

Face Forward: How Employees' Digital Presence on Service Websites Affects Customer Perceptions of Website and Employee Service Quality

Dennis Herhausen, Oliver Emrich, Dhruv Grewal,
Petra Kipfelsberger, and Marcus Schoegel

Journal of Marketing Research
2020, Vol. 57(5) 917-936
© American Marketing Association 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0022243720934863
journals.sagepub.com/home/mrj



Abstract

Confronted with increasing digitalization, service firms are challenged to sustain customer loyalty. A promising means to do so is to leverage the digital presence of service employees on their website. A large-scale field study and several experimental studies show that the digital presence of service employees on the firm website increases current website service quality perceptions and positively shapes memories related to employee service quality perceptions from past service encounters. Both effects indirectly increase customer loyalty and, in turn, financial performance, and are amplified by employee accessibility and a service firm's customer orientation. The authors examine further boundary conditions for the memory process: only service employees evoke the beneficial spillover effect to employee service quality perceptions, and the spillover effect does not generalize to evaluations of product quality. Remarkably, an employee's digital presence, although factually unrelated, augments customer perceptions of service employees' competence and commitment and thus strengthens rather than erodes service employees' role in customer-firm relationships. Theoretical and managerial implications deepen the understanding of how to add a human touch to digital channels.

Keywords

digital presence, online customer experience, reconstructive memory process, service employees, service quality, social presence, spillover effect

Online supplement: <https://doi.org/10.1177/0022243720934863>

Jane needs car insurance, so she visits an insurance company's website; she has interacted with this company previously, when she visited a local branch. While browsing the site, she encounters pictures of insurance agents, details about their specialties, and contact details. This information signals the digital presence of service employees (Cyr et al. 2009) and might enhance the pleasure that Jane experiences while browsing the website (Wang et al. 2014), thereby prompting her to develop more positive attitudes toward the website (Hassanein and Head 2007) and greater online purchase intentions (Darke et al. 2016). That is, prior research has implied that visual information about the person providing the service makes the browsing session more pleasant, which can increase website quality perceptions and the likelihood that Jane purchases.

However, the digital presence of service employees might go beyond perceptions of the current service offered on the website, such that it influences Jane's memories of previous

encounters with insurance agents even though their actual service delivery is not affected by pictures. According to reconstructive memory theory, attributes from the recently visited website may become confused with consumers' own experiential memories (Braun 1999; Braun-Latour et al. 2004). We propose that such a reconstruction effect also emerges in the service context. Although the actual service encounter is not affected, the digital presence of service employees may

Dennis Herhausen is Associate Professor of Marketing, KEDGE Business School, France (email: dennis.herhausen@kedgebs.com). Oliver Emrich is Professor of Management and Social Media, Johannes Gutenberg University Mainz, Germany (email: oemrich@uni-mainz.de). Dhruv Grewal is Toyota Chair of Commerce and Electronic Business, Professor of Marketing, Babson College, USA (email: dgrewal@babson.edu). Petra Kipfelsberger is Assistant Professor for Leadership and Organizational Behavior, University of St. Gallen, Switzerland (email: petra.kipfelsberger@unisg.ch). Marcus Schoegel is Associate Professor of Marketing, University of St. Gallen, Switzerland (email: marcus.schoegel@unisg.ch).

influence the reconstruction of past encounters, making them seem more favorable in retrospect, which leads to higher evaluations of employees' competence and commitment.

Such considerations are relevant, given that only 14% of the 89 U.S. service firms in the S&P 500 feature their service employees' pictures online (for examples, see Web Appendix 1). That is, most firms have not adopted this tactic; to help them determine if it might be effective, we specify the outcomes of the digital presence of service employees by examining whether and in which conditions it enhances website service quality perceptions and/or employee service quality perceptions. We further analyze the relevance of digital presence effects for service companies by considering indirect effects on customer loyalty and, in turn, financial performance.

In these efforts, we conduct several complementary studies. With our large-scale Study 1, involving 3,351 customers of 113 German service firms, we collect multisource, time-lagged data that reveal effects on perceived website service quality and employee service quality, along with boundary conditions and indirect effects on customer loyalty. Then, in a series of complementary experimental studies, we start by testing the distinct theoretical mechanisms that link the digital presence of service employees to customer outcomes in Study 2. In Studies 3a and 3b, we examine the proposed moderators in a controlled setting with randomization. Studies 4 and 5 explore further boundary conditions for the reconstructive memory process by investigating whether the digital presence of an employee outside the service category invokes similar effects and whether digital presence effects generalize to product settings.

Our findings establish three main contributions. First, in line with reconstructive memory theory, we propose a novel effect by which the digital presence of service employees influences the memories of past service encounters, leading to more positive perceptions of employee service quality. Second, we highlight moderating conditions and theoretical boundaries for which the effects on both website and employee service quality perceptions are stronger, weaker, or nonexistent. Third, we show that spillover effects, through perceptions of employee service quality, decisively explain the impact on customer loyalty, beyond effects through perceptions of website service quality. These findings reveal important nuances in customers' affective response to digital presence effects and contribute new insights into the activation and monitoring processes of memory reconstruction in the service domain.

Conceptual Development

Digital Presence of Humans

The concept of digital presence describes perceptions of a human presence (mainly on websites), elicited by pictorial information. Even in digital environments, employees can effectively differentiate service offerings and meet customers' need for a "human touch" (Bowen 2016) by establishing social presence perceptions, defined as "the extent to which a medium allows users to experience others as being psychologically

present" (Gefen and Straub 2003, p. 11). Prior research has investigated different types of "humans" that might be digitally present (Table 1). They all produce social presence perceptions and positive online effects. For example, Cyr et al. (2009) show that depictions of human facial features increase online trust. Our theorizing builds on such research and extends it to the service context. Previous studies investigate affective responses to the digital presence of humans. We similarly consider perceived website service quality to capture this automatic response, but we also predict a spillover effect via employee service quality as a new pathway to customer loyalty.

Spillover Effects Between Service Channels

A spillover effect is any change in perceptions of one entity due to an evaluation of another, mentally associated entity that does not necessarily feature a causal link (Ahluwalia, Unnava, and Burnkrant 2001). As a prerequisite of a spillover effect, a cognitive connection between the two entities must exist. Psychological theories describe how people create cognitive structures or categories to classify related entities (Medin and Smith 1984). In each category, existing knowledge and evaluations obtained from prior experiences get updated through the integration of new experiences. Thus, attribute spillovers only occur among entities in the same category. For example, examining multichannel service providers, Montoya-Weiss, Voss, and Grewal (2003) find that other channels' attributes influence perceptions of self-service channels.

Service firms often use websites as communication instruments to highlight favorable service attributes, which should increase customers' service quality expectations. We further propose that the digital presence of service employees, in specific settings, may allow the positive service attributes communicated by the website to influence evaluations of service employees, in terms of their competence and commitment. This influence represents a spillover effect; the website design is not causally linked to actual service provision.¹

Hypotheses

Digital Presence of Service Employees and Website Service Quality

According to social presence theory, the social presence of another human—whether actual, implied, or imagined—automatically enhances people's affective reactions (Gefen and Straub 2003; see also Table 1). The digital presence of humans on websites increases perceived social presence, which evokes a more affective response and increases positive attitudes toward the website (Cyr et al. 2009; Darke et al. 2016). These website effects are particularly relevant for experience products, such as services (Bleier, Harmeling, and Palmatier 2019).

¹ We explicitly test for spillover effects of images and language from the digital presence of service employees to perceptions of service employees in a pretest (Web Appendices 2 and 3) and in the experimental studies.

Table 1. Studies Investigating the Digital Presence of Humans.

Study	Type of Human	Website Effect	Employee Effect	Moderators	Methodology	Key Findings
Cyr et al. (2007)	Humans (musicians)	Perceived usefulness, trust, and enjoyment	—	—	Lab study	Digital presence of musicians increases perceived usefulness, trust, and enjoyment of a website.
Hassanein and Head (2007)	Customers	Perceived usefulness, trust, and enjoyment	—	—	Lab study	Digital presence of other customers increases perceived usefulness, trust, and enjoyment of a website.
Cyr et al. (2009)	Humans (not specified)	Website trust	—	—	Lab study	Digital presence of humans with facial features increases online trust.
Cui, Wang, and Xu (2010)	Customers	Attitude toward the website	—	—	Lab study	Digital presence of other customers increases positive attitudes toward the website.
Naylor, Lamberton, and West (2012)	Customers	Website liking	—	Homogeneity, similarity, ambiguity	Lab study	Digital presence of other customers increases fan page liking, which increases purchase intentions.
Fan, Liu, and Zhang (2013)	Humans (not specified)	Web store image	—	—	Lab study	Digital presence of humans increases social presence and emotional web store image, which increase purchase intention.
Wang et al. (2014)	Humans (not specified)	Website socialness perceptions	—	—	Lab study	Digital presence of humans increases online socialness perceptions.
Darke et al. (2016)	Firm owners	Website trust	—	Accessibility	Lab study	Digital presence of the owner increases online trust, which increases purchase intention. Accessibility qualifies this effect.
Schaeffers and Schamari (2016)	Customers	Complaint handling in social media	—	Positive vs. negative presence, expertise	Lab study	Digital presence of other customers increases satisfaction with complaint handling for successful service recovery.
Present research	Employees	Website service quality	Employee service quality	Customer orientation, employee accessibility	Field and lab study	Digital presence of service employees increases perceptions of website service quality and employee service quality, which increase customer loyalty and, in turn, financial performance.

Notes: We include studies that use “digital presence” or “virtual presence” to describe perceptions of social presence elicited by providing pictorial information of humans. Social presence is important for firms in other contexts, too. For example, a human touch, evoked by humanizing products with handwritten typefaces, creates perceptions of human presence that lead to more favorable product evaluations and consumer behavior (Schroll, Schnurr, and Grewal 2018).

Therefore, we predict affective consumer responses to the digital presence of service employees on websites, such that perceptions of website service quality become more favorable compared with websites without the digital presence of service employees:

H₁: There is a positive effect from the digital presence of service employees on perceived website service quality.

Digital Presence of Service Employees and Employee Service Quality

Beyond the affective response pertaining to website service quality perceptions, we predict that the digital presence of service employees spills over and influences consumers' perceived employee service quality, through a reconstructive memory process. According to reconstructive memory theory, communication influences how consumers remember prior consumption experiences (Braun-LaTour et al. 2004). When recalling a specific experience, consumers tend to include cues that relate to but are not actually part of their prior experience. They do so because the retrieval process is not static but instead updates memories dynamically, in response to external cues, such that memories change each time they are recalled (Loftus and Pickrell 1995). In service settings, memories of encounters and interactions with service employees get constantly updated and altered (Solomon et al. 1985). That is, consumers do not retrieve memories of previous service experiences as if they were replaying a video. They rather reconstruct seemingly veridical memories using different pieces of information, accessed in accordance with retrieval cues (Lakshmanan and Krishnan 2009). Thus, memories of service experiences might include aspects inferred from external cues, such as advertisements or website information. As noted, service firms often use their websites to signal positive service attributes, and in some conditions, these cues might influence consumers' memories by highlighting or downplaying certain features of the original past experience. This could even lead to false memories that occur when consumers remember events differently from the way they happened or remember events that never happened at all (Rajagopal and Montgomery 2011). For example, Braun-LaTour et al. (2004) found that fictional advertisements with Bugs Bunny caused Disneyland visitors to believe they had met the comic character at the park, even though its actual owner, the competing firm Warner Bros., would never allow such a presence.

