast to employees’ hidden agendas coming into play during negotiation, we expect FLRs’ competence and warmth to be perceived as more stable across stages. Considering FLRs’ pre-programmed nature (Huang and Rust, 2021), customers expect little adaptability across the customer journey. They may also find it difficult to imagine a robot having competitive motives similar to a salesperson (Wirtz *et al.*, 2018). Since the evaluations for FLEs’ competence and warmth are depressed during negotiation, and those for FLRs remain the same, we hypothesize that the difference in competence and warmth perceptions between the two agent types becomes smaller for customers who are farther in their journey. Formally:

H3a. The difference between FLEs’ perceived competence and FLRs’ perceived competence is smaller in the negotiation stage than in the information stage of the customer journey.

H3b. The difference between FLEs’ perceived warmth and FLRs’ perceived warmth is smaller in the negotiation stage than in the information stage of the customer journey.

H3a-b implicitly focus on a single stage of the customer journey; they assume that customers interact with an agent in either the information or negotiation stage. It resembles many modern customer journeys where consumers go to a local store for information

and showrooming but buy at an unaffiliated web shop (or vice versa). However, there are still many occasions where customers do progress from the information to the negotiation stage while interacting with the same frontline agent and/or in the same store. To account for this, we detail the hypotheses further. In a multistage journey, we expect customers to update their FLR/FLE perceptions when they advance from the information to the negotiation stage based on prior interaction and experience.

Customers generally will negotiate with the same frontline agent after the information stage has been completed to their satisfaction (e.g. sufficient search support, options shortlisting support and provision of additional relevant insights). Committing to entering the negotiation stage with the agent signals trust in the successful completion of the entire journey. Drawing on relationship marketing (Morgan and Hunt, 1994) and robot literature (Michael and Salice, 2017; Powell and Michael, 2019), we propose that such commitment and trust foster customers to become more cooperative and appreciative of the agent's skills. Consequently, customers will have more favorable perceptions of the agent's competence and warmth. This positive effect should apply to FLEs and FLRs if they consistently appear in both the information and negotiation stages.

In contrast, people who get to negotiate with an FLR (FLE) after first interacting, in the information stage, with an FLE (FLR) will lack this commitment and trust. Due to the switch, they cannot use their experience from the prior stage as a cue in their subsequent evaluation of the agent. In the situation where an FLE in the information stage is followed by an FLR in the negotiation stage, or vice versa, customers cannot process prior information about an agent and will fall back on their initial conception that FLRs are lower in competence and warmth than FLEs.

Taken together, we thus expect that the difference between FLE and FLR perceptions diminishes when customers have experience with the FLR in their prior customer journey stage. Formally:

- H4.* In the negotiation stage, the levels of FLEs' and FLRs' (a) perceived competence and (b) perceived warmth are equal for those customers who interacted with FLRs in the information stage.

Study 1: How frontline agent type relates to customer orientation

Study 1 aims to uncover how frontline agent type (FLE or FLR) relates to customer orientation. Specifically, we focus on the anticipated mediating role of perceived competence and warmth of the frontline agent. Our research setting focuses on the purchase of a television; as Samsung showed in the 2019 Consumer Electronics Show in Las Vegas that consumer electronics retailing is a suitable environment for implementing FLRs.

Method

We recruited 150 participants from USA, UK and Ireland via Prolific. After excluding respondents who failed the attention check or were unfamiliar with purchasing a television ($n = 26$), we obtained 124 valid responses (mean age = 39.28, 81 females).

The study had a two-condition between-subject design: a human employee and a robot condition. We first instructed participants to read a scenario and imagine being part of it. In the scenario, they were visiting a consumer electronics store to buy a new television. A frontline agent welcomed them to the store and offered assistance. We then showed the visual stimulus with a (female) FLE or (unisex) FLR in a consumer electronics store to help participants imagine the setting. Participants were randomly assigned to either the FLE condition ($n = 67$) or the FLR condition ($n = 57$). [Appendix A](#) provides the full scenarios and their descriptions for this particular study and all other studies in this paper.

Customer orientation was measured using four items adapted from Stock and Hoyer (2005), to which respondents answered using 7-point Likert scales ($\alpha = 0.86$). Perceived competence ($\alpha = 0.83$) and warmth ($\alpha = 0.60$) were measured with three-item scales from Scott *et al.* (2013), using 7-point Likert response options. Finally, we assessed respondents' perception of scenario realism with three items from Bagozzi *et al.* (2016) and tapped their familiarity with FLRs with one item, again using 7-point Likert scales. Full items for the focal constructs of this study and all other studies are listed in Appendix B, correlation tables appear in Appendix C.

Results

The realism check yields a satisfactory result ($M = 4.80, SD = 1.59$), and so does respondents' familiarity with FLRs' capabilities ($M = 4.05, SD = 1.27$), given their current implementation prematurity. A series of one-way ANOVAs show that the frontline agent has a significant effect on customer orientation ($F(1, 123) = 11.36, p = 0.001$), where FLEs are considered to be more customer oriented than FLRs ($M_{FLE} = 5.11, SD_{FLE} = 0.87; M_{FLR} = 4.52, SD_{FLR} = 1.09$). This supports our baseline expectation. Furthermore, the type of frontline agent relates to competence ($F(1, 123) = 6.19, p = 0.014$), where FLEs are considered to be more competent than FLRs ($M_{FLE} = 5.54, SD_{FLE} = 1.11; M_{FLR} = 4.99, SD_{FLR} = 1.35$). In addition, the frontline agent has a significant effect on warmth ($F(1, 123) = 8.09, p = 0.005$), where FLEs are perceived as more warm than FLRs ($M_{FLE} = 5.83, SD_{FLE} = 1.04; M_{FLR} = 5.26, SD_{FLR} = 1.21$).

To test H1, we conducted a mediation analysis with Hayes' (2018) PROCESS tool (model 4, bootstrapping $N = 5,000$). Results demonstrate significant indirect effects of the frontline agent on customer orientation via both competence ($\beta = -0.12, SE = 0.07, CI_{95\%} = [-0.27, -0.01]$) and warmth ($\beta = -0.21, SE = 0.09, CI_{95\%} = [-0.39, -0.06]$) – note that the standardized coefficients indicate the effect of FLRs (dummy = 1) relative to the FLE base group (dummy = 0). We thus find support for H1, confirming that the frontline agent's influence on customer orientation is mediated by competence and warmth.

Study 2: the moderating role of the interaction style

The goal of study 2 is twofold. First, we set out to corroborate the findings of the previous study. Second, we examine whether the interaction style of the agent affects the difference between the competence and warmth of FLEs versus FLRs. To enhance the robustness of our findings, we select another research setting. We were careful to choose a familiar setting in which diverging sales approaches occur: a furniture store (Boles *et al.*, 2001).

Method

Using the same data collection process as in study 1 and after excluding respondents who failed the attention check or were unfamiliar with purchasing furniture ($n = 14$), we obtained 286 valid responses (mean age = 34.05, 211 females).

