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Return on Interactivity: The Impact of Online Agents on Newcomer Adjustment

As service offerings grow in both range and complexity, how service providers and their customers interact is becoming increasingly important. In response to the challenge of optimizing these interactions, companies have introduced sophisticated online "socialization agents," whose purpose is to help new customers more effectively adjust to and function within the service environment. The objective of these online agents, or virtual employees, is to help customers evaluate new or unfamiliar service offerings, as well as help companies achieve greater levels of service delivery and financial performance. To investigate this, the authors analyze the process by which online agents help both new and current customers adjust to and function within new, unfamiliar, or complex service contexts. They examine the impact of an online agent on account performance in the banking industry. They find that both interaction style and content of the online agent significantly influence the newcomer adjustment process over time, which in turn influences firm-level performance.

Keywords: online agents, agent–customer interaction, socialization, newcomer adjustment, service delivery, virtual employees

Online virtual agents are increasingly becoming an integral element for managing firm–customer relationships, particularly in the area of improving self-service capabilities. Some customers actually prefer virtual agents to live representatives because they may provide them with a sense of empowerment and control over the service process (Clarkson 2010). Moreover, younger generations of customers might actually prefer to interact with online agents rather than human agents in service settings (Graeber and Dolan 2007). At the same time, online agents provide a mechanism in which firms can proactively engage customers and involve them in the service experience beyond basic frequently asked-question (FAQ) interactions.

Recent innovations in virtual agent technology can foster more effective and efficient one-on-one customer interactions, but at a fraction of the cost of live agents, enabling companies in various industries (e.g., retail, travel planning, insurance, financial services) to capture market intelligence, increase cross-selling opportunities and revenues, participate in online social networks more actively, automate the delivery of relevant information to prospects and customers, share knowledge interactively with customers, and integrate information flow across internal systems and departments (Clarkson 2010; Graeber and Dolan 2007). More important, virtual agents can help firms provide a consistent and enhanced customer experience that can be closely associated with the brand, in which case the virtual agent him- or herself effectively becomes the brand.

Accordingly, the use of intelligent virtual agents has become one of the most promising technologies in service sectors, such as retail banking, particularly among young consumers (Clarkson 2010; Graeber and Dolan 2007). Although studies have begun to address the increasing importance of online agents in the context of online firm–customer interaction and service delivery processes (e.g., Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007), empirical evidence related to the process by which virtual employees enhance the customer experience and ultimately increase financial performance is scarce and equivocal (e.g., Luo et al. 2006; Qiu and Benbasat 2005).

The development and use of online agents is especially relevant in the case in which younger consumers may need to familiarize themselves with complex services that require a significant degree of customer involvement and knowledge, such as within the financial service sector (Li, Sun, and Wilcox 2005). Graeber and Dolan (2007) find that consumers aged 12–21 years were active online, spending more than ten hours per week on the Internet, and that 65% had opened checking accounts, with a majority researching banking alternatives online. For new generations of consumers characterized as "digital natives" (Prensky 2005), information exchange, preference formation, and purchase decisions are primarily shaped through interactive dialogues on social networking sites, virtual communities, and blogs.

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Therefore, it is imperative for service providers, such as retail banks, to develop new online service platforms to build stronger relationships with this consumer segment. In response, firms have introduced virtual employees (or online agents) to which customers who are active online can relate. Organizations have developed these agents as virtual service employees, such as IKEA's "Anna," eBay's "Louise," and Alaska Airlines' "Jenn," with the purpose of assisting customers by providing functional content in response to general queries through frequently provided answers (Wan 2009). The role of these online agents has become more important as consumers demand more from their online experiences (Clarkson 2010).

Consistent with recent theories related to the socialization of customers (Kelley, Donnelly, and Skinner 1990; Kelley, Skinner, and Donnelly 1992), we identify these online agents as socialization agents, designed to help new generations of digital natives function within new or unfamiliar marketplaces. Current research (Ashforth, Sluss, and Saks 2007; Bauer et al. 2007) has shown that the way interactions between socialization agents and newcomers to an organization are designed influences newcomers' adjustment process and enables them to gain the skills and knowledge necessary to function more effectively. However, the implementation of online socialization agents in firm–customer interactions is still in an experimentation phase, and the impact on firms' service and revenue performance has remained uncharted. Therefore, our objective in this article is to investigate the impact of online agent interactions on the newcomer adjustment process and assess how this enhances financial performance.