Specific to our study context, we expect that customers do not *reproduce* accurate representations of their service quality experience but rather *reconstruct* their memories, without being aware that external cues from the website might alter their memories. Reconstruction processes have particularly strong influences on memories when the external cue is closely related to the original experience, such as representing the same category (Garry et al. 1996). Thus, when customers encounter the digital presence of service employees on a website, they might update their memories of their past encounters with

service employees, due to categorization effects (Medin and Smith 1984).

Because service websites typically are designed to communicate high service quality and signal positive service attributes, such as competence and commitment (Ostrom et al. 2015; Sousa and Voss 2006), we anticipate that the cues of positive service attributes spill over to memories of the service experience. This spillover effect may highlight favorable past experiences, displace less favorable experiences, or create illusions of positive service experiences. Moreover, the more vivid an external cue is, the more strongly consumers engage with imaginary thoughts about this cue (Wade et al. 2002). In turn, their reconstructive memory process grows more convincing and persuasive (Lakshmanan and Krishnan 2009). Pictorial representations of service employees on a website are vivid cues, so by increasing the relatedness and imaginative appeal of the website they should strongly evoke information processing about actual service encounters and experiences with employees. In summary, we predict that the digital presence of service employees affects reconstructive memory processes and frames (i.e., highlights salient aspects of the actual experience from the website) or even changes (i.e., introduces aspects of the actual experience that did not actually take place) customers' memories of the actual service experience, leading to more favorable employee service quality perceptions:

H₂: There is a positive effect from the digital presence of service employees on perceived employee service quality.

Contingencies of the Digital Presence Effects of Service Employees

To date, research on contingencies of the digital presence effects of humans is scarce (see Table 1). To address this gap, and based on the activation/monitoring framework of memory reconstruction (Gallo 2010), we examine employee accessibility as an activation contingency and customer orientation as a monitoring contingency. Activation describes memory association processes in which an input (e.g., an external stimulus or a thought) informs stored experiences, potentially altering the memory. In our context, firms may highlight the accessibility to their service employees on the website and thereby more strongly activate consumers' stored experiences of service encounters. Monitoring describes memory editing processes that consumers use to determine the origins of the activated information, thereby validating their memory reconstruction. In our context, consumers may monitor the memory reconstruction and compare it with their expectation based on their previous service experience which is determined by a firm's customer orientation. In addition, employee accessibility and customer orientation may further moderate the affective response to the digital presence of service employees.

Employee accessibility. Firms can signal accessibility by displaying service employees' telephone, email, or other contact information on the website. Regarding the moderating role for

employee service quality, the display of contact options activates thoughts related to a service encounter because the initial steps for initiating an interpersonal contact become readily available in the consumer's mind. Because contact options and the digital presence of service employees are both associated with a "service encounter" mental category, this conceptual relatedness stimulates the salience and vividness of memories stored in this category and makes the incidence of reconstructive memory processes more likely (Lyle and Johnson 2006). We predict that the mere notion of accessibility to employees will strengthen digital presence effects because such activation processes make the distinctions between cues processed in that moment and past experiences more blurred and fluid (Bhargave, Mantonakis, and White 2016). As employee accessibility on a website enhances categorical thinking about service encounters, the digital presence of service employees is likely to get confused with memories of past encounters when customers reconstruct their original service experience (Braun 1999). In this reconstruction process, positive service attributes communicated through the website might spill over to enhance evaluations of perceived service quality of the service employees.

Moreover, regarding the moderating role for website service quality, previous research found that displaying physical store images has a more positive effect on website evaluations when contact details communicate the accessibility of the physical store (i.e., the possibility to visit the physical store) compared with not providing contact details (Darke et al. 2016). Similarly, if service employees appear easily accessible on the website, the effect of the digital presence of service employees on perceptions of website service quality should be stronger. Formally:

H₃: With more signals of employee accessibility, the positive effects from the digital presence of service employees on perceptions of (a) website service quality and (b) employee service quality become stronger.

Customer orientation. A firm with a strong customer orientation—such that its culture, practices, and processes focus on putting customers' interests first—encourages employees to help customers proactively (Hartline, Maxham, and McKee 2000). Customers, in turn, may develop expectations of positive service experiences, whereas a firm with a weak customer orientation likely prompts them to expect less positive experiences.

Considering the moderating role of customer orientation for employee service quality requires further discussion of false memories. Inducing such memories can change attitudes, positively or negatively. For example, telling people that they loved asparagus as a child makes them more willing to consume it, but telling them it made them sick has the opposite effect (Bernstein and Loftus 2009). However, a monitoring process prevents consumers from including external cues in memory reconstructions if those cues are inconsistent with well-remembered elements of an experience (Loftus and Pickrell

1995). Thus, the digital presence of service employees will only create altered memories of the service experience if the reconstruction is congruent with a consumer's expectations, while the customer orientation of the firm largely determines these expectations. That is, the memory editing process will only become effective if consumers validate the reconstructed memory as plausible, and no evidence makes them discard that they have personally experienced it (Loftus 2003). If the digital presence of service employees signals positive service attributes, but customers actually have had negative experiences due to the firm's weak customer orientation, customers might be able to recognize the inconsistency, suppress any reconstruction effort, and reject the false memories.

Moreover, regarding the moderating role for website service quality, participants in most studies of the digital presence of humans lack any previous experience with the displayed human. In contrast, the effects of the digital presence of service employees on website perceptions may depend on consumers' previous experiences that contain either positive or negative affect in relation to the service employees, determined by the firm's customer orientation. In line with affective tagging (Aggarwal and McGill 2007), we expect that the website effect relies on the actual experiences with service employees such that there is only a positive effect on website service quality perceptions if the activated stored experiences are positive. Thus, we hypothesize:

H₄: For a firm with a stronger customer orientation, the positive effects from the digital presence of service employees on perceptions of (a) website service quality and (b) employee service quality become stronger.

Indirect Loyalty Effects of the Digital Presence of Service Employees

The digital presence of service employees may have indirect effects on subsequent customer outcomes, through enhanced website perceptions (see previous studies in Table 1). We thus expect that the digital presence of service employees relates positively to customer loyalty, defined as the "expressed preference for a company and intention to continue to purchase from it in the future" (Homburg, Müller, and Klarmann 2011, p. 799), through enhanced perceptions of website service quality, which already has been shown to increase overall satisfaction and loyalty intentions (Montoya-Weiss, Voss, and Grewal 2003). As a neglected pathway, we further propose that the digital presence of service employees increases customer loyalty by enhancing perceptions of employee service quality. Satisfaction with service employees is an important predictor of customer loyalty (Hult et al. 2019), and service research emphasizes the continued importance of employees, even in the digital era (Bowen 2016). In line with our predictions about reconstructive memory processes, we anticipate that the digital presence of service employees spills over to perceptions of service employees, which increase customer loyalty (Hogreve et al. 2017). Formally:

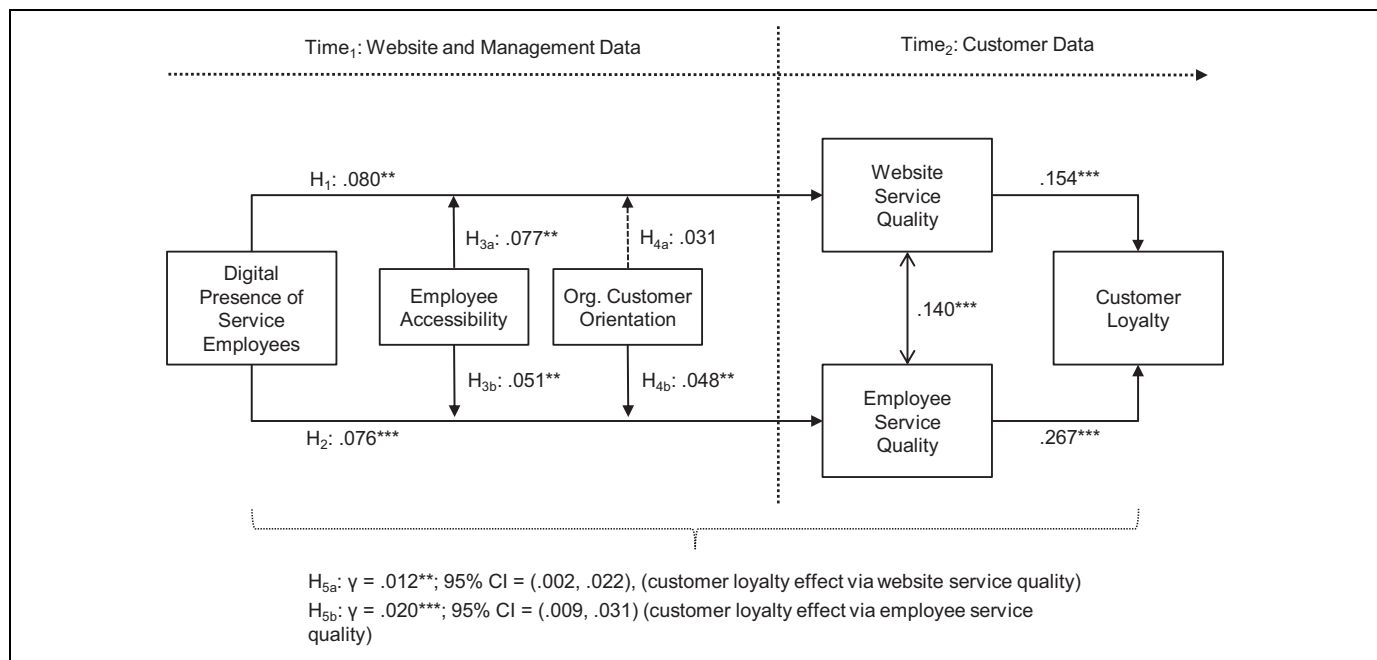


Figure 1. Conceptual model and results of the field study.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Notes: CI = confidence interval. Significance is based on two-tailed tests, with standardized results. For clarity, we do not show the main effects of the moderators, controls, and endogeneity corrections. The effects of the digital presence of service employees on customer loyalty via perceived website service quality (H_{5a}) and perceived employee service quality (H_{5b}) are contingent on employee accessibility and customer orientation.

H₅: There is a positive effect from the digital presence of service employees on customer loyalty, mediated through perceptions of (a) website service quality and (b) employee service quality, and contingent on employee accessibility and customer orientation.

Our conceptual framework is displayed in Figure 1. To test it, we combine a large-scale field study that uses multi-source, time-lagged data with a series of lab experiments. This methodology also helps ensure the external and internal validity of our research findings. The lab experiments feature randomization to rule out any potential endogeneity that may stem from self-selection of firms and customers, omitted variables, and reverse causality. We also address the potential for endogeneity in the field study by adopting state-of-the-art methods.

Field Study

Research Context and Data Collection

We gathered multisource time-lagged data from several service firms in Germany, with the assistance of a market research agency, and offered each firm an individualized benchmark report and a workshop to discuss options for improvement. In total, 113 service firms agreed to participate, representing a diverse set of service industries (see Web Appendix 4). They fulfill our research criteria in two main respects. First, none of

the firms exclusively employs self-service technologies, so customers can engage in service interactions with employees. Second, all firms maintain customer-facing websites, so customers are potentially exposed to the digital presence of service employees (if the service firm chooses to display them).