The study had a two (FLE vs FLR) by two (transactional vs relational interaction style) between-subject design. Participants read a scenario in which they were visiting a furniture store where they bought a couch last year, they were now looking to buy a new coffee table. A frontline agent welcomed them to the store. Building on the key aspects mentioned in literature, we manipulated the frontline agent's message (see works by Arli *et al.*, 2018; Cuevas, 2018). The agent either (1) mentioned the wide variety of furniture pieces and the offers of the day (transactional), or (2) referred to the last purchase the customer made and the new furniture they have to match the customer's preferences (relational). Finally, we again showed our visual stimulus of a (male) FLE or (unisex) FLR in a furniture store to help

participants better imagine the setting. We randomly assigned customers to one of the four experimental conditions; cell sizes ranged between 61 and 79 participants.

Customer orientation ($\alpha = 0.81$), competence ($\alpha = 0.85$), warmth ($\alpha = 0.70$) and the realism and familiarity check involved the same scales and response formats as in our previous study.

Results

The realism check yields a satisfactory result ($M = 4.22$, $SD = 1.56$), so does respondents' familiarity with FLRs' capabilities ($M = 4.28$, $SD = 1.19$) given their current implementation prematurity. A series of one-way ANOVAs show that our baseline expectation is once again supported: the frontline agent has a significant effect on customer orientation ($F(1, 285) = 57.90$, $p < 0.001$), where FLEs outperform FLRs ($M_{FLE} = 5.48$, $SD_{FLE} = 0.86$; $M_{FLR} = 4.51$, $SD_{FLR} = 1.23$). Also, the frontline agent has a significant main effect on competence ($F(1, 285) = 48.98$, $p < 0.001$), such that FLEs are perceived to be more competent than FLRs ($M_{FLE} = 6.26$, $SD_{FLE} = 0.74$; $M_{FLR} = 5.40$, $SD_{FLR} = 1.25$). Furthermore, the frontline agent has a significant main effect on warmth ($F(1, 285) = 28.66$, $p < 0.001$), such that FLEs are perceived as more warm than FLRs ($M_{FLE} = 6.09$, $SD_{FLE} = 0.87$; $M_{FLR} = 5.38$, $SD_{FLR} = 1.30$). Using the same mediation analysis as in study 1, we found significant indirect effects of the frontline agent on customer orientation via both competence ($\beta = -0.15$, $SE = 0.07$, $CI_{95\%} = [-0.29, -0.03]$) and warmth ($\beta = -0.31$, $SE = 0.07$, $CI_{95\%} = [-0.47, -0.17]$). Therefore, we also find renewed support for [H1](#) in this experiment.

Finally, we conducted two-way ANOVAs to understand the interaction effect of the frontline agent and the interaction style on competence and warmth. Results demonstrated a significant interaction effect on competence ($F(1, 285) = 7.20$, $p = 0.008$) and a non-significant interaction effect on warmth ($F(1, 285) = 2.12$, $p = 0.147$). We thus find support for [H2a](#), such that when the frontline agent utilizes a relational interaction style, the gap in perceived competence for FLEs and FLRs considerably decreases (i.e. $M_{FLE} = 6.44$, $SD_{FLE} = 0.76$, $M_{FLR} = 5.90$, $SD_{FLR} = 1.00$), though the difference is still significant ($\Delta M = 0.54$, $t(131) = 3.46$, $p < 0.001$). We do not find support for [H2b](#) (i.e. warmth $M_{FLE} = 6.29$, $SD_{FLE} = 0.76$, $M_{FLR} = 5.76$, $SD_{FLR} = 1.17$; $t(131) = 3.04$, $p = 0.003$). [Figure 3](#) visually displays these results.

Study 3: the moderating role of customer journey stage

The primary goal of study 3 is to examine the impact of information and negotiation stages on the customer perceptions of FLEs and FLRs. A secondary goal is to corroborate the findings of the previous studies and extend our results to yet another setting. Study 3 focuses on a car dealership where customers want to buy a new car.

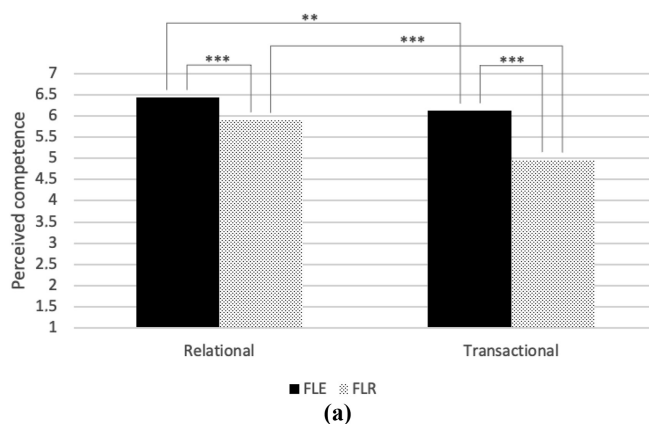
Study 3a: pre-study to design a realistic scenario

To design a realistic scenario to test the moderating role of the customer journey stage, we first conduct a pre-study to examine the product categories in which customers would generally be willing to negotiate and in which of these categories they would also be open to negotiate with FLRs.

Method

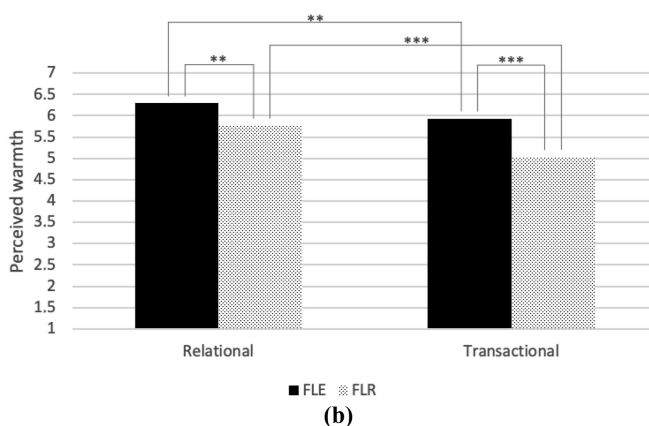
Using the same data collection process as in the previous studies and after deleting one respondent who failed the check question, we obtained 199 valid responses (mean age = 37.20, 100 females).

Moderating effect on the relationship between frontline agent and competence



Note(s): *** $p < 0.001$, ** $p < 0.05$

Moderating effect on the relationship between frontline agent and warmth



Note(s): *** $p < 0.001$, ** $p < 0.05$

Source(s): Figure by authors

Figure 3. Visualization of the moderating effect of interaction style. A: Moderating effect on the relationship between frontline agent and competence

Respondents were shown a representative list of product categories. They had to select those for which they would be willing to (1) negotiate the purchase in general and (2) negotiate the purchase with an FLR. To help respondents understand what an FLR is, we added a description plus a visual representation of a standard FLR, i.e. Pepper, between the two questions. Finally, we asked respondents how realistic they would find service interactions with FLRs for obtaining product information and negotiating their purchase.