This study makes three substantive contributions. First, whereas prior research investigating online agents has incorporated only basic verbal and visual cues (Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007), we examine an extended set of interaction attributes related to an online agent that pertain to its expanded role as a socialization agent. Drawing from research on both offline (Williams and Spiro 1985; Williams, Spiro, and Fine 1990) and online (Van Dolen, Dabholkar, and De Ruyter 2007) interactions, we investigate how the agent's interaction content and style influence the consumer adjustment process over time. Interaction content involves the type of information (either functional or social) exchanged between the agent and the customer, and style refers to whether the agent reacts to a customer's query or proactively initiates the interaction (Ahuja and Galvin 2003). Some scholars argue that by simply conveying functional content by reacting to FAQs, agents foster consumer adjustment (Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007); others show that proactive interaction through both functional and social content leads to more effective adjustment (De Jong and De Ruyter 2004). We examine the interplay between these two elements of the exchange because doing so more closely approximates the dynamics of interpersonal communication behavior. This research contributes to the literature by examining how firms can best align interaction content and style in online agent–customer interactions, particularly among the youth segment.

Second, we extend marketing theory on consumer socialization by introducing the concept of newcomer adjustment and examining how it accounts for the effect of agent–customer interactions on service performance parameters. Drawing from previous research (Bauer et al. 2007; Ward 1974), our approach goes beyond the current conceptualization of socialization, which is limited to the influence of socialization agents (e.g., parents, friends, mass media), and examines how new customers adjust to unfamiliar or complex service contexts by way of their agent-based online interactions. Following Bauer et al. (2007), we use newcomer adjustment as an integral explanatory construct to show the relationship between interaction elements and performance-based outcome measures. Furthermore, using a longitudinal design, we distinguish between distal and proximal variables (Bristol and Mangleburg 2005) to empirically demonstrate the process by which socialization, as a function of online agent–customer interactions, evolves over time.

Third, we assess the impact of newcomer adjustment on financial performance measures. An impediment to the adoption of interactive technologies involves questions about the contribution to bottom-line results. Prior research has yet to examine the impact of online agents on objective measures of firm financial performance. Moreover, Homburg, Wieseke, and Hoyer (2009) argue that firms should not only rely on attitudinal measures when assessing performance but employ objective financial metrics as well. Therefore, it is important to consider the financial consequences and return on investment of such efforts (Srinivasan and Hanssens 2009). Accordingly, we use objective financial data on customers' usage of a specific online socialization agent within the retail banking sector and show how newcomer adjustment can positively influence service usage outcomes.
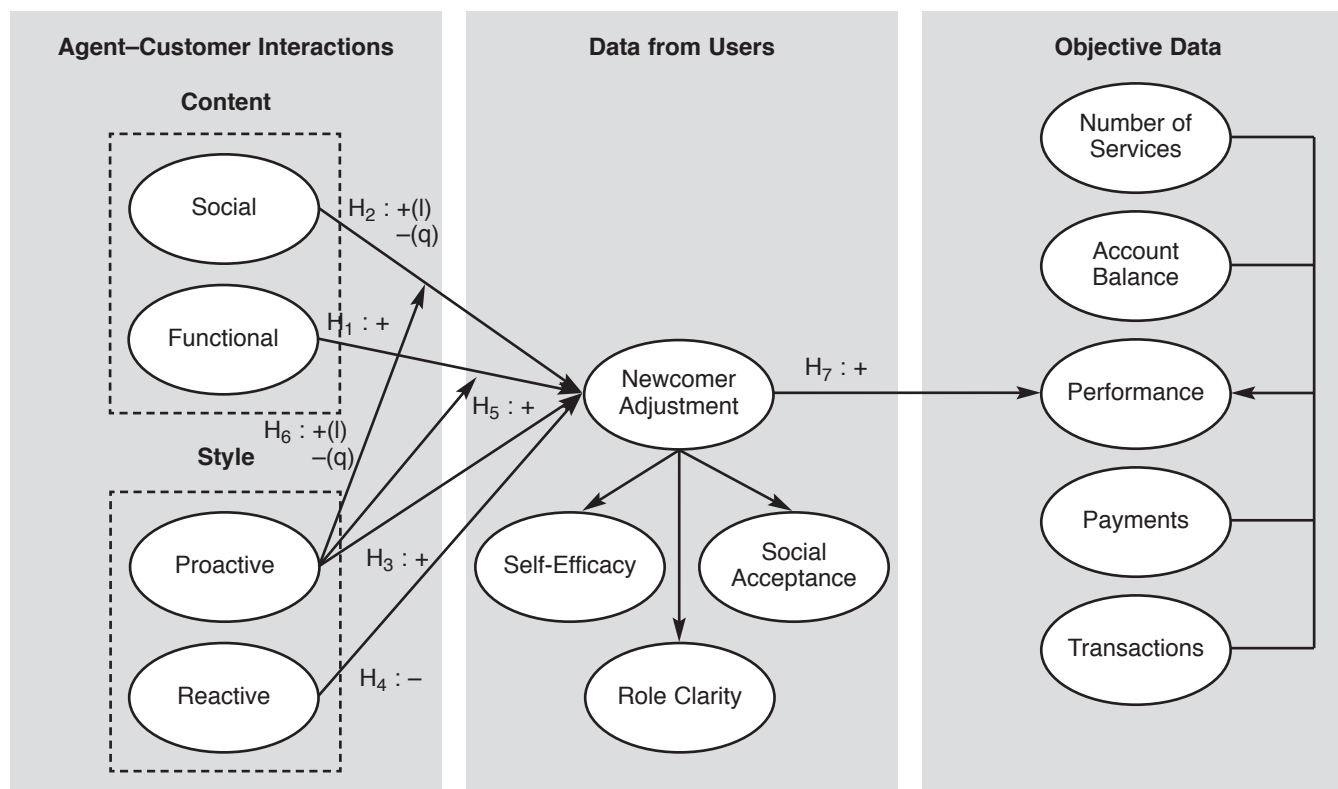
Theoretical Background