We collected data at three times, ranging between 2012 and 2014. For each participating firm, after receiving its agreement to participate, we coded information from its website, provided a key informant questionnaire to collect management data, and requested contact data for 1,000 randomly selected customers from its customer relationship management system (data collection at t_1). After receiving the management response and customer contact details, the market research agency randomly approached 100 customers of each firm by telephone (data collection at t_2). We were able to complete this customer data collection step for 42 firms in 2012 and 71 firms in 2013. Finally, we collected secondary performance data for the financial period after the main data collection to validate the customer loyalty measure (data collection at t_3). Time dummies for the customer data completion (2012 vs. 2013) or performance data (2013 vs. 2014) have no effects on any of the results. By gathering the independent and dependent variables from different sources and at different points in time, we reduce the potential risk of common method bias and increase causal inferences. The Appendix offers an overview of the data structure, and we provide the measures in Web Appendix 5.

Measurements

Website data. In line with previous research (e.g., Cyr et al. 2009; Darke et al. 2016), we coded the digital presence of service employees as present if images of service employees appear on the firm website (see Web Appendix 1). To derive a measure of employee accessibility, we considered a subsample of 25 websites, which revealed four employee contact options: chat, email address, telephone number, and postal address. Thus, we used an index to assess how many contact options were provided (ranging from zero to four).²

Management data. We surveyed knowledgeable key informants to capture the level of customer orientation, with a scale from Homburg, Wieseke, and Hoyer (2009; e.g., “Our service employees have the customer’s best interests in mind”). We guaranteed the confidentiality of their responses and offered these informants a benchmark profile that would be meaningless if they provided exaggerated answers.

Customer data. For each firm, the market research agency randomly approached 100 customers by telephone and obtained responses from 11,152 customers (87% response rate). We measured website service quality with Montoya-Weiss, Voss, and Grewal’s (2003) scale (e.g., “The service firm provides helpful assistance through its website”); employee service quality with De Jong, De Ruyter, and Lemmink’s (2004) scale (e.g., “Service employees of this firm are ready to help me”); and customer loyalty with Homburg, Müller, and Klarmann’s (2011) scale (e.g., “The likelihood of staying loyal to this service firm is high/low”). We had pretested these measures among 30 customers of three service firms.

Financial performance data. As a check of customer loyalty, we obtained secondary financial performance data from annual reports and AMADEUS, a global company database, for the financial period after the customer data collection. We managed to collect objective annual revenue data for 66 service firms (60% of the sample). The subsamples of firms for which we could or could not obtain annual revenues did not significantly differ in their focal independent and dependent variables (all $F_s < 1.90$, $p > .17$).

To check for reliability and validity, we ran a multilevel confirmatory factor analysis (CFA). The results indicate good fit and support discriminant validity. Web Appendix 6 provides further information on the multidimensional measure of service quality; the descriptive statistics, correlations of key variables, and results of the CFA are in Web Appendix 7.

Model Development

Using our conceptual framework, we specify a multilevel model that disentangles the effects of the digital presence of service

employees (DPE) on website service quality (WSQ) and employee service quality (ESQ) as distinct mediating mechanisms of the indirect effect of DPE on customer loyalty (LOY). We use the following base equations to test our hypotheses:

$$\begin{aligned} \text{WSQ}_c = & \alpha_{10} + \beta_{11}\text{DPE}_f + \beta_{12}\text{CO}_f + \beta_{13}\text{EA}_f \\ & + \delta_{11}(\text{CO}_f \times \text{DPE}_f) + \delta_{12}(\text{EA}_f \times \text{DPE}_f) \\ & + \gamma_{11}\text{IND}_f + \gamma_{12}\text{CON}_f + \gamma_{13}\text{CON}_c + \varepsilon_f^1 + \varepsilon_c^1, \end{aligned} \quad (1)$$

$$\begin{aligned} \text{ESQ}_c = & \alpha_{20} + \beta_{21}\text{DPE}_f + \beta_{22}\text{CO}_f + \beta_{23}\text{EA}_f \\ & + \delta_{21}(\text{CO}_f \times \text{DPE}_f) + \delta_{22}(\text{EA}_f \times \text{DPE}_f) \\ & + \gamma_{21}\text{IND}_f + \gamma_{22}\text{CON}_f + \gamma_{23}\text{CON}_c + \varepsilon_f^2 + \varepsilon_c^2, \end{aligned} \quad (2)$$

$$\begin{aligned} \text{LOY}_c = & \alpha_{30} + \beta_{31}\text{WSQ}_c + \beta_{32}\text{ESQ}_c + \gamma_{31}\text{IND}_f + \gamma_{32}\text{CON}_f \\ & + \gamma_{33}\text{CON}_c + \varepsilon_f^3 + \varepsilon_c^3, \end{aligned} \quad (3)$$

where the c subscript indicates the customer, and the f subscript indicates the firm; IND is a vector of industry fixed effects; CON are two vectors of control variables, for the firm and the customer; α_i are constant intercept terms; β , δ , and γ indicate regression coefficients for the main effects, interaction effects, and control variables, respectively; and ε_i denotes the error terms on the firm and customer levels, which we assume to be normally distributed.

To account for observed heterogeneity, we incorporate several covariates that could influence website service quality, employee service quality, and customer loyalty. First, we include media richness of the website measured as whether pictures or videos are provided online; richer media tend to enhance customer perceptions. Second, we account for the website structure (manually coded by two research assistants; 1 = “no clear layout at all,” and 5 = “very clear layout”), as well as whether the firm uses a responsive website design or offers an app in addition to the website, which may influence online experiences. Third, we control for the use of self-service technologies (provided by the firms), which could alter the importance of service employees. Fourth, we controlled for a firm’s service customization (“On average, how intensely do you customize your offers to customers?”) and level of brand orientation (“Our firm has a strong shared sense of brand meaning”), which might influence service perceptions. Fifth, we counted the number of available service channels (own physical store, third-party physical store, own sales force, third-party sales force, catalog, phone, fax, email, website, and social media); customers may be more satisfied with more channels. Sixth, we control for the employee-to-customer ratio, with the sense that customers may perceive better service if more employees are available. Seventh, we denote the firm’s business or consumer focus. Finally, on the customer level, we consider the length of the service relationship, frequency of exchanges, service channel usage, gender, and age as covariates.

² The Wayback Machine (<https://archive.org/web>) provided a check of whether the service firms changed their websites in the previous months but showed no meaningful changes in our data.

Unobserved heterogeneity and omitted variables. Beyond the observed covariates, unobserved factors may influence customer outcomes (e.g., sales promotions targeted at a subsample of customers), which could lead to biased parameter estimates. Therefore, we use a semiparametric approach to represent the intercept term and the error variance with a finite number of support points, represented by latent classes (Wang, Gupta, and Grewal 2017). This approach controls for unobserved factors such as individual sales promotions because these will be captured by the support points. Accounting for the nested structure of the data, we determined the appropriate number of latent classes according to the Akaike information criterion.

Self-selection. Firms self-select to use the digital presence of service employees on their websites, and this nonrandom decision could be driven by general efforts to improve customers' service experience or the ease of using the website. Therefore, a potential selection bias could stem from both observable factors (e.g., customer orientation) and unobservable factors. We use a special case of the Heckman selection model to correct for this potential bias. In the first stage, we establish a probit model of firm self-selection to include the digital presence of service employees to their websites, with firm size (number of employees, log transformed) as an exogenous variable. We predict that larger firms might be more likely to use the digital presence of service employees but do not expect any direct effects of firm size on service quality perceptions or customer loyalty. Specifically, the first stage probit model is

$$DPE_i^* = z_i^{DPE} \lambda^{DPE} + \eta_i^{DPE}, \quad (4)$$

where DPE_i^* denotes a latent measure with an observed binary response indicator $DPE_i = I\{DPE_i^* > 0\}$, z_i^{DPE} captures the variables that influence firm choice, λ^{DPE} is the unknown parameter vector, and η_i^{DPE} is a random error. We include all website-related and firm-related variables in z_i^{DPE} . In the second step, we use the estimates of λ^{DPE} and $z_i^{DPE} \lambda^{DPE}$ to compute an inverse Mills ratio (IMR) as the bias correction term for each firm:

$$IMR_f = \begin{cases} \frac{\phi(z_i^{DPE} \lambda^{DPE})}{\Phi(z_i^{DPE} \lambda^{DPE})} & \text{if } DPE = 1, \\ -\frac{\phi(z_i^{DPE} \lambda^{DPE})}{1 - \Phi(z_i^{DPE} \lambda^{DPE})} & \text{if } DPE = 0, \end{cases} \quad (5)$$

where Φ is the probability density and ϕ is the cumulative distribution of the standard normal distribution. We include the IMR correction term in Equations 1–3 to estimate the final model.

Additional endogeneity. Omitted variables also might influence the moderating and dependent variables. In particular, the firm's customer orientation might manifest as higher overall service quality, and because firms decide to invest in this orientation according to its effect on customer outcomes, this choice might be endogenous. Moreover, providing more employee

contact options on the website could reflect an attempt to increase service quality, so the firm's choice would be endogenous. Our data do not contain valid, strong instruments, so we use a latent instrumental variable (LIV) approach to address endogeneity (Papies, Ebbes, and Van Heerde 2017). It corrects for an endogenous regressor by introducing an unobserved LIV with m categories that partition the variance into an endogenous component and an exogenous component (Gupta et al. 2019; Wang, Gupta, and Grewal 2017), such that

$$X_f = \theta_1 \widehat{Z}_f + \zeta_f, \quad (6)$$

where f is the subscript for the firm; X_f denotes the endogenous regressor; θ_1 represents the $(m \times 1)$ vector of category means; $\widehat{Z}_f$ is the unobserved discrete instrument that partitions the sample into m groups, such that $\widehat{Z}_f$ is uncorrelated with ε_f^i and ζ_f ; and ζ_f refers to the error residual that may correlate with the error terms ε_f^i . To correct for the two potentially endogenous variables, we compute $\widehat{Z}_f$ and ζ_f for customer orientation and employee accessibility.

Model Specification

The updated equations, after correcting for endogeneity, are as follows:

$$\begin{aligned} WSQ_c = & \sum_{k=0}^K \pi_k \alpha_{1,k} + \beta_{11} DPE_f + \beta_{12} \widehat{CO}_f + \beta_{13} \widehat{EA}_f \\ & + \delta_{11} (\widehat{CO}_f \times DPE_f) + \delta_{12} (\widehat{EA}_f \times DPE_f) \\ & + \gamma_{11} IND_f + \gamma_{12} CON_f + \gamma_{13} CON_c + \rho_{11} \zeta_{f,1} \\ & + \rho_{12} \zeta_{f,2} + \rho_{13} IMR_f + \sum_{k=0}^K \varepsilon_{f,k}^1 + \sum_{k=0}^K \varepsilon_{c,k}^1, \end{aligned} \quad (7)$$

$$\begin{aligned} ESQ_c = & \sum_{k=0}^K \pi_k \alpha_{2,k} + \beta_{21} DPE_f + \beta_{22} \widehat{CO}_f + \beta_{23} \widehat{EA}_f \\ & + \delta_{21} (\widehat{CO}_f \times DPE_f) + \delta_{22} (\widehat{EA}_f \times DPE_f) \\ & + \gamma_{21} IND_f + \gamma_{22} CON_f + \gamma_{23} CON_c + \rho_{21} \zeta_{f,1} \\ & + \rho_{22} \zeta_{f,2} + \rho_{23} IMR_f + \sum_{k=0}^K \varepsilon_{f,k}^2 + \sum_{k=0}^K \varepsilon_{c,k}^2, \end{aligned} \quad (8)$$

$$\begin{aligned} LOY_c = & \sum_{k=0}^K \pi_k \alpha_{3,k} + \beta_{31} WSQ_c + \beta_{32} ESQ_c + \gamma_{31} IND_f \\ & + \gamma_{32} CON_f + \gamma_{33} CON_c + \rho_{31} IMR_f + \sum_{k=0}^K \varepsilon_{f,k}^3 \\ & + \sum_{k=0}^K \varepsilon_{c,k}^3, \end{aligned} \quad (9)$$

where the corrected variables $\widehat{CO}_f$ and $\widehat{EA}_f$ represent predicted values from the LIV correction (Equation 6); $\zeta_{f,1}$ and $\zeta_{f,2}$ are

the additional error terms from the LIV correction; and IMR_f is the correction term. We estimate Equations 6–9 by maximizing the log-likelihood function.