Results

Table 1 shows an absolute count and a relative number of respondents per product category. Respondents were willing to negotiate for high-involvement product categories such as cars,

Table 1.
Customers' willingness
to negotiate per
product category and
with FLR

Product category	Participants willing to negotiate in product category		Participants willing to negotiate in product category with FLR	
	(#)	(% of all customers)	(#)	(% of negotiators)
Automotive (e.g. car ...)	191	95%	114	60%
Health and Beauty (e.g. clinics, care, cosmetics ...)	131	65%	6	5%
Cell Phones	107	53%	66	62%
Grocery and Gourmet Foods	47	23%	5	11%
Home and Garden (e.g. couches ...)	38	19%	25	66%
Office Products (e.g. ergonomic chair ...)	34	17%	15	44%
Tools and Home Improvement (e.g. DIY toolkit ...)	17	8%	17	100%
Toys and Games	13	6%	6	46%

Source(s): Table by authors

health and beauty treatments, and cell phones. Given the traditionally high-end positioning of these products, customers are likely to seek value for their money. Interestingly, most respondents say they could negotiate with FLRs on cars and cell phones but not on health and beauty treatments. Indeed, previous research shows that people are averse to AI-technologies when the situation involves self-integrity elements like their health and wellness (Dignum, 2018). Lastly, respondents express their low willingness to negotiate, in general, for office products, DIY tools and toys, probably due to their commoditized nature. However, many respondents are remarkably open to negotiating with FLRs on DIY tools. Perhaps mass merchants' transactional nature, such as home improvement and hardware stores, make people more likely to consider negotiations with non-human entities (CNBC, 2022).

We conclude that an automobile dealership scenario is an optimal product category context for research on FLRs. Additionally, we confirm that customers would perceive FLR-guided information ($M = 4.95$, $SD = 1.25$) and negotiation ($M = 4.53$, $SD = 1.25$) stages as reasonably realistic. These two insights lay a solid foundation for study 3b and study 3c.

Study 3b: testing customer perceptions at one customer journey stage

This study aims to test H3a-b, which predicts that the difference between FLEs' and FLRs' perceived competence and warmth is smaller in the negotiation than the information stage of the customer journey.

Method

Using the same data collection process as in the previous studies and after excluding respondents who failed the attention check or were unfamiliar with purchasing a car ($n = 48$), we obtained 252 valid responses (mean age = 34.41, 184 females).

The study had a two (FLE vs FLR) by two (information vs negotiation stage) between-subject design. Participants read a scenario where they visited a dealership to buy a new car. A frontline agent welcomed them to the store and either (1) offered their availability to provide information on the cars for sale (information) or (2) invited them to negotiate the purchase conditions at their office (negotiation). For the negotiation condition, we stated that the customer had already made an appointment to buy and negotiate. The aim was to signal that the customer had progressed in the customer journey and was not making an unrealistic impulse purchase. Finally, we showed the visual stimuli with either a (male) FLE or (unisex) FLR agent in a car dealership. We randomly assigned customers to one of the four experimental conditions (cell sizes between 62 and 65).

We measured customer orientation ($\alpha = 0.81$), competence ($\alpha = 0.80$), warmth ($\alpha = 0.60$), and the realism and familiarity check in the same way as in our previous studies.

Results

The realism check yields a satisfactory result ($M = 4.50$, $SD = 1.55$), so does respondents' familiarity with FLRs' capabilities ($M = 4.41$, $SD = 1.24$). A series of one-way ANOVAs shows that the frontline agent has a significant main effect on competence ($F(1, 251) = 18.40$, $p < 0.001$), such that FLEs are perceived as more competent than FLRs ($M_{FLE} = 5.99$, $SD_{FLE} = 1.02$; $M_{FLR} = 5.36$, $SD_{FLR} = 1.29$). The frontline agent also has a significant main effect on warmth ($F(1, 251) = 6.15$, $p = 0.014$), where FLEs again outperform FLRs ($M_{FLE} = 5.63$, $SD_{FLE} = 1.19$; $M_{FLR} = 5.26$, $SD_{FLR} = 1.18$). Moreover, the frontline agent has a significant main effect on customer orientation ($F(1, 251) = 64.76$, $p < 0.001$), where FLEs are considered to be more customer oriented than FLRs ($M_{FLE} = 5.10$, $SD_{FLE} = 1.03$; $M_{FLR} = 3.96$, $SD_{FLR} = 1.22$). The same mediation analysis as in the previous studies reconfirmed [H1](#), such that both competence ($\beta = -0.19$, $SE = 0.06$, $CI_{95\%} = [-0.32, -0.08]$) and warmth ($\beta = -0.14$, $SE = 0.06$, $CI_{95\%} = [-0.27, -0.03]$) mediate the relationship between agent and customer orientation.

Finally, we conducted two two-way ANOVAs to understand the interaction effect of the frontline agent and the customer journey stage on competence and warmth. Results show a non-significant interaction effect on competence ($F(1, 251) = 0.93$, $p = 0.335$) and a significant interaction effect on warmth ($F(1, 251) = 5.40$, $p = 0.021$). Therefore, we find support for [H3b](#). Specifically, we find in the negotiation stage that the FLE and FLR are perceived as similar in warmth (i.e. $M_{FLE} = 5.28$, $SD_{FLE} = 1.29$, $M_{FLR} = 5.24$, $SD_{FLR} = 1.26$; $t(123) = 0.18$, $p = 0.861$) but that in the information stage the FLE outperforms the FLR in warmth (i.e. $M_{FLE} = 5.99$, $SD_{FLE} = 0.96$, $M_{FLR} = 5.28$, $SD_{FLR} = 1.10$; $t(125) = 3.87$, $p < 0.001$). We do not find support for [H3a](#) (i.e. competence during the information stage $M_{FLE} = 6.23$, $SD_{FLE} = 0.75$, $M_{FLR} = 5.45$, $SD_{FLR} = 1.18$, $t(125) = 4.42$, $p < 0.001$; and negotiation stage $M_{FLE} = 5.76$, $SD_{FLE} = 1.20$, $M_{FLR} = 5.26$, $SD_{FLR} = 1.40$; $t(123) = 2.15$, $p = 0.034$). [Figure 4](#) visualizes these results.

Study 3c: testing customer perceptions at two customer journey stages

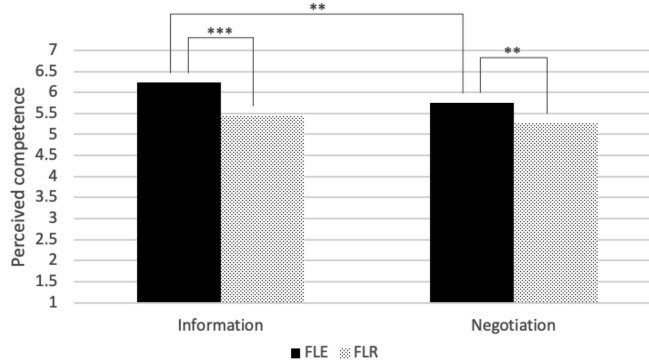
Whereas in study 3b the information and negotiation stages were regarded as separate and independent stages, in study 3c we aimed to examine them as consecutive stages. The aim is to test [H4a-b](#), which adds realism to our experimental setup by capturing potential carry-over effects between the stages. It thus provides more ecological validity for our findings.

Method

Using the same data collection process as in the previous studies and after excluding respondents who failed the attention check or were unfamiliar with purchasing a car ($n = 25$), we obtained 275 valid responses (mean age = 38.76, 135 females).

This study had a two (FLE vs FLR) by two (information vs negotiation stage) within-subject design. Participants were involved in both stages of the customer journey. We crafted a cohesive storyline moving from one stage to the next. For instance, the frontline agent in the information stage displays a car brochure and organizes a test drive for the customer. In the negotiation stage, the frontline agent shows a price list and configures the car with the customer (selection of features) for a final offer. To increase respondents' engagement with the scenario, we included visual stimuli for both customer journey stages with either a (male) FLE or a (unisex) FLR agent in a car showroom or dealership office. We randomly assigned customers to one of the four experimental conditions (cell sizes between 63 and 72).