Our conceptual framework focuses on the online agent–customer interaction (see Figure 1). In line with research from the organizational socialization (Bauer et al. 2007; Feldman 1981), salesperson–customer interaction (Williams and Spiro 1985), and consumer socialization (Moschis and Churchill 1978) literature streams, the proposed conceptual framework illustrates the process of newcomer adjustment with respect to online agents. In this framework, we hypothesize how specific online agent designs—namely, agent–customer interaction content (social and functional) and interaction style (proactive and reactive)—influence how customers become "adjusted" to new or unfamiliar service settings. In turn, we propose that the degree of socialization in a particular service domain, or newcomer adjustment, influences service usage and firm-based performance as measured through objective measures generated from customer account data.

Online Agents

Companies have long invested in technology with the dual goals of reducing the cost of customer support and improving the quality of the customer experience and firm profitabil-

FIGURE 1
Conceptual Model

Agent–Customer Interactions

Content

- Social
- Functional

Style

- Proactive
- Reactive

$H_2 : +(l)$ $-(q)$
$H_1 : +$
$H_6 : +(l)$ $-(q)$
$H_5 : +$
$H_3 : +$
$H_4 : -$

Data from Users

- Newcomer Adjustment
- Self-Efficacy
- Social Acceptance
- Role Clarity

$H_7 : +$

Objective Data

- Number of Services
- Account Balance
- Performance
- Payments
- Transactions

Notes: For H_2 and H_6, we hypothesize a positive linear (l) and a negative quadratic (q) effect for the curvilinear relationship resulting in an inverted U shape.

ity. These customer experiences may be goal driven (e.g., determining how to apply for a new car loan), but at the same time, they constitute a social experience (Mathwick, Wiertz, and De Ruyter 2008). It is now possible for firms to infuse customer–online agent interactions with social inter-actions and bidirectional, proactive dialogue (VanBoskirk 2009). For example, with the development of the online agent named Sgt. Star (www.goarmy.com/ChatWithStar.do), the U.S. Army seeks to build interest in enlistment among young people. As a result, firms can use these online agents strategically, with the objective of socializing and educating prospective members or customers.

The emerging field of research examining online agents in marketing has shown that basic social cues can influence customer satisfaction, enjoyment, and purchase intention. For example, Holzwarth, Janiszewski, and Neumann (2006) examine both the effect of the presence of online agents on Web sites and the type of online agent (e.g., attractive, expert) on customer satisfaction, attitudes, and purchase intention. Their manipulation of online agent attributes (attractiveness and expertise) is based solely on visual- and text-based cues. Overall, they find that the mere presence of an online agent leads to greater retailer satisfaction, more positive product attitudes, and greater purchase intentions. Furthermore, the study shows that a physically attractive online agent was more effective at moderate levels of prod-uct involvement, and expert online agents were more effec-

tive at higher levels of product involvement. In a similar study, Wang et al. (2007) use social cues, including written text, spoken language, an animated character with a com-puter voice, and a Web site with limited interactivity, to show that social cues lead to increased perceptions of flow, hedonic and utilitarian value, and increased patronage intentions. Both studies draw from social response theory, which suggests that people view online agents as human personas when these virtual agents employ social cues (Reeves and Nass 1996).