Model Selection and Estimation

The results of the first-stage probit model from Equation 4 reveal that employee accessibility ($\beta = .348, p < .05$), firm size ($\beta = .207, p < .05$), and the employee-to-customer ratio ($\beta = 2.409, p < .10$) have positive effects on the likelihood that the firm includes the digital presence of service employees on its website (see Web Appendix 8). These findings are reasonable; such a tactic should be more relevant for firms that offer more contact options online, for larger firms, and for firms with a higher support ratio. However, we find no evidence this self-selection is influenced by firms' general efforts to improve customers' service experience or the structure of their websites. To identify second-stage parameters, we exclude firm size, media richness, website structure, brand orientation, number of service channels, business versus consumer focus, service customization, and the use of self-service technologies to avoid that the IMR is a linear combination of the regressors in Equations 7–9 as these would lead to problems of multicollinearity (Wooldridge 2010). We use Equation 5 to obtain the correction term, then estimate Equation 6 to obtain the LIV corrections for the two moderating variables. The Akaike information criterion suggests three latent classes as support points for customer orientation and employee accessibility and two latent classes as support points for the final model. We estimate Equations 7–9 simultaneously with standardized explanatory variables and use robust standard errors. The variance inflation factors (all < 2.47) do not indicate any multicollinearity.

Hypothesis Tests

Table 2 contains the results of two nested models, which include either main effects only (Model 1) or all hypothesized effects (Model 2). Results for control variables are reported in Web Appendix 9. The error term that accounts for the endogeneity of employee accessibility and the IMR parameter are both statistically significant, which suggest the need to account for endogeneity. Because the hypothesized results are consistent across models, we discuss the final model, which appears in Figure 1. The results offer support for the positive main effects of the digital presence of service employees on perceived website service quality ($\gamma = .080, p < .05$) and employee service quality ($\gamma = .076, p < .01$), as we predicted in H_1 and H_2 . Moreover, both website service quality ($\gamma = .154, p < .01$) and employee service quality ($\gamma = .267, p < .01$) have positive main effects on customer loyalty.

Employee accessibility moderates the effects of the digital presence of service employees on both perceived website service quality ($\gamma = .077, p < .05$) and perceived employee service quality ($\gamma = .051, p < .05$), in line with H_{3a} and H_{3b} . We find mixed support for the moderating effect of customer orientation. Whereas the firm's customer orientation moderates the

effect of the digital presence of service employees on perceived employee service quality ($\gamma = .048, p < .05$), in support of H_{4b} , it does not significantly moderate the effect on perceived website service quality ($\gamma = .031, p = .26$), so we must reject H_{4a} . Notably, though the interaction effect is not significant, the simple slopes match our expectations, in that the digital presence of service employees relates positively to perceived website service quality when customer orientation is high ($\gamma = .110, p < .05$) but not when it is low ($\gamma = .049, p = .25$). We find no significant interactions between these two moderators and no significant higher-order interactions. The simple slope analyses in Web Appendix 10, at ± 1 standard deviation (SD) of the moderators, show that the digital presence of service employees relates positively to perceived website service quality if employee accessibility is high ($\gamma = .156, p < .01$) but not when it is low ($\gamma = .003, p = .95$). It also relates positively to perceived employee service quality if employee accessibility is high ($\gamma = .127, p < .01$) but not when it is low ($\gamma = -.025, p = .44$). The digital presence of service employees relates positively to perceived employee service quality when customer orientation is high ($\gamma = .124, p < .01$) and not when it is low ($\gamma = .028, p = .34$).

Finally, we investigate the conditional indirect effects of the digital presence of service employees on customer loyalty. The results indicate an overall indirect positive effect ($\gamma = .032$, 95% confidence interval [CI] = [.018, .047]), mediated both by website service quality ($\gamma = .012$, 95% CI = [.002, .022]) and employee service quality ($\gamma = .020$, 95% CI = [.009, .031]). The indirect effect also is stronger if customer orientation is high ($\gamma = .050$, 95% CI = [.029, .071]) and if employee accessibility is high ($\gamma = .058$, 95% CI = [.038, .078]), in support of H_{5a} and H_{5b} .

Alternative Measurements of Service Quality

To test the robustness of the measurement scales, we replicated our analyses with parallel items for both website and employee service quality (i.e., perceptions of competent service provisions). Other than the nonsignificant effect of the employee accessibility–digital presence of service employees' interaction on website service quality, the results align with those from our main analysis (see Web Appendices 11 and 12). The simple slopes still indicate positive links between the digital presence of service employees and perceived website service quality when employee accessibility is high ($\gamma = .152, p < .05$) but not when it is low ($\gamma = .020, p = .52$) and when customer orientation is high ($\gamma = .125, p < .05$) but not when it is low ($\gamma = .047, p = .10$).

Performance Effect of Customer Loyalty

We tested for performance effects with the sample of 66 service firms for which we obtained secondary financial data, using a firm-level regression model. The intraclass correlation coefficient of .75 justifies the data aggregation. Using industry as a control, we find that customer loyalty predicts subsequent

Table 2. Results of the Field Study.

	Model 1: Main Effects		Model 2: Interactions		
	γ	(SE)	γ	(SE)	Hypotheses
Website Service Quality					
Main Effects					
Digital presence of employees (DPE)	.069	(.036)*	.080	(.034)**	H ₁ : supported
Employee accessibility (LIV-corrected)	.026	(.035)	-.001	(.035)	
Customer orientation (LIV-corrected)	.044	(.030)	.043	(.030)	
Employee accessibility (error term)	-.007	(.033)	-.001	(.032)	
Customer orientation (error term)	-.008	(.028)	-.001	(.028)	
Interactions					
DPE × Employee accessibility			.077	(.034)**	H _{3a} : supported
DPE × Customer orientation			.031	(.027)	H _{4a} : not supported
Support Points					
Class 1	-1.309	(.065)***	-1.308	(.065)***	
Class 2	.196	(.027)***	.165	(.028)***	
IMR	.093	(.039)**	.089	(.035)**	
Employee Service Quality					
Main Effects					
Digital presence of employees	.070	(.022)***	.076	(.021)***	H ₂ : supported
Employee accessibility (LIV-corrected)	.012	(.032)	-.008	(.029)	
Customer orientation (LIV-corrected)	.050	(.028)*	.050	(.024)***	
Employee accessibility (error term)	.065	(.023)***	.068	(.020)***	
Customer orientation (error term)	-.006	(.023)	.003	(.021)	
Interactions					
DPE × Employee accessibility			.051	(.022)***	H _{3b} : supported
DPE × Customer orientation			.048	(.022)***	H _{4b} : supported
Support Points					
Class 1	-1.837	(.067)***	-1.837	(.067)***	
Class 2	.339	(.024)***	.316	(.022)***	
IMR	-.010	(.034)	-.015	(.032)	
Customer Loyalty					
Mediating Effects					
Website service quality	.154	(.019)***	.154	(.019)***	
Employee service quality	.267	(.022)***	.267	(.022)***	
Main Effects					
Digital presence of employees	.016	(.022)	.015	(.021)	
Employee accessibility (LIV-corrected)	-.001	(.027)	.000	(.029)	
Customer orientation (LIV-corrected)	.021	(.021)	.020	(.022)	
Employee accessibility (error term)	.030	(.022)	.030	(.021)	
Customer orientation (error term)	.002	(.021)	.006	(.022)	
Interactions					
DPE × Employee accessibility			.002	(.028)	
DPE × Customer orientation			.024	(.022)	
Support Points					
Class 1	-1.116	(.061)***	-1.118	(.061)***	
Class 2	.305	(.022)***	.302	(.023)***	
IMR	-.082	(.028)***	-.082	(.027)***	
R ² Website service quality	.330		.379		
R ² Employee service quality	.428		.494		
R ² Customer loyalty	.618		.623		

* $p < .10$.** $p < .05$.*** $p < .01$.

Notes: Significance is based on two-tailed tests, with standardized results. Fixed industry effects are included. The coefficients and standard errors for all controls are reported in Web Appendix 9.

annual revenues per employee ($b = .310, p < .05$; Web Appendix 13). We replicate this analysis with aggregated customer loyalty from all surveyed customers and obtain similar results ($b = .342, p < .05$).

Experimental Studies

The field study provides compelling evidence of the external validity of our framework. However, despite several endogeneity corrections, we were not able to control for customers' self-selection into service encounters. More generally, we note that nonexperimental empirical research that seeks to make causal inferences must rest on identifying assumptions that are not testable without experiments (Papies, Ebbes, and Van Heerde 2017). Thus, to establish stronger internal validity, we conduct a series of complementary studies in which we assign participants randomly to conditions with and without the digital presence of service employees. With Study 2, we investigate the distinct theoretical mechanisms underlying the positive effects of the digital presence of service employees. Studies 3a and 3b examine the moderating roles of customer orientation and employee accessibility in a controlled setting. Study 4 explicitly tests whether the effect of the digital presence of service employees on perceptions of employee service quality depends on the categorization of these employees (i.e., as service employees) or if the effect also holds for nonservice employees. Finally, given that service and product quality can have spillover effects on each other (Mittal, Kumar, and Tsirios 1999), Study 5 analyzes whether the spillover effect from the digital presence of employees generalizes to a product context or whether it is specific to the service domain. Table 3 summarizes the main findings of all experimental studies (Studies 2–5).

Study 2: Mechanisms of the Effect of the Digital Presence of Service Employees

We not only aim to replicate the findings from the field study but also apply a measurement-of-mediation design to explore the mechanisms underlying the effects of the digital presence of service employees. We have predicted that the digital presence of service employees should increase perceived social presence, which enhances perceived website service quality through an affective response toward the website but also activates and updates memories of previous service encounters that positively influence perceived employee service quality.

Previous research used website enjoyment, defined as the extent to which using a website is perceived to be enjoyable in its own right regardless of performance consequences that may be anticipated (Hassanein and Head 2007), to capture the affective response toward a website. Enjoyment is the most prominent psychological impact of social presence (Lombard and Ditton 1997), and results in a more positive attitude toward a website (Hassanein and Head 2006).

Memory research uses the concept of memory vividness to refer to the visual clarity and visual intensity of the retrieved

memory (Luchetti and Sutin 2016). Vividness has been described as the most important characteristic of autobiographical memories (Sutin and Robins 2007), and we expect that the social presence of service employees activates and updates memories of previous service encounters and thus makes them more vivid. Increased vividness, in turn, should make the evaluation of the service encounter more positive (Nisbett and Ross 1980).

We explicitly measure the aforementioned chains of effects, and we also control for a competing mechanism. Arguably, the digital presence of service employees might enhance image appeal, defined as the extent to which images on the website are perceived as appropriate and aligned to user expectations, which could heighten perceived website service quality as well (Cyr et al. 2009). Finally, we determine if positive service attributes mentioned on the website influence employee evaluations more strongly when service employees are displayed.