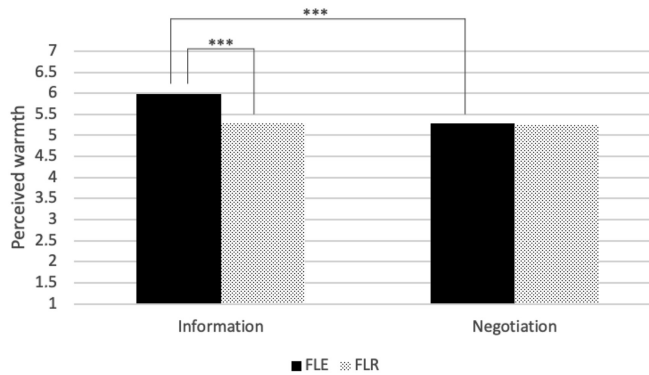
Moderating effect on the relationship between frontline agent and competence



(a)

Note(s): *** $p < 0.001$, ** $p < 0.05$

Moderating effect on the relationship between frontline agent and warmth



(b)

Note(s): *** $p < 0.001$

Source(s): Figure by authors

Figure 4.
Visualization of the moderating effect of customer journey stage

We measured the customer orientation of the agent ($\alpha = 0.84$), competence ($\alpha = 0.89$) and warmth ($\alpha = 0.74$), and the realism and familiarity checks as in our previous studies.

Results

The realism check yields a satisfactory result ($M = 4.55$, $SD = 1.48$), so does respondents' familiarity with FLRs' capabilities ($M = 4.26$, $SD = 1.17$). A series of one-way ANOVAs prove that the frontline agent has a significant main effect on agent's customer orientation in both journey stages (Information: $F(1, 274) = 26.33$, $p < 0.001$, Negotiation: $F(1, 274) = 35.90$, $p < 0.001$), where FLEs are considered to be more customer oriented than FLRs (M_{FLE}

Information = 5.16, $SD_{FLE_Information} = 0.90$; $M_{FLR_Information} = 4.50$, $SD_{FLR_Information} = 1.23$; $M_{FLE_Negotiation} = 5.32$, $SD_{FLE_Negotiation} = 0.96$; $M_{FLR_Negotiation} = 4.59$, $SD_{FLR_Negotiation} = 1.07$). Hence, H1 is once again supported.

Next, we find that the frontline agent has a significant main effect on competence in both the information stage ($F(1, 274) = 4.56, p = 0.034$) and the negotiation stage ($F(1, 274) = 5.38, p = 0.021$), such that an FLE is perceived as more competent than an FLR ($M_{FLE_Information} = 6.06$, $SD_{FLE_Information} = 0.79$; $M_{FLR_Information} = 5.81$, $SD_{FLR_Information} = 1.13$; $M_{FLE_Negotiation} = 6.10$, $SD_{FLE_Negotiation} = 0.91$; $M_{FLR_Negotiation} = 5.82$, $SD_{FLR_Negotiation} = 1.12$). Similarly, we find a significant effect of the agent on warmth in the information ($F(1, 274) = 6.43, p = 0.012$) and negotiation stage ($F(1, 274) = 9.44, p = 0.002$), where FLEs again outperform FLRs ($M_{FLE_Information} = 5.71$, $SD_{FLE_Information} = 0.92$; $M_{FLR_Information} = 5.42$, $SD_{FLR_Information} = 0.99$; $M_{FLE_Negotiation} = 5.65$, $SD_{FLE_Negotiation} = 0.91$; $M_{FLR_Negotiation} = 5.30$, $SD_{FLR_Negotiation} = 1.02$). An extended mediation analysis reconfirmed support for H1, such that competence and warmth mediated the relationship between agent and perceived customer orientation in the information stage (competence: $\beta = -0.04$, $SE = 0.05$, $CI_{95\%} = [-0.11, 0.00]$, warmth: $\beta = -0.16$, $SE = 0.06$, $CI_{95\%} = [-0.30, -0.04]$) as well as the negotiation stage (competence: $\beta = -0.06$, $SE = 0.03$, $CI_{95\%} = [-0.13, -0.01]$ and warmth: $\beta = -0.20$, $SE = 0.06$, $CI_{95\%} = [-0.34, -0.07]$).

Finally, to test H4a-b, we focus our analysis of the negotiation stage on those respondents who interacted with an FLR during the information stage. The results show that this subset of respondents ($N = 135$) perceived no significant differences between FLEs and FLRs in negotiation, neither in competence ($F(1, 134) = 0.03, p = 0.869$; $M_{FLE} = 5.97$, $SD_{FLE} = 1.01$; $M_{FLR} = 5.94$, $SD_{FLR} = 1.13$) nor in warmth ($F(1, 134) = 1.35, p = 0.248$; $M_{FLE} = 5.51$, $SD_{FLE} = 0.95$; $M_{FLR} = 5.31$, $SD_{FLR} = 1.12$). The result for warmth confirms that of study 3b, although we now also find that FLEs and FLRs in the negotiation stage are perceived equally in terms of their competence. This adds nuance to the findings of study 3b (in which FLE were significantly superior); it demonstrates a clear carry-over effect across stages of the customer journey. In sum, both H4a and H4b are confirmed.

Discussion

Theoretical implications

In this paper, we demonstrate how customers' perceptions of frontline agents' customer orientation depend on whether the agent is human or robotic. Our findings contribute to the service literature on the crossroads of human-robot interactions in the frontline, social cognition, and sales management and have several important theoretical implications. First, there is a dearth of research on customer orientation perceptions of FLRs vs FLEs. Although studies have concentrated on customer adoption (e.g. Belanche *et al.*, 2019; Schwede *et al.*, 2022; Schepers *et al.*, 2022; Van Pinxteren *et al.*, 2019; Song and Kim, 2022) and evaluation of FLRs (e.g. Choi *et al.*, 2019; Ivanov and Webster, 2021; Mende *et al.*, 2019), the question of how FLRs affect customer orientation perceptions of the frontline agent remained untapped. Our results convey that, compared to FLEs, FLRs generally elicit lower levels of customer orientation due to lower competence and warmth perceptions. However, the finding that robots can be perceived as competent and warm as human employees under certain circumstances is an important and surprising finding. It underlines that customers indeed perceive robots (or non-human agents in general) as "agents" in terms of having agency (i.e. the mental capacity for acting with intentionality, to exercise self-control). The inference of robotic agency may be an important insight for customer orientation and stewardship research that typically, and thus implicitly, has tied customer orientation to human actors [1].