However, these studies are limited because they are based on a set of narrow social cues involving discrete, one-time, firm–customer exchanges. As the young, digital native segment of consumers increasingly perceives and uses the Internet as a social medium, there is a need to explain the more advanced process by which online agents can foster meaningful firm–customer interactions and relationships—that is, to explain how these agents can foster increased lev-els of adjustment and "socialization" among new customers through real-time interaction. Especially in service settings characterized by multiple offerings that are relatively unfa-miliar or perceived as more complex, customers may expect or require richer and more involved online interactions. Therefore, we propose that in addition to traditional sociali-zation agents, such as friends and parents (Moschis and Moore 1979), online agents with aptitudes for intelligent memory and more highly developed interaction styles can

serve as effective socialization agents, leading to greater newcomer adjustment. We conceptualize these online agents as computer-mediated personas that possess the capability to involve customers in rich interactive conversations, rather than discrete, basic exchanges, and that have the ability to apply past interaction content to current interactions.

Our point of departure from prior research is that we move from social response theory, in which people respond to computer-mediated personas as if they were actual people, to the theoretical foundation of newcomer adjustment rooted in social learning theory (Bandura 1977; McLeod and O'Keefe 1972). The Internet has created a new learning culture, which is social in nature, that enables consumers to discover, discuss, influence, and learn interactively, rather than passively mimicking behavior. Modern online agents have the ability to mimic human behavior and record a contact history they can refer to by tapping into an artificial memory. Thus, we investigate the process by which online socialization agents can influence a customer's attitudes and behaviors and actively take part in the newcomer adjustment process; we conceptualize newcomer adjustment as the process by which consumers acquire skills, knowledge, and attitudes relevant to their functioning in the marketplace (Ward 1974).

Agent–Customer Interaction

Our study adopts an interaction process perspective to examine virtual employee–customer interactions. The selection of variables was governed by Sheth's (1976) conceptualization of the buyer–seller interaction process, which consists of the main building blocks of interaction content and style, in which he referred to interpersonal interaction as the "essence" of buyer–seller relationships (see also Williams, Spiro, and Fine 1990). Recent theorizing in online services has established that effective service interactions and delivery involve both reactive and proactive elements (Pulakos et al. 2000). Prior research has discussed reactive or adaptive communication styles in a multitude of contexts, such as selling (Spiro and Weitz 1990) and servicing (Hartline and Ferrell 1996). In service delivery, interactional adaptability is a hallmark of customer–employee interactions (Bitner 1990). Moreover, proactive behavior has been identified as a performance success factor, in which a proactive communication style involves taking initiative in the interaction and suggesting alternatives (Bateman and Crant 1999). Specific to service recovery, De Jong and De Ruyter (2004) demonstrate that reactive and proactive communications are differentially related to service performance parameters. These findings lead us to focus on the particular interaction elements of functional and social content and reactive and proactive communication style as antecedents to newcomer adjustment.

Newcomer Adjustment

In the organizational behavior literature, the concept of newcomer adjustment has generally been defined as the process consisting of task and social transitions by which new employees gain knowledge and learn behavioral patterns expected of them as members of the organization (see

Bauer et al. 2007; Jokisaari and Nurmi 2009). Although some scholars have adopted such a single global conceptualization (e.g., Ostroff and Kozlowski 1992), the general consensus in the literature is that composite conceptualizations of newcomer adjustment, reflecting specific aspects of adaptation, provide a more comprehensive picture (e.g., Bauer et al. 2007). In this respect, previous research has identified three distinct elements of newcomer adjustment: (1) coping with the demands of the new role, (2) mastering and gaining confidence in carrying out the tasks associated with the new role, and (3) fitting in with the environment and feeling liked and accepted by peers (Feldman 1981).

Prior research has justified the relationship between the global definition of newcomer adjustment and its underlying elements, which essentially reflect context, content, and social environment (Jones 1986), as follows: First, in accordance with advances in role theory, scholars of organizational socialization have identified "role clarity" as an underlying dimension of newcomer adjustment because many performance parameters depend on the extent to which new organizational members know what is expected of them in their work roles. Research in social cognitive theory shows that newcomer adjustment is dependent less on the actual demonstration of appropriate attitudes and behavior and more on the belief that the person can meet the requirements of the role (Parker 1998). Thus, "self-efficacy" has been identified as the second defining aspect. Because newcomer adjustment also involves social transition, it is important that workers feel acknowledged, appreciated, and liked by their peers; this helps them adjust to collective norms and values (Van Maanen 1978). Thus, "social acceptance" is the third defining characteristic. Bauer et al.'s (2007) meta-analytic review empirically confirms that newcomer adjustment consists of these three key indicators.