Design, procedure, and measures. For this single-factor, between-subjects study (website without vs. with the digital presence of service employees), we adopt the U.S. Postal Service (USPS) as the research context; customers frequently rely on and interact with both its website and its employees.³ To qualify to participate, respondents had to have previous experience as a USPS customer without any severe service failures. An instructional manipulation check (IMC) excluded 27 participants; the final sample included 200 U.S. consumers, gathered from Amazon Mechanical Turk (MTurk), with a mean age of 39.0 years, and 44% were women.

Participants were randomly exposed to a USPS website with or without the digital presence of service employees. The experimental condition featured an image of a service employee, whereas the control condition contained an image of a delivery van, to rule out the possibility that the effects were driven by the presence of a picture on the website. All other information was analogous across conditions (see Web Appendices 14 and 15). Participants then evaluated website service quality, website enjoyment, social presence perceptions, and image appeal.

As a filler task, we asked participants to read a text that contained facts and figures about the courier market (see Web Appendix 16).⁴ On the following page, instructions asked participants to think about the last time they had interacted with a USPS employee. By separating the evaluation of employee service quality from the website evaluation and clearly relating it to their last experience with a service employee, we ensured

³ We conducted a pretest with 50 respondents, randomly assigned to the website with or without the digital presence of service employees, who rated social presence on a seven-point scale from Bleier, Harmeling, and Palmatier (2019). As we expected, participants reported higher social presence for the website with the digital presence of service employees ($M_{DPE} = 4.66, M_{No_DPE} = 3.09$; $F(1, 48) = 9.60, p < .01$).

⁴ There is a natural delay between the experience and its manipulation according to the digital presence of service employees, because participants rated their own service experiences (Rajagopal and Montgomery 2011).

Table 3. Summary of Main Findings from All Experimental Studies.

Study 2: Mechanisms of the Digital Presence Effects of Service Employees				
Context: Courier services; N = 185 MTurk workers; M _{age} = 39.0 years; 44% women				
	No Digital Presence	Digital Presence	Cohen's d	
Social presence	3.715 (1.713)	5.465 (1.244)	1.01	
Perceived enjoyment	4.208 (1.507)	4.959 (1.258)	.52	
Memory vividness	5.189 (1.523)	5.644 (1.122)	.34	
Website service quality	5.317 (1.126)	5.837 (.915)	.49	
Employee service quality	5.528 (1.398)	5.908 (.948)	.32	
Customer loyalty	5.309 (1.371)	5.726 (1.004)	.34	
Study 3a: Moderating Role of Customer Orientation				
Context: Hospitality services; N = 264 MTurk workers; M _{age} = 38.2 years; 45% women				
	No Digital Presence	Digital Presence	Cohen's d	
Customer Orientation Low				
Website service quality	5.011 (.951)	4.790 (1.138)	.21	
Employee service quality	5.083 (1.139)	4.958 (1.141)	.11	
Customer Orientation High				
Website service quality	5.162 (1.190)	5.608 (.984)	.40	
Employee service quality	5.401 (1.330)	5.894 (.873)	.43	
Study 3b: Moderating Role of Employee Accessibility				
Context: Telecommunication Services; N = 272 MTurk workers; M _{age} = 37.5 years; 51% women				
	No Digital Presence	Digital Presence	Cohen's d	
Employee Accessibility Low				
Website service quality	4.477 (1.521)	5.021 (1.229)	.36	
Employee service quality	4.620 (1.613)	4.850 (1.477)	.14	
Employee Accessibility High				
Website service quality	4.782 (1.471)	5.884 (.965)	.93	
Employee service quality	4.826 (1.710)	5.823 (1.310)	.68	
Study 4: Employee Category (Service vs. Nonservice Employee) as a Boundary Condition for the Spillover Effect				
Context: Courier services; N = 144 MTurk workers; M _{age} = 35.2 years; 44% women				
	No Digital Presence	Service Employee	Nonservice Employee	Cohen's d
Website service quality	5.329 (.902)	6.080 (.766)	5.722 (.945)	.83 (.41) ^a
Employee service quality	5.468 (1.206)	6.032 (.943)	5.482 (1.192)	.51 (.50) ^a

(continued)

Table 3. (continued)

Study 5: Domain (Service vs. Product Context) as a Boundary Condition for the Spillover Effect			
Context: Automotive services and production; N = 277 MTurk workers; M _{age} = 35.0 years; 38% women			
	No Digital Presence	Digital Presence	Cohen's d
Service Context			
Website service quality	5.388 (1.216)	5.818 (.708)	.42
Employee service quality	5.879 (.994)	6.190 (.755)	.35
Product quality	5.524 (1.059)	5.725 (.850)	.21
Product Context			
Website service quality	5.412 (1.121)	5.720 (.872)	.31
Employee service quality	5.782 (1.110)	5.851 (.879)	.07
Product quality	5.452 (.993)	5.576 (.902)	.13

^aEffect sizes in comparison with the no-digital-presence condition are reported first, and effect sizes in comparison with the nonservice employee condition are in parentheses.

Notes: Cells present means, with SDs in parentheses. We calculated effect sizes with Cohen's $d = (MA - MB)/\sigma$, where MA and MB are the two means, and σ refers to the standard deviation for the population.

that participants evaluated their own real service experience ("When thinking about your last service encounter, how do you evaluate the experience with the employee from USPS?"). We also captured memory vividness of the last actual experience with a service employee.

To assess whether the digital presence manipulation influenced participants' memory reconstruction, we also asked them to describe the service employee's behavior, by selecting three of seven listed attributes that describe employee competence and commitment during actual service encounters. Three of the attributes appeared on all versions of the website (reliable, friendly, on time). If participants exposed to the digital presence of service employees cited these three attributes more often than participants in the control condition, this evidence would indicate that the positive service attributes signaled by the digital presence of service employees distort customers' recall of their actual service experience (Braun 1999).

We include the measurement scales from the field study, as well as a social presence scale from Bleier, Harmeling, and Palmatier (2019), website enjoyment scale from Hassanein and Head (2007), memory vividness scale from Luchetti and Sutin (2016), and image appeal scale from Cyr et al. (2009). As additional measures of website and employee service quality, we use parallel measures from Hult et al. (2019). Web Appendix 17 contains the measurement scales. A CFA confirms that participants differentiated the service quality of the website and the employee in their assessments (Web Appendix 6). We excluded 15 participants who took too long to complete the questionnaire (+2 SD longer than the mean).

Results. A model without the mechanisms produces results that match those from the field study: the digital presence of service employees has positive direct effects on website service quality

($b = .248, p < .01$) and employee service quality ($b = .159, p < .05$) as well as indirect positive effects on customer loyalty via website service quality ($b = .116, 95\% \text{ CI} = [.044, .188]$) and employee service quality ($b = .055, 95\% \text{ CI} = [.002, .107]$). We replicate the model with parallel measures of overall website and employee service quality and find results fully in line with the main analysis: The digital presence of service employees has positive effects on overall website service quality ($b = .256, p < .01$) and overall employee service quality ($b = .200, p < .01$) as well as indirect positive effects on customer loyalty via website service quality ($b = .063, 95\% \text{ CI} = [.015, .110]$) and employee service quality ($b = .090, 95\% \text{ CI} = [.022, .159]$).

Serial mediation. Results of the serial mediation analysis are presented in Figure 2 (more detailed results appear in Web Appendix 18), and they indicate a positive indirect effect of the digital presence of service employees on customer loyalty ($b = .088, 95\% \text{ CI} = [.048, .127]$), mediated both by the website service quality path ($b = .056, 95\% \text{ CI} = [.024, .088]$) and the employee service quality path ($b = .032, 95\% \text{ CI} = [.010, .053]$). Specifically, the digital presence of service employees increases social presence perceptions ($b = .501, p < .01$), which have positive effects on website enjoyment ($b = .527, p < .01$) and memory vividness ($b = .411, p < .01$). As we expected, time since the last service employee encounter decreases memory vividness ($b = -.255, p < .01$).

Website enjoyment positively influences perceived website service quality ($b = .532, p < .01$) but not employee service quality ($b = .174, \text{ n.s.}$). Memory vividness strongly determines perceived employee service quality ($b = .443, p < .01$), whereas its effect on perceived website service quality is only marginally significant ($b = .149, p < .10$). Website ($b = .399,$

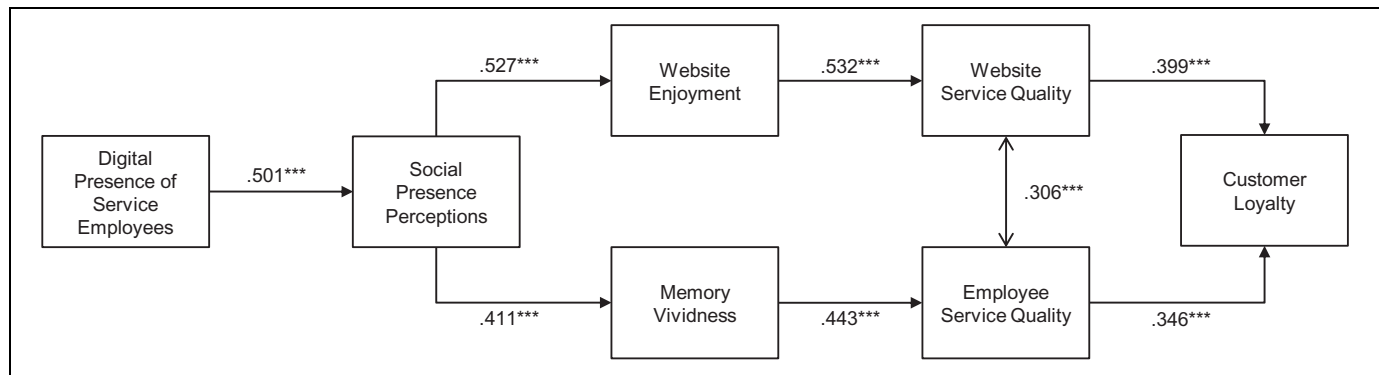


Figure 2. Results of Study 2.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Notes: Significance is based on two-tailed tests, with standardized results. The full results appear in Web Appendix 18. Memory vividness has a marginal significant effect on website service quality ($b = .149, p < .10$). We test for image appeal as an alternative mechanism and control for the time of the last website visit and the last service employee encounter. Wald tests of parameter equality confirm that the expected effect of website enjoyment on website service quality is stronger than the effect of memory vividness on website enjoyment ($\chi^2 = 8.99, d.f. = 1, p < .01$). When we switched the order of any mediators, the indirect effect of the digital presence of service employees on customer loyalty was not significant.

$p < .01$) and employee ($b = .346, p < .01$) service quality both have positive effects on customer loyalty.

Alternative mechanism. We controlled for image appeal as an alternative mechanism in our analyses. In line with previous research (Cyr et al. 2009; Wang et al. 2014), the digital presence of service employees has a positive effect on image appeal ($b = .231, p < .01$). The indirect effect of the digital presence of service employees on website enjoyment through social presence is stronger than the indirect effect through image appeal ($\chi^2 = 7.14, d.f. = 1, p < .01$). Thus, image appeal represents an alternative but weaker mechanism of the website service quality effect.

Memory reconstruction process. In line with reconstructive memory theory, participants exposed to the digital presence of service employees report more service attributes of the service encounter that were previously mentioned on the website than were participants in the control condition ($M_{DPE} = 1.38, M_{No_DPE} = 1.02; t(183) = 2.16, p < .05$).