Second, this research contributes to the sales management literature because, so far, very little was known about using FLRs not only for service but also sales tasks. Previous FLR vs

FLE research has concentrated on downstream outcomes like customers' willingness to pay (Ivanov and Webster, 2021; Seyitoğlu *et al.*, 2021) and intention to purchase (Garvey *et al.*, 2021). Other studies have focused on the algorithms and applicability of negotiating robots (e.g. Aydoğan *et al.*, 2021; Cruz-Maya and Tapus, 2018), but these studies discard the integral role of the robot in the frontline process. Our transactional–relational interaction style perspective provides new and in-depth insights into this role. Our findings show that *ceteris paribus*, FLEs are perceived to be higher in competence and warmth than FLRs. However, if FLRs employ a relational interaction style, the difference in perceived competence (with FLEs) becomes significantly smaller. Nonetheless, this equalizing effect does not exist for warmth. We surmise that customers in relational service exchanges pay attention to trust, benevolence and warmth, but less to objective elements such as competence. Hence, they may forgive FLRs for imperfect competence but not for being lower in warmth because the latter is more focal in customers' expectations. In addition, a robot trying to instill feelings of warmth through a relational strategy may be perceived as unauthentic, dampening its warmth-gain when moving from a transactional to a relational interaction style. This may change if AI develops further and becomes more sophisticated.

Finally, we add to the customer journey literature by accounting for single and multiple journey stages in an FLR context. We revealed that in the information stage, FLEs are considered more competent and warm than FLRs, but in the negotiation stage, both agents are on par in warmth. This pattern of findings applies if customers interact with the agent in one stage only. This is representative of many purchases today because shoppers use different touchpoints and marketing channels along their customer journey (Lemon and Verhoef, 2016). To explain the unaffected difference in competence perceptions between FLEs and FLRs, we posit that customers may consider negotiation a game in which an FLE's warmth is perceived as a means to the end of winning the exchange. In contrast, customers may value their counterpart's competence because it relates to the game of increasing the value-for-money of their purchase (Neslin and Greenhalgh, 1983). Like a tennis player losing a match may credit their opponent for playing well, the buyer understands the seller's competence is instrumental to good negotiation.

Accounting for the fact that people often return to the same store (or touchpoint) across their customer journeys, we uncovered an important carry-over effect. If customers source information from an FLR, no significant differences in perceived warmth or competence arise during the negotiation stage for FLE vs FLR. Customers who appreciate FLR-driven interactions during the information stage, for instance in terms of search support, options shortlisting support or provision of additional insights, will factor in their satisfactory information stage experience in their evaluation of the FLR in the negotiation stage. In other words, satisfaction breeds trust in and commitment to the FLR (cf. Sirdeshmukh *et al.*, 2002), leading to a positive adjustment of customers' evaluations in upcoming touchpoints. For these customers, FLRs (not FLEs) now form their status quo frontline agent. The potential added competence of FLEs in negotiations is nullified by the fact that people have to switch their default agent from one stage to the next. Leaving this status quo situation penalizes the agent in terms of his/her competence perceptions.

Managerial implications

Increasingly aware of FLRs' benefits, managers still lack actionable recommendations for staffing their frontline with FLRs or FLEs. Our research offers clear support and suggestions to service providers for making this choice. Our results also have implications for robot providers.

Managers of customer-oriented firms can substitute (or complement) FLEs with FLRs, but introducing FLRs requires careful consideration. First, firms should ensure that FLRs utilize a relational style when interacting with customers; robots should adjust their performance

to individual customers and meet their emotional needs. To be specific, it may help if robots address customers by their name, refer to a customer's past purchases or visits to the store, avoid referrals to offerings or price promotions, and physically and/or verbally mirror a customer's emotions (e.g. excitement, uncertainty, disappointment) about a products or services. Second, we recommend firms place FLRs – at least for the type of product/services and customer journeys we focused on – only in the information stage *or* in the customer journey's information and negotiation stages. They should prevent customers from transitioning from employees to robots, although vice versa does no harm. Practically, this means that robots can be used to welcome and inform customers before transferring them to an available human agent. It also means that robots can autonomously take a customer through the process from learning about products, making a purchase decision and payment. Such multi-stage usage of robots emphasizes the idea of the robot's agency and stewardship to customers.

Robots should not be used to temporarily entertain or take care of the customer when a human employee has just completed one part of the customer journey but cannot continue their service. Transiting a customer from a human to a robot has detrimental effects and thus should be avoided.

Firms should pay attention to the latest FLR advances in intuitive and empathetic intelligence (Huang and Rust, 2018). For instance, in late 2022, Xiaomi launched a robot capable recognizing both facial expressions and tone of voice, such as categorizing these into one or more of 45 human emotions (Evans, 2022). Such intelligence enables more relational interaction styles and may spark more robotic automation in the frontline. Additionally, customers' predispositions towards FLRs will evolve in the foreseeable future, being even more open to robot-delivered service and making human–robot interactions more authentic (Wirtz *et al.*, 2018). Altogether, these developments may improve the position of FLRs relative to FLEs and make them more desirable to use without hurting frontline customer orientation.

Limitations and future research

We acknowledge the limitations of our work and invite scholars to tackle them in future research. First, perceived customer orientation is not the only relevant marketing construct that deserves further exploration in the FLRs vs FLEs literature. Future research is needed to unveil other variables representing customers' perceptions of the frontline and the firm (e.g. price image, innovativeness). Similarly, other relevant interaction styles may be identified and be worth exploring next to relational and transactional. For example, future studies could look into adaptive interactions (Spiro and Weitz, 1990), where the service agents proactively adjust their behaviors along the customer journey.

Second, although we used several store settings, research could delve into the fit of FLRs with certain tasks or product types. For instance, an important yet unanswered question is whether FLRs have an inherent fit with an interaction style and/or a task. This would yield more in-depth insights into the contexts customers see as most suitable for using FLRs.

Third, we limited the customer journey to two stages. However, a journey may have more than two touchpoints and stages and is often considered dynamic and nonlinear (Lemon and Verhoef, 2016). Considering more and different touchpoints may update our knowledge of where to place FLRs. Future work may examine customer perceptions towards FLRs, FLEs and firms in (1) linear vs cyclical customer journeys, (2) lengthy vs short customer journey stages and (3) longitudinal designs that allow studying how customers may adjust their customer orientation perceptions towards FLRs over time, to list a few ideas.

Lastly, despite our carefully designed experiments, customers are more fully immersed in a real-life experience, for instance when their negotiations include several back-and-forth between the customer and the agent. Although we addressed this using multiple settings and visuals, future studies could use field data for this purpose.

Conclusion

The present research examines how the type of frontline agent (human or robotic) influences customers' perceptions of frontline agents' customer orientation. Our theoretical underpinning posits that customers arrive at their conclusions by cognizing frontline agents' competence and warmth. Optimal effects are accomplished by relational FLRs deployed in the negotiation stage only or, consistently across stages. With the number of FLR applications growing, much remains to be explored. Our fundamental efforts may set the scene for future fieldwork.