Accordingly, we propose that customer role adaptation is similar to the process organizational members experience, and we define newcomer adjustment as the degree to which new or current customers (1) learn what roles and expectations are involved as a customer of a specific service provider (e.g., the need to bring valid identification to open up a new bank account), (2) gain confidence in mastering required skills and abilities (e.g., knowing how to manage a personal bank account), and (3) feel accepted and appreciated by other members in the service organization through company actions that take customer needs and concerns seriously (see Feldman 1981). Relative to customers working through both task and social transitions (Fisher 1987), this conceptualization ties back to previous research on consumer socialization related to how people acquaint themselves with the skills needed to function in the marketplace and become proficient consumers (Moschis and Moore 1979; Ward 1974).

Hypotheses

We propose that online socialization agents influence the newcomer adjustment process, and therefore we illustrate the relevant dimensions of online agents and how these elements influence the process of newcomer adjustment. Because the online socialization agents in this study have a

virtual presence, we are limited to dyadic interpersonal communication as the driver of newcomer adjustment. Prior research examining interpersonal communications has viewed dyadic interaction as comprising two dimensions—namely, content and style (Solomon et al. 1985). Thus, the question arises as to how interaction content and style influence the newcomer adjustment process.

Interaction Content

Moschis (1985) classifies two main elements of communication content in the newcomer adjustment process: socio-oriented and concept-oriented. Socio-oriented content refers to information that is conveyed on a social level in an interaction, and concept-oriented content is conveyed as functional or task-specific information. Similarly, Comer (1991) argues that information in an exchange can be broadly characterized as either technical (related to the skills and knowledge needed to execute tasks competently) or social (related to the knowledge of the expectations and norms of the group member). This conceptualization is similar to evidence from research examining sales encounters (Williams and Spiro 1985; Williams, Spiro, and Fine 1990) and online group chats (Mathwick, Wiertz, and De Ruyter 2008; Van Dolen, Dabholkar, and De Ruyter 2007) and serves to illustrate that agent–customer interactions consist of both social and functional content. These two content-based dimensions are also referred to as socialization tactics within organizational research (Ashforth, Sluss, and Harrison 2007; Bauer et al. 2007; Saks, Uggerslev, and Fassina 2007) and have been linked to increased levels of newcomer adjustment.

Functional content is defined as task-specific information that is helpful for increasing customer performance and efficiency related to service usage. Prior research has shown that functional content (particularly, technical information) in agent–customer interactions increases newcomer adjustment (Ashforth, Sluss, and Saks 2007). Research on sales interactions (Williams and Spiro 1985; Williams, Spiro, and Fine 1990) and online chats (Mathwick, Wiertz, and De Ruyter 2008; Van Dolen, Dabholkar, and De Ruyter 2007) shows that communicating functional information enhances both salesperson–customer interaction and customer satisfaction. A higher degree of functional content should help customers better understand and evaluate service offerings and learn how to function more effectively in the organization. Therefore, a higher level of functional content should enhance the customer's knowledge about how to perform complex service tasks (self-efficacy), how the company works (social acceptance), and what is expected of him or her (role clarity), thus fostering greater newcomer adjustment. Thus, we propose the following:

H$_1$: Functional content delivered by an online agent has a positive impact on newcomer adjustment.

Moreover, agent–customer dialogues focusing predominantly on social content can foster a stronger social bond between the customer and the agent. Although social content may not directly pertain to the firm's service offerings, and thus does not increase task-specific knowledge, research has shown that it is instrumental in fostering new-

comer adjustment by helping people learn organizational norms and values and by creating a feeling of organizational acceptance (Ashforth, Sluss, and Harrison 2007; Bauer et al. 2007; Saks, Uggerslev, and Fassina 2007) and increasing commitment (Sweeney and Webb 2007). The integration of social content in an interaction may help customers feel at ease with and accepted by the company and its representatives. Research on online agents (Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007) suggests that sociability and social cues positively affect the perceptions of online agents, which in turn should foster a more positive firm–customer relationship and lead to increased levels of newcomer adjustment.