Discussion. Study 2 replicates the findings from the field study with an experimental design that randomly assigns participants to conditions with and without the digital presence of service employees. Furthermore, we explicitly measure distinct affective and cognitive mechanisms through which the digital presence of service employees might enhance customer outcomes. The digital presence of service employees increases website service quality through website enjoyment and enhances employee service quality through memory vividness. As evidence of reconstructive memory processes, we find that memories of the actual service encounter are more strongly influenced (or distorted) by positive service attributes listed on the website if consumers are exposed to the digital presence of service employees. For Studies 3a and 3b, to examine the

moderators further in a controlled setting with randomization, we use a procedure similar to that for Study 2 but manipulate customer orientation and employee accessibility in different service contexts to generalize our results.

Study 3: Moderating Roles of Customer Orientation and Employee Accessibility

Design, procedure, and measures. We use 2 (digital presence manipulation) $\times$ 2 (customer orientation [Study 3a] or employee accessibility [Study 3b]: low vs. high) between-subjects designs. We focus on Study 3a here and present the details of Study 3b in Web Appendix 19. To manipulate customer orientation, we include two hotel chains popular in the United States. Fairfield Inn & Suites has an American Customer Satisfaction Index (www.theacsi.org) score of 83 and posts a guarantee for guest satisfaction on its website; Motel 6 has an American Customer Satisfaction Index score of 63 and clearly positions itself as a low-price provider, without any indication of guest satisfaction on its website. A pretest with 50 consumers, who rated the customer orientation of six hotel chains in random order on a 11-point scale, confirmed that Fairfield Inn & Suites was rated highest ($M = 8.06$) and Motel 6 lowest ($M = 5.02$).

In Study 3a with 300 U.S. consumers (M_{Turk} , $M_{age} = 38.2$ years, 45% women, the IMC excluded 30 participants), we required that participants had stayed at both Fairfield Inn & Suites and Motel 6 without any severe service failures. Participants were randomly assigned to the high and low customer orientation condition and to a website with or without the digital presence of service employees (see Web Appendix 15). After viewing the assigned website and rating its service quality, participants read pseudo-relevant information about the U.S. hospitality industry (see Web Appendix 16), then

evaluated the service quality of their last encounter with a hotel employee. We used the same measures as in previous studies (see Web Appendix 17) and excluded 9 participants with overly long response times (+2 SD) and 27 participants who did not remember their last encounter with an employee.

Results. With 2×2 multivariate analyses of variance, we find significant main effects for customer orientation on website service quality ($F(1, 260) = 13.47, p < .01$) and employee service quality ($F(1, 260) = 20.18, p < .01$), no significant main effects for the digital presence of service employees on website service quality ($F(1, 260) = .73, p = .40$) and employee service quality ($F(1, 260) = 1.74, p = .19$), and significant interaction effects on website service quality ($F(1, 260) = 6.41, p < .05$) and employee service quality ($F(1, 260) = 4.93, p < .05$). In planned contrasts, participants in the high-customer-orientation condition evaluated website service quality ($M_{DPE} = 5.61, M_{No_DPE} = 5.16; t(129) = 2.34, p < .05$) and employee service quality ($M_{DPE} = 5.89, M_{No_DPE} = 5.40; t(129) = 2.51, p < .05$) more favorably when they encountered the digital presence of service employees. In the low customer orientation condition, we find no significant differences for website service quality ($M_{DPE} = 4.79, M_{No_DPE} = 5.01; t(131) = 1.22, p = .23$) and employee service quality ($M_{DPE} = 4.96, M_{No_DPE} = 5.08; t(131) = .64, p = .53$). Using overall website and employee service quality measures produces similar results.

Discussion. As in the field study, the effects of the digital presence of service employees on both website and employee service quality depend on customer orientation. However, in a slight difference, we find a significant moderating effect of customer orientation on the digital presence–website service quality relationship, too. This difference likely reflects the higher precision of the experimental design, such that we manipulated and randomized customer orientation. Study 3b, reported in Web Appendix 19, reveals similar findings as the field study. With 2×2 multivariate analyses of variance, we find significant main effects of the digital presence of service employees on website service quality ($F(1, 268) = 26.67, p < .01$) and employee service quality ($F(1, 268) = 10.82, p < .01$) as well as employee accessibility on website service quality ($F(1, 268) = 13.47, p < .01$) and employee service quality ($F(1, 268) = 9.99, p < .01$). The interaction effect is significant for employee service quality ($F(1, 268) = 4.04, p < .05$) and marginally significant for website service quality ($F(1, 268) = 2.84, p < .10$). In Studies 4 and 5, we next explore further boundary conditions by investigating whether the digital presence of an employee outside the service category invokes similar effects and whether the spillover effect generalizes to a product context.

Study 4: Service Category as a Boundary Condition for the Spillover Effect

To further investigate the monitoring process of reconstructive memories (Gallo 2010), Study 4 explicitly tests whether the

spillover effect on employee service quality perceptions evoked by the reconstructive memory process depends on a categorization of the digital presence of employees to a service setting or if the effect also holds for nonservice employees. In the latter case, the spillover effect seemingly would be based on an automatic, affective responses to any human-like digital presence (Cyr et al. 2009). However, reconstructive memory theory predicts that customers will monitor whether the source of the spillover effect is credible and plausible (i.e., whether the employee is diagnostic of the service encounter). Thus, if employees represented in the digital presence are typically not involved in real service encounters, a spillover of communicated service attributes on the website to perceptions of employee service quality will be unlikely (Huttenlocher, Hedges, and Vevea 2000).

We feature FedEx as the focal company in a three-level factor, between-subjects design (no digital presence, digital presence of service employee, digital presence of nonservice employee). To obtain courier services, customers interact with delivery drivers to receive and confirm the service, but they typically do not encounter employees unrelated to the service delivery. Using image editing technology, we altered an employee image on a website to depict the same person as a delivery driver or a nonservice employee without any visible connection to service delivery (Web Appendix 15). We pre-tested the images among 30 FedEx customers. All participants agreed that the delivery driver condition displays a service employee, and only one participant stated that the nonservice employee condition displays a service employee. Participants in the main study were 144 U.S. consumers (MTurk, $M_{age} = 35.2$ years, 44% women; the IMC excluded 16 participants, and 6 participants took too much time at +2 SD).

An analysis of variance reveals significant differences between conditions for the assessments of website service quality ($F(2, 143) = 4.69, p < .05$) and employee service quality ($F(2, 143) = 4.35, p < .05$). The planned contrasts indicate that participants in the service employee condition evaluate both website service quality ($M_{DPE} = 6.05, M_{No_DPE} = 5.60; t(93) = 2.82, p < .01$) and employee service quality ($M_{DPE} = 6.11, M_{No_DPE} = 5.59; t(93) = 2.66, p < .01$) more favorably than those in the control condition. Comparisons of the digital presence of service versus nonservice employees reveal, in line with our expectations, significantly lower employee service quality evaluations in the latter condition ($M_{NSE} = 5.55; t(93) = 2.62, p < .05$) but no significant difference in website service quality evaluations ($M_{NSE} = 5.90; t(93) = 1.07, p = .29$). Moreover, participants in the nonservice employee condition evaluate website service quality more favorably than those in the control condition ($t(96) = 2.02, p < .05$), but this distinction does not emerge for employee service quality ($t(96) = .20, p = .84$). When describing employee behavior, respondents in the service employee condition choose more descriptive words that appear on the website ($M_{DPE} = 1.37$) than those in the nonservice employee ($M_{NSE} = 1.12; t(93) = 2.05, p < .05$) or the control ($M_{No_DPE} = 1.07; t(93) = 2.24, p < .05$) conditions. Using overall website and employee service quality measures produces similar results. These results support the

importance of depicting an employee directly involved in service encounters if the firm wants to benefit from spillover effects on employee service quality perceptions.

Study 5: Digital Presence Effects in a Service Versus Product Context

Previous research has established that service and product quality can have spillover effects on each other (e.g., Cohen and Whang 1997; Mittal, Kumar, and Tsiros 1999). Thus, to consider whether the digital presence of employees might also benefit product-based firms, Study 5 explicitly tests whether our findings generalize to product contexts. As shown in Study 4, the digital presence of nonservice employees does not spill over to perceived employee service quality because they are not perceived to be diagnostic for the service experience. It might still be possible that featuring nonservice employees such as those in manufacturing creates a spillover effect in the product domain because they might be regarded as diagnostic for the perceived product quality. However, while customers strongly experience the involvement of service employees in the service encounter, the involvement of the manufacturing employees in the production process is more abstract and less visible to customers (Liao and Subramony 2008). Therefore, customers are more likely to believe that the quality of most goods, produced in automatized processes, will not depend on individual employees. In addition, customers rarely experience situations in the manufacturing process and, due to the lack of relevant memories, the reconstruction of memories is less likely to occur.

While both the digital presence of service and manufacturing employees are likely to increase perceived website service quality based on an affective response, we test the product versus service domain as a further boundary condition for the spillover effect: whereas the digital presence of service employees is expected to increase perceived employee service quality, we predict that the digital presence of manufacturing employees will not spill over to increase perceived product quality. We test these predictions with a study in a product context, featuring the U.S. Honda Motor Company, which primarily manufactures cars but also provides various services, through personal contacts with Honda service advisors and on its website (Web Appendix 15). The study design and findings are fully reported in Web Appendix 20. As in our previous studies, we confirm that the digital presence of humans positively influences website service quality perceptions, regardless of the type of employee (service or manufacturing) depicted. We find that both the digital presence of a service employee ($M_{DPE} = 5.82$, $M_{No_DPE} = 5.39$; $t(140) = 2.57$, $p < .05$) and the digital presence of a manufacturing employee ($M_{DPE} = 5.72$, $M_{No_DPE} = 5.41$; $t(133) = 1.76$, $p < .10$) tend to have significant positive effects on perceived website service quality. The digital presence of the service employee also creates spillover effects that enhance perceived employee service quality ($M_{DPE} = 6.19$, $M_{No_DPE} = 5.88$; $t(140) = 2.10$, $p < .05$). However, product quality perceptions are not influenced

by the digital presence of manufacturing employees ($M_{DPE} = 5.58$, $M_{No_DPE} = 5.45$; $t(133) = .76$, $p = .45$). The spillover effect of an employee's digital presence thus appears to be specific to the service domain, where customers strongly experience interactions with employees, and does not generalize to product domains. Nevertheless, all firms can benefit from signaling a human presence because it enhances customers' perceptions of website service quality.

Discussion

Across a large-scale field study and several experimental studies, we provide evidence of the positive effects of the digital presence of service employees. In the field study, observational data show that the digital presence of service employees enhances both website and employee service quality perceptions, with indirect benefits for customer loyalty and financial performance. Moreover, employee accessibility and a firm's customer orientation amplify these effects. In Study 2, we replicate the findings from the field and show that the digital presence of service employees creates a sense of social presence, which leads to an affective response to the website that increases perceived website service quality and updates memories of the last service encounter that increases perceived employee service quality. Studies 3a and 3b provide further support that both employee accessibility and customer orientation are contingencies of digital presence effects. Studies 4 and 5 denote further boundary conditions for the reconstructive memory process: only service employees evoke the beneficial spillover effect to employee service quality, and spillover effects do not generalize to evaluations of product quality.