Note

1. We thank an anonymous reviewer for making this point.

References

- Alavi, S., Wieseke, J. and Guba, J.H. (2016), "Saving on discounts through accurate sensing – salespeople's estimations of customer price importance and their effects on negotiation success", *Journal of Retailing*, Vol. 92 No. 1, pp. 40-55.
- Alhouthi, S., Wright, S.A. and Baker, T.L. (2019), "Responding to service failures with prevention framed donations", *Journal of Services Marketing*, Vol. 33 No. 5, pp. 547-556.
- Arli, D., Bauer, C. and Palmatier, R.W. (2018), "Relational selling: past, present and future", *Industrial Marketing Management*, Vol. 69 No. 2, pp. 169-184.
- Armstrong, G., Adam, S., Denize, S. and Kotler, P. (2014), *Principles of Marketing*, Pearson Australia, Melbourne.
- Aydođan, R., Keskin, O. and akan, U. (2021), "Would you imagine yourself negotiating with a robot, jennifer? Why not?", *IEEE Transactions on Human-Machine Systems*, Vol. 52 No. 1, pp. 41-51.
- Bagozzi, R.P., Belanche, D., Casaló, L.V. and Flavián, C. (2016), "The role of anticipated emotions in purchase intentions", *Psychology and Marketing*, Vol. 33 No. 8, pp. 629-645.
- Belanche, D., Casaló, L.V. and Flavián, C. (2019), "Artificial intelligence in FinTech: understanding robo-advisors adoption among customers", *Industrial Management and Data Systems*, Vol. 119 No. 7, pp. 1411-1430.
- Belanche, D., Casaló, L.V., Flavián, C. and Schepers, J. (2020), "Robots or frontline employees? Exploring customers' attributions of responsibility and stability after service failure or success", *Journal of Service Management*, Vol. 31 No. 2, pp. 267-289.
- Belanche, D., Casaló, L.V., Schepers, J. and Flavián, C. (2021), "Examining the effects of robots' physical appearance, warmth, and competence in frontline services: the humanness-value-loyalty model", *Psychology and Marketing*, Vol. 38 No. 12, pp. 2357-2376.
- Boles, J.S., Babin, B.J., Brashear, T.G. and Brooks, C. (2001), "An examination of the relationships between retail work environments, salesperson selling orientation-customer orientation and job performance", *Journal of Marketing Theory and Practice*, Vol. 9 No. 3, pp. 1-13.
- Bove, L.L. and Johnson, L.W. (2000), "A customer-service worker relationship model", *International Journal of Service Industry Management*, Vol. 11 No. 5, pp. 491-511.
- Brady, M.K. and Cronin, J.J. Jr. (2001), "Customer orientation: effects on customer service perceptions and outcome behaviors", *Journal of Service Research*, Vol. 3 No. 3, pp. 241-251.
- Brengman, M., De Gauquier, L., Willems, K. and Vanderborgh, B. (2021), "From stopping to shopping: an observational study comparing A humanoid service robot with A tablet service kiosk to attract and convert shoppers", *Journal of Business Research*, Vol. 134 No. 9, pp. 263-274.
- Čaić, M., Mahr, D. and Oderkerken-Schröder, G. (2019), "Value of social robots in services: social cognition perspective", *Journal of Services Marketing*, Vol. 33 No. 4, pp. 463-478.

- Čaić, M., Avelino, J., Mahr, D., Odekerken-Schröder, G. and Bernardino, A. (2020), "Robotic versus human coaches for active aging: an automated social presence perspective", *International Journal of Social Robotics*, Vol. 12 No. 4, pp. 867-882.
- Choi, S., Liu, S.Q. and Mattila, A.S. (2019), "'How may I help you?' Says A robot: examining language styles in the service encounter", *International Journal of Hospitality Management*, Vol. 82 No. 9, pp. 32-38.
- Clark, M.S. and Mils, J. (1993), "The difference between communal and exchange relationships: what it is and is not", *Personality and Social Psychology Bulletin*, Vol. 19 No. 6, pp. 684-691.
- CNBC (2022), "Where walmart, amazon and target are spending billions in slowing economy", available at: <https://www.cnbc.com/2022/09/11/where-walmart-amazon-target-are-spending-billions-in-slowing-economy.html>
- Cruz-Maya, A. and Tapus, A. (2018), "Negotiating with a robot: analysis of regulatory focus behavior", *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 4578-4594.
- Cuevas, J.M. (2018), "The transformation of professional selling: implications for leading the modern sales organization", *Industrial Marketing Management*, Vol. 69 No. 2, pp. 198-208.
- Dignum, V. (2018), "Ethics in artificial intelligence: introduction to the special issue", *Ethics and Information Technology*, Vol. 20 No. 1, pp. 1-3.
- Van Doorn, J., Mende, M., Noble, S.M., Hulland, J., Ostrom, A.L., Grewal, D. and Petersen, J.A. (2017), "Domo arigato mr. Roboto: emergence of automated social presence in organizational frontlines and customers' service experiences", *Journal of Service Research*, Vol. 20 No. 1, pp. 43-58.
- Evans, S. (2022), "Humanoid robot detects emotions", available at: <https://www.iotworldtoday.com/robotics/humanoid-robot-detects-emotions>
- Falk, T., Schepers, J., Hammerschmidt, M. and Bauer, H.H. (2007), "Identifying cross-channel dissynergies for multichannel service providers", *Journal of Service Research*, Vol. 10 No. 2, pp. 143-160.
- Falk, T., Hammerschmidt, M. and Schepers, J. (2010), "The service quality-satisfaction link revisited: exploring asymmetries and dynamics", *Journal of the Academy of Marketing Science*, Vol. 38 No. 3, pp. 288-302.
- Fan, H., Gao, W. and Han, B. (2022), "How does (Im) balanced acceptance of robots between customers and frontline employees affect hotels' service quality?", *Computers in Human Behavior*, Vol. 133, 107287.
- Fiske, S.T., Cuddy, A.J. and Glick, P. (2007), "Universal dimensions of social cognition: warmth and competence", *Trends in Cognitive Sciences*, Vol. 11 No. 2, pp. 77-83.
- Garvey, A.M., Kim, T. and Duhachek, A. (2021), "EXPRESS: bad news? Send an AI. Good news? Send a human", *Journal of Marketing*, Vol. 87 No. 1, pp. 10-25.
- Gauri, D., Jindal, R., Ratchford, B., Fox, E., Bhatnagar, A., Pandey, A., Navallo, J., Fogarty, J., Carr, S. and Howerton, E. (2021), "Evolution of retail formats: past, present, and future", *Journal of Retailing*, Vol. 97 No. 1, pp. 42-61.
- Geiger, S. and Finch, J. (2011), "Buyer-seller interactions in mature industrial markets: blurring the relational-transactional selling dichotomy", *Journal of Personal Selling and Sales Management*, Vol. 31 No. 3, pp. 255-268.
- Giebelhausen, M., Robinson, S.G., Sirianni, N.J. and Brady, M.K. (2014), "Touch versus tech: when technology functions as a barrier or a benefit to service encounters", *Journal of Marketing*, Vol. 78 No. 4, pp. 113-124.
- Habel, J., Alavi, S., Schmitz, C., Schneider, J.V. and Wieseke, J. (2016), "When do customers get what they expect? Understanding the ambivalent effects of customers' service expectations on satisfaction", *Journal of Service Research*, Vol. 19 No. 4, pp. 361-379.
- Habel, J., Alavi, S. and Pick, D. (2017), "When serving customers includes correcting them: understanding the ambivalent effects of enforcing service rules", *International Journal of Research in Marketing*, Vol. 34 No. 4, pp. 919-941.