However, this direct positive relationship between social content and newcomer adjustment may not be as straightforward as it seems. Literature in social exchange theory reveals that a social relationship created within the context of an economic transaction (e.g., a bank's online agent and a customer) creates a potential mismatch in the exchange that may not be congruent with the customer's objectives (Cropanzano and Mitchell 2005). Consider a situation in which a relationship is primarily social but involves financial risk. On the one hand, a social relationship induced through social content may lead to higher levels of customer trust and a more engaging firm–customer relationship. On the other hand, an interaction based on higher levels of social rather than functional content may also lead to less-than-optimal customer decision making and misunderstanding or conflict between the customer and the organization. This is particularly evident in financial transactions when the parties in the relationship have opposite goals driven by economics, not social standing. In addition, higher levels of social content may lead the customer to perceive the online socialization agent as a "friend" but may also foster a feeling of social closeness to the agent that can induce higher levels of self-disclosure (Cozby 1973). This feeling may result in the customer disclosing information on a personal level, but it may not help facilitate the newcomer adjustment process with respect to the customer learning about and evaluating the specific service environment and its offerings. Instead, it focuses the interaction on elements unrelated to the service and the organization.

Therefore, we suggest that social exchange leads to positive outcomes, but only up to a certain point. This type of relationship might not be linear, as is most common, but rather curvilinear (see Singh 1998). We propose that within limits, social content (and overall agent sociability) leads to higher levels of newcomer adjustment because it creates a more positive relationship, helps newcomers learn company norms and values, and leads to a feeling of organizational acceptance. At the same time, we propose that there are limits to the effectiveness of social content in agent–customer interactions, particularly in highly involved service settings characterized by financial risk. Given that our research examines a complex service environment characterized by economic transactions (banking services), higher degrees of social interaction relative to functional content can be detrimental and lead to lower levels of newcomer adjustment. However, to a certain extent, the inclusion of social content in the interaction should help foster a closer customer–firm

relationship by increasing perceived levels of acceptance by the organization, which in turn leads to higher levels of newcomer adjustment. Accordingly, we propose the following:

> H_2: Social content delivered by an online agent has an inverted U-shaped relationship to newcomer adjustment.

Interaction Style

Ashforth, Sluss, and Saks (2007) argue that "proactive" behavior on the part of new employees can enhance the newcomer adjustment process. Specifically, proactive behavior can assist new employees in searching for relevant information and in forming peer networks in the company. Prior research has also shown that proactive behavior is directly associated with increased newcomer adjustment, most likely because these people are actively engaged in knowledge acquisition and task mastery (Ashforth, Sluss, and Saks 2007; Bauer et al. 2007). Furthermore, service employee proactive behavior contributes to a higher rate of service usage (De Jong and De Ruyter 2004), and the effects of proactive behavior are beneficial to service recovery (Worsfold, Worsfold, and Bradley 2007). Therefore, we argue that this is analogous to the situation in which an online socialization agent exhibits higher levels of proactive behavior in the agent–customer dialogue, based on intelligent memory, versus merely reacting to questions. Consequently, we propose the following:

> H_3: A higher degree of proactivity in the interaction leads to a greater amount of newcomer adjustment.

In contrast, research argues that a more "reactive" interaction style leads to less newcomer adjustment because newcomers do not actively engage in searching for relevant information but rather wait until they receive it (Crant 2000; Morrison 1993). In the marketing literature, Challagalla, Venkatesh, and Kohli (2009) suggest that reactive behavior related to employee–customer interactions is associated with negative customer sentiment and reduces the customer's cognitive load, in effect hampering the customer's ability to adjust to new or unfamiliar settings. They argue that reactive interactions come later in the service or product usage process, and thus reactive interactions on behalf of the firm and the customer may diminish or delay the value or utility obtained from product and service use and may result in greater risk for incorrect usage. In addition, virtual agents that exhibit a reactive style may be less convincing as a conversation partner (Isbister et al. 2000). Therefore, a higher degree of reactivity in the agent–customer interaction can lead to lower levels of adjustment.

> H_4: A higher degree of reactivity in the interaction leads to a lesser amount of newcomer adjustment.