Theoretical Contributions

These findings establish three main theoretical contributions. First, in line with reconstructive memory theory, we propose a novel mechanism of digital presence effects. The digital presence of service employees leads not only to positive affective responses (Cyr et al. 2009) but also to reconstruction processes of memories related to the actual service encounter. This effect is specific to the service domain, in that the digital presence of service employees activates concepts of a service encounter, for which service employees have high source relevance. Consumers exposed to the digital presence of service employees are more likely to confuse positive service attributes communicated on the website with their actual service experience. This digital presence effect activates and alters their recollection of previous service encounters, leading to a higher memory vividness that positively influences perceived employee service quality. The digital presence of service employees not only frames memories by highlighting certain aspects of the experience but may even make people include new elements conveyed by the digital presence in their memory. Web Appendices 2 and 3 report an additional experiment, in which we seed an impossible service experience in people's mind. Comparable with false memory effects in consumption

contexts (e.g., Braun 1999; Rajagopal and Montgomery 2011), the digital presence changes the reconstruction of the service experience, even though the actual service encounter is not affected. This finding is notable; digital environments arguably make service exchanges more automated and less personal. However, we find that the digital presence of service employees enhances the perceived competence and commitment of those service employees, further emphasizing the role of human service employees in digital environments.

Second, we establish moderating conditions and theoretical boundaries for the effects of the digital presence of service employees. Most prior research predicts unconditional effects (e.g., Cui, Wang, and Xu 2010; Fan, Liu, and Zhang 2013); only recently, a more nuanced view was introduced (e.g., Darke et al. 2016). We contribute to this emerging stream by identifying two contingencies related to activation and monitoring processes. Based on activation processes, opportunities to contact service employees strengthen digital presence effects, even if customers never take those opportunities. Merely highlighting contact options strengthens digital presence effects, because perceived accessibility activates the mental concept of a service encounter and reduces psychological distance. In addition, the spillover of the digital presence of service employees on evaluations of those employees depends on customers' service expectations, raised by the firm's customer orientation. Monitoring processes may disrupt reconstructive memory processes if the positive image representation of the service employee on the website conflicts with previous service expectations (due to the firm's weak customer orientation). Monitoring processes also may be responsible for another boundary condition we establish, namely, that digital presence effects are stronger in service than in product contexts. As we demonstrate, the digital presence of a person framed as a service employee elicits a positive spillover for employee service quality. The digital presence of the same person but framed as a nonservice employee does not influence employee service quality. Moreover, framing the same person as a manufacturing employee does also not spill over to product quality perceptions.

Third, we show that the spillover effect of the digital presence of service employees on perceived employee service quality contributes notably to the overall effect on customer loyalty, beyond the effect through perceived website service quality. This pathway is important but neglected; despite the digitalization of services, satisfaction with service employees is still a substantive predictor of customer loyalty (Hogreve et al. 2017). Extant research that addresses only the website-related effects of a digital presence might underestimate its contributions (e.g., Darke et al. 2016), and research on the implications of different website designs needs to consider outcomes beyond online behaviors (e.g., Bleier, Harmeling, and Palmatier 2019). The number of service channels that customers can use has increased and is likely to further grow (Ostrom et al. 2015), but our findings suggest that ongoing digitalization in the service domain may strengthen rather than erode the role of service employees when it comes to creating sustainable customer–firm relationships. The contingencies of a digital

presence of service employees imply that companies with multiple service channels could achieve competitive advantages over online only firms if they use this digital presence strategically.

Managerial Implications

Service firms strive to find effective ways to combine employee service provision with technology, but many of them overlook the potential benefits of the digital presence of service employees. Our findings suggest four recommendations to benefit from adopting this tactic.

Leverage spillover to employee service quality. Managers of service firms may underestimate the contributions of the digital presence of service employees by failing to account for their spillover effects. An isolated assessment of the effect of this digital presence on online channels would not reflect the overall influence of the digital presence of service employees. Furthermore, perceptions of employee service quality mediate the effects on customer loyalty. Accordingly, firms should move beyond channel-specific measures of the performance of their website design features and instead undertake overall assessments across channels (see Herhausen et al. 2019).

Importance of customer orientation. The level of service provision influences the effectiveness of the digital presence of service employees, that is, the firm's positioning matters. Firms with a strong customer orientation can benefit from the digital presence of service employees; a weak customer orientation cannot be compensated by establishing a social presence on the website. Therefore, attempts to create social presence effects while cutting back on actual service provision are likely to backfire.

Complementing the digital presence with contact options. To benefit from the digital presence of service employees, service firms must enhance employee accessibility and provide contact options on the website. Signaling accessibility is a prerequisite for the positive effects of the digital presence of service employees, online and offline. Even if customers never actually contact service employees, the mere presence of contact options enhances these benefits. Online-only service providers cannot compensate for a lean structure that limits access to service employees simply by putting employee pictures online.

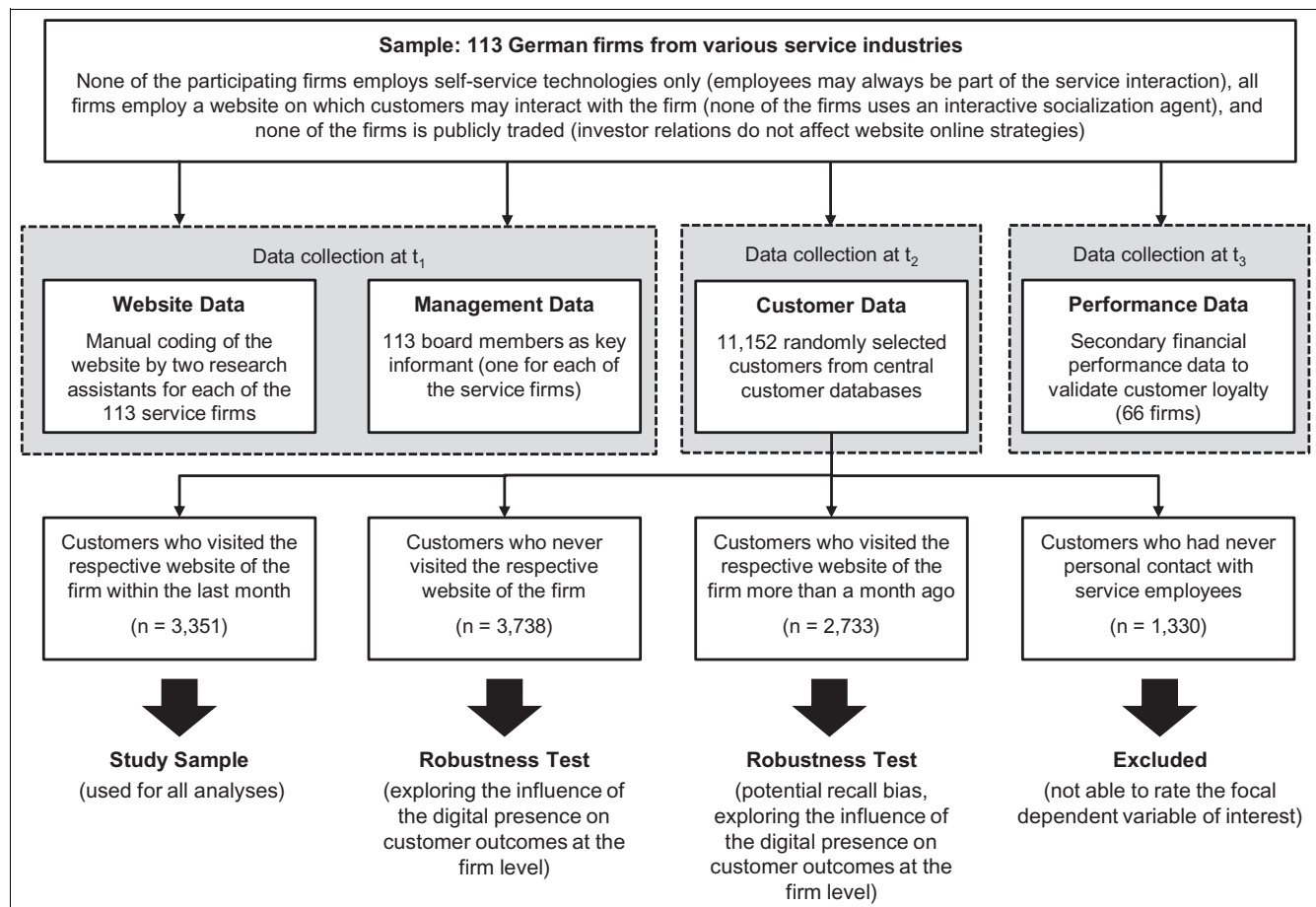
Service category considerations. Only service employees evoke positive spillover effects on perceptions of employee service quality. We find positive website effects of the digital presence of employees (or other humans) in general, but categorization processes underlie the spillover effect. Yet only 14% of U.S. service firms on the S&P 500 feature service employees on their websites, and 76% display images of anonymous people with no relation to the firm. Noting our finding that only the digital presence of a service employee evokes spillover effects, and the digital presence of a nonservice employee fails to do so, it appears service firms have not taken full advantage of the potential benefits of the digital presence of service employees yet.

Limitations and Further Research

Several directions for research could address limitations of our study and expand its scope. First, we investigate digital presence effects on websites that present employees in a positive light. If images covered negative service encounters, the digital presence of service employees may create some dark-side effects. Negative service expectations (due to weak customer orientation) negatively influence digital presence effects in our study, though the sample consists of existing (i.e., generally satisfied) customers. The negative effects may be more pronounced if negative service experiences are prevalent.⁵ Second, we investigate the digital presence of service employees in Western settings. Previous research indicates cultural differences in social presence effects (Cyr et al. 2009), so it would be interesting to replicate our studies in a

different cultural context. Third, examining the interplay of the digital presence of employees with other website design elements might provide interesting insights. Fourth, technology is advancing rapidly, and experiencing virtual or augmented reality might lead to higher expectations of consumers regarding a “human touch” in digital channels. Thus, further research should explore how videos or augmented reality could complement and reinforce the digital presence effect of service employees in the future. Fifth, personal relationships are common in the healthcare and educational sector and these relationships may also benefit when the respective institutions depict the presence of doctors, nurses, or professors on their websites. Thus, further research could explore the interplay of the digital presence of employees with real-life experiences in these settings.

Appendix. Data Structure in the Field Study.



(continued)

⁵ In the field study, 85% of customers rated employee service quality with a score of 8 or above on an 11-point scale. In an additional analysis, we considered 444 customers who rated employee service quality more than one SD below the mean, implying that they have stored negative service experiences. For this subsample, the digital presence of service employees reduces website service quality perceptions ($\gamma = -.100, p < .05$). That is, when previous experiences are negative, the digital presence of service employees may amplify negative perceptions.

Appendix. (continued)

Notes: To ensure that customers were exposed to the service firms' websites, we included only those who had visited the website of the respective firm within the previous month in the main analysis. We used customers who were not familiar with the respective website and customers who visited the website more than a month ago for robustness tests. We explored the relationship between the digital presence of service employees and customer outcomes at the firm level by conducting paired-sample t-tests using a combined sample of customers who visited the firms' website within the last month and customers who did not visit the same website. For service firms that do not display service employees on their website, employee service quality does not differ between the two samples ($M_{Web} = 8.34$, $M_{No_Web} = 8.45$; $t(60) = -.91$, $p = .37$). However, in line with our expectations, we observe higher employee service quality for customers who visited the firms' website for service firms that displayed service employees on their website ($M_{Web} = 8.75$, $M_{No_Web} = 8.26$; $t(51) = 2.69$, $p < .01$). We observe the same pattern but weaker results for customers who visited the website more than a month ago likely because recall of the website visit gets too blurry after more than one month (no digital presence of service employees: $M_{Old_Web} = 8.30$; $M_{No_Web} = 8.45$; $t(60) = 1.61$, $p = .12$ and digital presence of service employees: $M_{Old_Web} = 8.58$; $M_{No_Web} = 8.26$; $t(51) = 1.72$, $p < .10$).