- Hancock, T., Adams, F.G., Breazeale, M. and Lueg, J.E. (2020), "Exploring jealousy and envy in communal relationship revenge-seeking", *Journal of Consumer Marketing*, Vol. 37 No. 6, pp. 687-699.
- Hayes, A.F. (2018), "Partial, conditional, and moderated mediation: quantification, inference, and interpretation", *Communication Monographs*, Vol. 85 No. 1, pp. 4-40.
- Holmes, Y.M., Beitelspacher, L.S., Hochstein, B. and Bolander, W. (2017), "'Let's make a deal': price outcomes and the interaction of customer persuasion knowledge and salesperson negotiation strategies", *Journal of Business Research*, Vol. 78 No. 9, pp. 81-92.
- Homburg, C., Müller, M. and Klarmann, M. (2011), "When should the customer really Be king? On the optimum level of salesperson customer orientation in sales encounters", *Journal of Marketing*, Vol. 75 No. 2, pp. 55-74.
- Hou, Y., Zhang, K. and Li, G. (2021), "Service robots or human staff: how social crowding shapes tourist preferences", *Tourism Management*, Vol. 83, 104242.
- Huang, M.H. and Rust, R.T. (2018), "Artificial intelligence in service", *Journal of Service Research*, Vol. 21 No. 2, pp. 155-172.
- Huang, M.H. and Rust, R.T. (2021), "A strategic framework for artificial intelligence in marketing", *Journal of the Academy of Marketing Science*, Vol. 49 No. 1, pp. 30-50.
- Ivanov, S. and Webster, C. (2021), "Willingness-to-Pay for robot-delivered tourism and hospitality services – an exploratory study", *International Journal of Contemporary Hospitality Management*, Vol. 33 No. 11, pp. 3926-3955.
- Kahneman, D., Knetsch, J.L. and Thaler, R.H. (1991), "Anomalies: the endowment effect, loss aversion, and status quo bias", *Journal of Economic Perspectives*, Vol. 5 No. 1, pp. 193-206.
- Keating, B.W., McColl-Kennedy, J.R. and Solnet, D. (2018), "Theorizing beyond the horizon: service research in 2050", *Journal of Service Management*, Vol. 29 No. 5, pp. 766-775.
- De Keyser, A. and Kunz, W.H. (2022), "Living and working with service robots: a tccm analysis and considerations for future research", *Journal of Service Management*, Vol. 33 No. 2, pp. 165-196.
- Kim, S.S., Kim, J., Badu-Baiden, F., Giroux, M. and Choi, Y. (2021), "Preference for robot service or human service in hotels? Impacts of the COVID-19 pandemic", *International Journal of Hospitality Management*, Vol. 93, 102795.
- Lemon, K.N. and Verhoef, P.C. (2016), "Understanding customer experience throughout the customer journey", *Journal of Marketing*, Vol. 80 No. 6, pp. 69-96.
- Leo, X. and Huh, Y.E. (2020), "Who gets the blame for service failures? Attribution of responsibility toward robot versus human service providers and service firms", *Computers in Human Behavior*, Vol. 113 No. 12, 106520.
- Li, X., Chan, K.W. and Kim, S. (2019), "Service with emoticons: how customers interpret employee use of emoticons in online service encounters", *Journal of Consumer Research*, Vol. 45 No. 5, pp. 973-987.
- Maruschke, D. and Gournelos, T. (2020), "Holistic measurement approach of customer experiences—findings from a Japanese new car buyer study", *Serviceology for Services: 7th International Conference, ICSEv 2020*, Osaka, Japan, March 13-15, 2020, Springer Singapore, pp. 203-216, Proceedings 7.
- McLeay, F., Osburg, V.S., Yoganathan, V. and Patterson, A. (2021), "Replaced by a robot: service implications in the age of the machine", *Journal of Service Research*, Vol. 24 No. 1, pp. 104-121.
- Mende, M., Scott, M.L., van Doorn, J., Grewal, D. and Shanks, I. (2019), "Service robots rising: how humanoid robots influence service experiences and elicit compensatory consumer responses", *Journal of Marketing Research*, Vol. 56 No. 4, pp. 535-556.
- Michael, J. and Salice, A. (2017), "The sense of commitment in human-robot interaction", *International Journal of Social Robotics*, Vol. 9 No. 5, pp. 755-763.
- Morgan, R.M. and Hunt, S.D. (1994), "The commitment-trust theory of relationship marketing", *Journal of Marketing*, Vol. 58 No. 3, pp. 20-38.

- Mori, M. (1970), "The uncanny valley", *Energy*, Vol. 7 No. 4, pp. 33-35, (in Japanese). A translation that was authorized and reviewed by Mori was published in Mori, M., translated by MacDorman K.F. and Kageki, N. (2012), "The Uncanny Valley", *IEEE Robotics & Automation Magazine*, Vol. 19 No. 2, pp. 98-100.
- Neslin, S.A. and Greenhalgh, L. (1983), "Nash's theory of cooperative games as a predictor of the outcomes of buyer-seller negotiations: an experiment in media purchasing", *Journal of Marketing Research*, Vol. 20 No. 4, pp. 368-379.
- Nijssen, E.J., Schepers, J.J. and Belanche, D. (2016), "Why did they do it? How customers' self-service technology introduction attributions affect the customer-provider relationship", *Journal of Service Management*, Vol. 27 No. 3, pp. 276-298.
- Parasuraman, A. (1987), "Customer-oriented corporate cultures are crucial to services marketing success", *Journal of Services Marketing*, Vol. 1 No. 1, pp. 39-46.
- Van Pinxteren, M.M., Wetzels, R.W., Ruger, J., Pluymaekers, M. and Wetzels, M. (2019), "Trust in humanoid robots: implications for services marketing", *Journal of Services Marketing*, Vol. 33 No. 4, pp. 507-518.
- Pitardi, V., Wirtz, J., Paluch, S. and Kunz, W.H. (2021), "Service robots, agency and embarrassing service encounters", *Journal of Service Management*, Vol. 33 No. 2, pp. 389-414.
- Powell, H. and Michael, J. (2019), "Feeling committed to a robot: why, what, when and how?", *Philosophical Transactions of the Royal Society B*, Vol. 374 No. 1771, 20180039.
- Pozharliev, R., De Angelis, M., Rossi, D., Romani, S., Verbeke, W. and Cherubino, P. (2021), "Attachment styles moderate customer responses to frontline service robots: evidence from affective, attitudinal, and behavioral measures", *Psychology and Marketing*, Vol. 38 No. 5, pp. 881-895.
- Puccinelli, N.M., Goodstein, R.C., Grewal, D., Price, R., Raghuram, P. and Stewart, D. (2009), "Customer experience management in retailing: understanding the buying process", *Journal of Retailing*, Vol. 85 No. 1, pp. 15-30.
- Rafaeli, A., Altman, D., Gremler, D.D., Huang, M.H., Grewal, D., Iyer, B. and de Ruyter, K. (2017), "The future of frontline research: invited commentaries", *Journal of Service Research*, Vol. 20 No. 1, pp. 91-99.
- Santana, S., Thomas, M. and Morwitz, V.G. (2020), "The role of numbers in the customer journey", *Journal of Retailing*, Vol. 96 No. 1, pp. 138-154.
- Schepers, J., Belanche, D., Casalo, L.V. and Flavian, C. (2022), "How smart should a service robot Be?", *Journal of Service Research*, Vol. 25 No. 4, pp. 565-582.
- N. Schwede, M., Hammerschmidt, M. and Weiger, W.H. (2022), "Users taking the blame? How service failure, recovery, and robot design affect user attributions and retention", *Electronic Markets*, Vol. 32 No. 4, pp. 2491-2505.
- Scott, M.L., Mende, M. and Bolton, L.E. (2013), "Judging the book by its cover? How consumers decode conspicuous consumption cues in buyer-seller relationships", *Journal of Marketing Research*, Vol. 50 No. 3, pp. 334-347.
- Seyitođlu, F., Ivanov, S., Atsız, O. and ifi, . (2021), "Robots as restaurant employees - a double-barrelled detective story", *Technology in Society*, Vol. 67 No. 11, 101779.
- Shapiro, B.P. (1988), "What the hell is 'market oriented'?", *Harvard Business Review*, November 1, 1988, available at: <https://hbr.org/1988/11/what-the-hell-is-market-oriented>
- Sirdeshmukh, D., Singh, J. and Sabol, B. (2002), "Consumer trust, value, and loyalty in relational exchanges", *Journal of Marketing*, Vol. 66 No. 1, pp. 15-37.
- Slater, S.F. and Narver, J.C. (1998), "Customer-led and market-oriented: let's not confuse the two", *Strategic Management Journal*, Vol. 19 No. 10, pp. 1001-1006.
- Song, C.S. and Kim, Y.-K. (2022), "The role of the human-robot interaction in consumers' acceptance of humanoid retail service robots", *Journal of Business Research*, Vol. 146, pp. 489-503.
- Spiro, R.L. and Weitz, B.A. (1990), "Adaptive selling: conceptualization, measurement, and nomological validity", *Journal of Marketing Research*, Vol. 27 No. 1, pp. 61-69.