Moreover, interaction style and content should not be evaluated in isolation but rather with respect to how they interact with each other. Research has shown that newcomers to an organization can significantly reduce uncertainty and gain more knowledge when they actively pursue relevant functional information (Ashforth, Sluss, and Harrison 2007; Bauer et al. 2007; Saks, Uggerslev, and Fassina 2007). The proactive delivery of specific functional content

can increase the total amount of information exchange in dyadic communication. This implies, independent of the main effect of proactive interaction, that the proactive "pushing" of certain functional content by the online socialization agent can positively affect newcomer adjustment by highlighting important topics (e.g., recommending getting a credit card at the start of the summer holiday seasons). In other words, the online socialization agent's proactive interaction style can increase the benefit of functional content because the agent proactively offers relevant information, based on current or past dialogues, that is useful to the customer (Saks and Ashforth 1997). Peppers and Rogers (1997) note that the right information to the right person in the right place at the right time can lead to greater customer value. Therefore, we propose the following moderating effect:

> H_5: A higher degree of proactivity in the interaction strengthens the effect of functional content on newcomer adjustment.

We also propose that social content can have a greater impact on newcomer adjustment when it is proactively communicated to the customer. This seems logical because people may not know how to approach the agent. The agent's ability to convey social content proactively may serve to "break the ice" and enable a more friendly conversational tone. Still, we also hypothesize that high levels of social content may actually harm the newcomer adjustment process because the agent–customer interaction deviates or strays from one related to the specific service offering to one based solely on social content. Therefore, as we posited in H_2, we expect an inverted U-shaped relationship between social content and newcomer adjustment. The effect of proactive interaction should amplify the effect of social content on newcomer adjustment (i.e., at lower levels of social content, consumers will begin to experience higher levels of newcomer adjustment when proactivity is high than when it is low). However, after an optimal level of social content has been reached, continued interaction based solely on social content should lead to adverse effects and decreased levels of newcomer adjustment when proactivity is high rather than low. Thus, we hypothesize the following:

> H_6: A higher degree of proactivity in the interaction strengthens the inverted U-shaped effect of social content on newcomer adjustment. For low levels of social content, a proactive interaction style leads to an increased level of newcomer adjustment, whereas for high levels of social content, a proactive interaction style leads to a decreased level of newcomer adjustment.

Performance

Increased levels of newcomer adjustment among employees are associated with outcomes such as increased employee performance (Bauer and Green 1994). Furthermore, Bauer et al. (2007) find that employees who understand their roles in the organization believe they can perform well on required tasks and that those who feel socially accepted tend to perform at higher levels. Singh (1998) notes that increased role clarity, an element of newcomer adjustment, positively influences employee job performance. We propose that the same relationship should hold for current or

prospective customers in the service environment. Ramani and Kumar (2008) argue that while marketing managers are increasingly focusing on the profitability of firm–customer interactions down to the level of individual customers, customers are expecting firms to further customize their products and services. Ramani and Kumar focus on the concept of interaction orientation, which reflects the firm's ability to interact with individual customers and to take advantage of information obtained through successive firm–customer interactions to generate profitable relationships.

Moreover, customers who understand how to use the provider's service offerings, who perceive greater levels of acceptance, and who know what is expected of them are more likely to reach higher levels of account performance. Specific to the online setting, Holzwarth, Janiszewski, and Neumann (2006) show that using an online sales agent leads to greater satisfaction with the retailer, a more positive attitude toward the product, and greater purchase intention, and Wang et al. (2007) show the positive effect of socialness on hedonic and functional value and retail purchase intention. Therefore, on the basis of their interactions with online socialization agents associated with service providers, we expect customers to reflect better performance measures. Thus, we hypothesize the following:

H$_7$: Higher levels of newcomer adjustment increase customers' account performance.

Empirical Research

Method

Research setting. The setting of this research was a large European retail bank with offices worldwide and a yearly net income of more than US$3 billion. Financial institutions represent a complex service industry, and often bank customers are reluctant to use financial services because of their complexity (Devlin 2001). In addition, financial institutions are increasingly transferring services online to save costs, and therefore service complexity tends to increase (Sarel and Marmorstein 2003). The challenge for banks is determining how to manage customer relationships online more effectively. Additional research suggests that as consumers in their teens and early twenties become interested in saving for expensive items, such as cars and college tuition (Graeber and Dolan 2007), it becomes imperative for financial providers to begin to form relationships with this age group. To manage these online relationships and introduce newcomers to its service offerings, the bank we studied developed an online agent that targets 15- to 22-year-olds.