Acknowledgments

The authors are grateful to the *JMR* review team for very helpful suggestions that improved the article, and to Raluca Gui and Aditya Gupta for methodological advice. They further thank Mary Jo Bitner, Michael Brady, Mirella Kleijnen, Stephan Ludwig, Stephanie Noble, Peter Verhoef, Russ Winer, and participants of a research seminar from the Marketing Group Zurich for helpful comments on previous versions of this article. The data for the field study were collected by a market research agency and research assistants, supervised and then analyzed by the first author, and the data for all other studies were collected and analyzed by the first author.

Associate Editor

Hari Sridhar

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- Aggarwal, Pankaj, and Ann L. McGill (2007), "Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products," *Journal of Consumer Research*, 34 (4), 468–79.
- Ahluwalia, Rohini, H.Rao Unnava, and Robert E. Burnkrant (2001), "The Moderating Role of Commitment on the Spillover Effect of Marketing Communications," *Journal of Marketing Research*, 38 (4), 458–70.
- Bernstein, Daniel M., and Elizabeth F. Loftus (2009), "The Consequences of False Memories for Food Preferences and Choices," *Perspectives on Psychological Science*, 4 (2), 135–39.
- Bhargave, Rajesh, Antonia Mantonakis, and Katherine White (2016), "The Cue-of-the-Cloud Effect: When Reminders of Online Information Availability Increase Purchase Intentions and Choice," *Journal of Marketing Research*, 53 (5), 699–711.
- Bleier, Alexander, Colleen M. Harmeling, and Robert W. Palmatier (2019), "Creating Effective Online Customer Experiences," *Journal of Marketing*, 83 (2), 98–119.
- Bowen, David E. (2016), "The Changing Role of Employees in Service Theory and Practice: An Interdisciplinary View," *Human Resource Management Review*, 26 (1), 4–13.
- Braun, Kathryn A. (1999), "Postexperience Advertising Effects on Consumer Memory," *Journal of Consumer Research*, 25 (4), 319–34.
- Braun-LaTour, Kathryn, Michael S. LaTour, Jacqueline E. Pickrell, and Elizabeth F. Loftus (2004), "How and When Advertising Can Influence Memory for Consumer Experience," *Journal of Advertising*, 33 (4), 7–25.
- Cohen, Morris A., and Seungjin Whang (1997), "Competing in Product and Service: A Product Life-Cycle Model," *Management Science*, 43 (4), 535–45.
- Cui, Nan, Tao Wang, and Shuang Xu (2010), "The Influence of Social Presence on Consumers' Perceptions of the Interactivity of Web Sites," *Journal of Interactive Advertising*, 11 (1), 36–49.
- Cyr, Dianne, Khaled Hassanein, Milena Head, and Alex Ivanov (2007), "The Role of Social Presence in Establishing Loyalty in E-Service Environments," *Interacting with Computers*, 19 (1), 43–56.
- Cyr, Dianne, Milena Head, Hector Larios, and Bing Pan (2009), "Exploring Human Images in Website Design: A Multi-Method Approach," *MIS Quarterly*, 33 (3), 539–66.
- Darke, Peter R., Michael K. Brady, Ray L. Benedictus, and Andrew E. Wilson (2016), "Feeling Close from Afar: The Role of Psychological Distance in Offsetting Distrust in Unfamiliar Online Retailers," *Journal of Retailing*, 92 (3), 287–99.
- DeJong, Ad, Ko de Ruyter, and Jos Lemmink (2004), "Antecedents and Consequences of the Service Climate in Boundary-Spanning Self-Managing Service Teams," *Journal of Marketing*, 68 (2), 18–35.
- Fan, Xiaoping, Feng Liu, and Jia Zhang (2013), "To Be Familiar or to Be There? The Roles of Brand Familiarity and Social Presence on Web Store Image and Online Purchase Intention," *International Journal of Electronic Marketing and Retailing*, 5 (3), 199–221.
- Gallo, David A. (2010), "False Memories and Fantastic Beliefs: 15 Years of the DRM Illusion," *Memory & Cognition*, 38 (7), 833–48.
- Garry, Maryanne, Charles G. Manning, Elizabeth F. Loftus, and Steven J. Sherman (1996), "Imagination Inflation: Imagining a Childhood Event Inflates Confidence that It Occurred," *Psychonomic Bulletin & Review*, 3, 208–14.
- Gefen, David, and Detmar Straub (2003), "Managing User Trust in B2C E-Services," *E-Service Journal*, 2 (2), 7–24.

- Gupta, Aditya, Alok Kumar, Rajdeep Grewal, and Gary L. Lilien (2019), "Within-Seller and Buyer-Seller Network Structures and Key Account Profitability," *Journal of Marketing*, 83 (1), 108–32.
- Hartline, Michael D., James G. Maxham, and Daryl O. McKee (2000), "Corridors of Influence in the Dissemination of Customer-Oriented Strategy to Customer Contact Service Employees," *Journal of Marketing*, 64 (2), 35–50.
- Hassanein, Khaled, and Milena Head (2007), "Manipulating Perceived Social Presence Through the Web Interface and its Impact on Attitude Towards Online Shopping," *International Journal of Human-Computer Studies*, 65 (8), 689–708.
- Herhausen, Dennis, Kristina Kleinlercher, Peter Verhoef, Oliver Emrich, and Thomas Rudolph (2019), "Loyalty Formation for Different Customer Journey Segments," *Journal of Retailing*, 95 (3), 9–29.
- Hogreve, Jens, Anja Iseke, Klaus Derfuss, and Tönnes F. Eller (2017), "The Service-Profit Chain: A Meta-Analytic Test of a Comprehensive Theoretical Framework," *Journal of Marketing*, 81 (3), 41–61.
- Homburg, Christian, Jan Wieseke, and Wayne D. Hoyer (2009), "Social Identity and the Service-Profit Chain," *Journal of Marketing*, 73 (2), 38–54.
- Homburg, Christian, Michael Müller, and Martin Klarmann (2011), "When Does Salespeople's Customer Orientation Lead to Customer Loyalty? The Differential Effects of Relational and Functional Customer Orientation," *Journal of the Academy of Marketing Science*, 39 (6), 795–812.
- Hult, G. Tomas M., Pratyush Nidhi Sharma, Forrest V. Morgeson III, and Yufei Zhang (2019), "Antecedents and Consequences of Customer Satisfaction: Do They Differ Across Online and Offline Purchases?" *Journal of Retailing*, 95 (1), 10–23.
- Huttenlocher, Janellen, Larry V. Hedges, and Jack L. Vevea (2000), "Why Do Categories Affect Stimulus Judgment?" *Journal of Experimental Psychology: General*, 129 (2), 220–41.
- Lakshmanan, Arun, and H. Shanker Krishnan (2009), "How Does Imagery in Interactive Consumption Lead to False Memory? A Reconstructive Memory Perspective," *Journal of Consumer Psychology*, 19 (3), 451–62.
- Liao, Hui, and Mahesh Subramony (2008), "Employee Customer Orientation in Manufacturing Organizations: Joint Influences of Customer contact and the Senior Leadership Team," *Journal of Applied Psychology*, 93 (2), 317–28.
- Loftus, Elizabeth (2003), "Make-Believe Memories," *American Psychologist*, 58 (11), 867–73.
- Loftus, Elizabeth, and Jacqueline E. Pickrell (1995), "The Formation of False Memories," *Psychiatric Annals*, 25 (12), 720–25.
- Lombard, Matthew, and Theresa Ditton (1997), "At the Heart of It All: The Concept of Presence," *Journal of Computer-Mediated Communication*, 3 (2), JCMC321.
- Luchetti, Martina, and Angelina R. Sutin (2016), "Measuring the Phenomenology of Autobiographical Memory: A Short Form of the Memory Experiences Questionnaire," *Memory*, 24 (5), 592–602.
- Lyle, Keith, and Marcia Johnson (2006), "Importing Perceived Features into False Memories," *Memory*, 14 (2), 197–213.
- Medin, Douglas L., and Edward E. Smith (1984), "Concepts and Concept Formation," *Annual Review of Psychology*, 35 (1), 113–38.
- Mittal, Vikas, Pankaj Kumar, and Michael Tsiras (1999), "Attribute-Level Performance, Satisfaction, and Behavioral Intentions over Time: A Consumption-System Approach," *Journal of Marketing*, 63 (2), 88–101.
- Montoya-Weiss, Mitzi M., Glenn B. Voss, and Dhruv Grewal (2003), "Determinants of Online Channel Use and Overall Satisfaction with a Relational Multichannel Service Provider," *Journal of the Academy of Marketing Science*, 31 (4), 448–58.
- Naylor, Rebecca Walker, Cait Poynor Lamberton, and Patricia M. West (2012), "Beyond the Like Button: The Impact of Mere Virtual Presence on Brand Evaluations and Purchase Intentions in Social Media Settings," *Journal of Marketing*, 76 (6), 105–20.
- Nisbett, Richard E., and Lee Ross (1980), *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice Hall.
- Ostrom, Amy L., A. Parasuraman, David E. Bowen, Lia Patricio, and Christopher A. Voss (2015), "Service Research Priorities in a Rapidly Changing Context," *Journal of Service Research*, 18 (2), 127–59.
- Papies, Dominik, Peter Ebbes, and Harald J. Van Heerde (2017), "Addressing Endogeneity in Marketing Models," in *Advanced Methods for Modeling Markets*, Peter S.H. Leeflang, Jaap E. Wieringa, Tammo H.A. Bijmolt, and Koen H. Pauwels, eds. Cham, Switzerland: Springer, 581–627.
- Rajagopal, Priyali, and Nicole Montgomery (2011), "I Imagine, I Experience, I Like: The False Experience Effect," *Journal of Consumer Research*, 38 (3), 578–94.
- Schaefer, Tobias, and Julia Schamari (2016), "Service Recovery via Social Media: The Social Influence Effects of Virtual Presence," *Journal of Service Research*, 19 (2), 192–208.
- Schroll, Roland, Benedikt Schnurr, and Dhruv Grewal (2018), "Humanizing Products with Handwritten Typefaces," *Journal of Consumer Research*, 45 (3), 648–72.
- Solomon, Michael R., Carol Surprenant, John A. Czepiel, and Evelyn G. Gutman (1985), "A Role Theory Perspective on Dyadic Interactions: The Service Encounter," *Journal of Marketing*, 49 (1), 99–111.
- Sousa, Rui, and Christopher A. Voss (2006), "Service Quality in Multichannel Services Employing Virtual Channels," *Journal of Service Research*, 8 (4), 356–71.
- Sutin, Angelina R., and Richard W. Robins (2007), "Phenomenology of Autobiographical Memories: The Memory Experiences Questionnaire," *Memory*, 15 (4), 390–411.
- Wade, Kimberley, Maryanne Garry, J. Don Read, and D. Stephen Lindsay (2002), "A Picture Is Worth a Thousand Lies: Using False Photographs to Create False Childhood Memories," *Psychonomic Bulletin & Review*, 9 (3), 597–603.
- Wang, Qiuzhen, Yi Yang, Qi Wang, and Qing Ma (2014), "The Effect of Human Image in B2C Website Design: An Eye-Tracking Study," *Enterprise Information Systems*, 8 (5), 582–605.
- Wang, Rui, Aditya Gupta, and Rajdeep Grewal (2017), "Mobility of Top Marketing and Sales Executives in Business-to-Business Markets: A Social Network Perspective," *Journal of Marketing Research*, 54 (4), 650–70.
- Wooldridge, Jeffrey M. (2010), *Econometric Analysis of Cross Section and Panel Data*, 2nd ed. Cambridge, MA: MIT.