- Stock, R.M. and Hoyer, W.D. (2005), "An attitude-behavior model of salespeople's customer orientation", *Journal of the Academy of Marketing Science*, Vol. 33 No. 4, pp. 536-552.
- Stock, R.M. and Merkle, M. (2017), "A service robot acceptance model: user acceptance of humanoid robots during service encounters", *2017 IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops)*, pp. 339-344.
- Swan, J.E. and Nolan, J.J. (1985), "Gaining customer trust: a conceptual guide for the salesperson", *The Journal of Personal Selling and Sales Management*, Vol. 5 No. 2, pp. 39-48.
- Tax, S.S., McCutcheon, D. and Wilkinson, I.F. (2013), "The service delivery network (sdn): a customer-centric perspective of the customer journey", *Journal of Service Research*, Vol. 16 No. 4, pp. 454-470.
- Vanhamme, J. and Snelnders, D. (2001), "The role of surprise in satisfaction judgements", *The Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, Vol. 14, pp. 27-45.
- Wirtz, J., Patterson, P.G., Kunz, W.H., Gruber, T., Lu, V.N., Paluch, S. and Martins, A. (2018), "Brave new world: service robots in the frontline", *Journal of Service Management*, Vol. 29 No. 5, pp. 907-931.
- Yam, K.C., Bigman, Y.E., Tang, P.M., Ilies, R., De Cremer, D., Soh, H. and Gray, K. (2020), "Robots at work: people prefer—and forgive—service robots with perceived feelings", *Journal of Applied Psychology*, Vol. 106 No. 10, pp. 1557-1572.
- Yoganathan, V., Osburg, V.S., Kunz, W.H. and Toporowski, W. (2021), "Check-in at the robo-desk: effects of automated social presence on social cognition and service implications", *Tourism Management*, Vol. 85 No. 8, 104309.

Further reading

- Bruder, M., Lechner, A.T. and Paul, M. (2021), "Toward holistic frontline employee management: an investigation of the interplay of positive emotion displays and dress color", *Psychology and Marketing*, Vol. 38 No. 11, pp. 2089-2101.
- Chang, W. and Kim, K.K. (2022), "Appropriate service robots in exchange and communal relationships", *Journal of Business Research*, Vol. 141, pp. 462-474.
- Choi, S., Mattila, A.S. and Bolton, L.E. (2021), "To err is human(-oid): how do consumers react to robot service failure and recovery?", *Journal of Service Research*, Vol. 24 No. 3, pp. 354-371.
- Chung, D.J. (2015), "How to really motivate salespeople", *Harvard Business Review*, Vol. 93 No. 4, p. 16.
- George, M. and Wakefield, K.L. (2017), "Modeling the consumer journey for membership services", *Journal of Services Marketing*, Vol. 32 No. 2, pp. 113-125.
- Grewal, D., Guha, A., Schweiger, E., Ludwig, S. and Wetzels, M. (2022), "How communications by AI-enabled voice assistants impact the customer journey", *Journal of Service Management*, Vol. 33 Nos 4/5, pp. 705-720.
- Herhausen, D., Kleinlercher, K., Verhoef, P.C., Emrich, O. and Rudolph, T. (2019), "Loyalty Formation for different customer journey segments", *Journal of Retailing*, Vol. 95 No. 3, pp. 9-29.
- Leung, F.F., Kim, S. and Tse, C.H. (2020), "Highlighting effort versus talent in service employee performance: customer attributions and responses", *Journal of Marketing*, Vol. 84 No. 3, pp. 106-121.
- Levie, W.H. and Lentz, R. (1982), "Effects of text illustrations: a review of research", *ECTJ*, Vol. 30 No. 4, pp. 195-232.
- Locander, D.A., Locander, J.A. and Weinberg, F.J. (2020), "How salesperson traits and intuitive judgments influence adaptive selling: a sensemaking perspective", *Journal of Business Research*, Vol. 118 No. 9, pp. 452-462.
- Lyngdoh, T., Liu, A.H. and Sridhar, G. (2018), "Applying positive psychology to selling behaviors: a moderated-mediation analysis integrating subjective well-being, coping and organizational identity", *Journal of Business Research*, Vol. 92 No. 11, pp. 142-153.

-
- Panagopoulos, N.G., Rapp, A.A. and Ogilvie, J.L. (2017), "Salesperson solution involvement and sales performance: the contingent role of supplier firm and customer-supplier relationship characteristics", *Journal of Marketing*, Vol. 81 No. 4, pp. 144-164.
- Park, J.H. and Tran, T.B.H. (2018), "Internal marketing, employee customer-oriented behaviors, and customer behavioral responses", *Psychology and Marketing*, Vol. 35 No. 6, pp. 412-426.
- Singh, S., Marinova, D., Singh, J. and Evans, K.R. (2018), "Customer query handling in sales interactions", *Journal of the Academy of Marketing Science*, Vol. 46 No. 5, pp. 837-656.
- Söderlund, M. (2021), "The robot-to-robot service encounter: an examination of the impact of inter-robot warmth", *Journal of Services Marketing*, Vol. 35 No. 9, pp. 15-27.
- Solomon, M.R. (2010), *Consumer Behaviour: A European Perspective*, Pearson Education.
- Ulag, W. and Kohli, A.K. (2018), "The role of a solutions salesperson: reducing uncertainty and fostering adaptiveness", *Industrial Marketing Management*, Vol. 69 No. 2, pp. 161-168.
- Wang, Z., Mao, H., Li, Y.J. and Liu, F. (2017), "Smile big or not? Effects of smile intensity on perceptions of warmth and competence", *Journal of Consumer Research*, Vol. 43 No. 5, pp. 787-805.
- Widmier, S. (2002), "The effects of incentives and personality on salesperson's customer orientation", *Industrial Marketing Management*, Vol. 31 No. 7, pp. 609-615.
- Wirtz, J. and Zeithaml, V. (2018), "Cost-effective service excellence", *Journal of the Academy of Marketing Science*, Vol. 46 No. 1, pp. 59-80.

Web Appendix

The Supplementary Material for this article can be found online.

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