Measurement development. We conducted a prestudy to confirm the validity of the newcomer adjustment measure. Because the model in the organizational literature is second order in nature (Bauer et al. 2007), we operationalize newcomer adjustment as a second-order construct with the previously mentioned reflective first-order constructs. The first-order construct items are based on an extensive literature review and employ multiple-item, Likert-type scales. On the basis of existing literature, we created a pool of 12 ques-

tions to measure the first-order constructs of self-efficacy (Webster and Martocchio 1992), role clarity (Rizzo, House, and Lirtzman 1970), and social acceptance (Fey 1955). Next, we conducted a quantitative pretest to verify the validity of the measurements. With a sample of 150 participants, we conducted a confirmatory factor analysis to assess the second-order structure using EQS 6.1 (Bentler 2006). Rindskopf and Rose (1988) suggest comparing the chi-square of a one-factor model, in which all items load on one factor, with the second-order model. Our analysis revealed a chi-square of 423.53 (d.f. = 54) for the one-factor model and a chi-square of 145.92 (d.f. = 51) for the second-order model, resulting in a significant improvement in the second-order model over the one-factor solution ($\Delta\chi^2 = 277.61$, d.f. = 3, $p < .001$).

Data collection. We conducted the data collection, which involved three stages, in 2008. First, together with the bank and a third-party company responsible for developing and maintaining the online agent, we developed and administered a questionnaire for collecting self-reported newcomer adjustment scores as well as several control and background variables. The questionnaire was administered in Dutch to ensure that participants understood the questions. All items used in the study were translated into English and then back-translated into Dutch (see Table 1).

In addition to the items related to the study constructs, the questionnaire asked participants their average time in visiting the bank's Web site (per week), their overall Internet and online banking experience, perceived ease of use and perceived usefulness related to the bank's Web site, and demographic information (e.g., age, gender, education). The questionnaire was subsequently sent to 3325 people from an online panel, with a lottery incentive worth the equivalent of US$200. To ensure that respondents had at least some experience with the online agent, only customers who had used the online agent for at least four weeks were asked to participate (this was requested in the questionnaire and later validated with database records). The entire data collection process took four weeks to complete. In total, 563 people completed the questionnaire.

After the questionnaires were collected, the third-party company responsible for developing and managing the agent matched the respondents (with the respondents' permission) to their online IDs used for chatting with the virtual agent; 2% of respondents denied this request. During the matching process, we were not able to identify all the participants in our data set because of missing identifiers. However, we were able to match 342 questionnaire participants to the virtual agent conversation database.

In the second stage, we matched respondents with a database of all conversations between the virtual agent and the customer. This stage involved the collection and classification of all interactions between the online agent and bank customers. We included only the agent–customer interactions that occurred two months before the questionnaire data collection. Each interaction between the online agent and a customer was initiated by either the agent (proactive style) or the customer (reactive style), and we indicated this in the data set accordingly. In addition, each interaction was

TABLE 1
Measures and Items

Construct	SL	CR	AVE	Items
Social Acceptance		.96	.84	
Fey (1955)	.91			I understand the way in which BANK works.
	.93			I feel accepted as a customer of BANK.
	.91			I understand the norms and values that are important to BANK.
	.93			I get along with the employees of BANK.
Role Clarity		.95	.84	
Rizzo, House, and Lirtzman (1970)	.93			I know what I need to do as a customer for using BANK services.
	.89			I know what my responsibilities are when I am using BANK for my banking.
	.92			It is clear to me what I am obliged to do when using BANK.
	.92			I know what my role is as a customer of BANK when using its banking services.
Self-Efficacy		.95	.84	
Webster and Martocchio (1992)	.92			I believe that using BANK for my banking is a task that I can perform better.
	.92			I can master using BANK for my banking needs.
	.91			I believe I can use BANK for my banking as well as I would like.
	.91			I am certain I can use BANK for my banking needs well.
Newcomer Adjustment	.90	.93	.82	Social acceptance (first-order construct)
(second-order construct)	.91			Role clarity (first-order construct)
	.91			Self-efficacy (first-order construct)
Performance[a]	.46	N.A.	N.A.	Credit account balance
(formative construct)	.45			Number of payments
	.30			Number of transactions
	.53			Number of services used

[a]SL for performance represent weights. All variance inflation factors < 5.

Notes: SL = standardized loadings, CR = composite reliability, and AVE = average variance extracted. Items are measured on a seven-point scale, where 1 = "totally disagree" and 7 = "totally agree," unless indicated otherwise. N.A. = not applicable.

categorized as either social or functional in content. The third-party company undertook the process of coding the agent–customer interactions (social, functional, reactive, or proactive).

The interaction content was classified as functional when the conversation thread between the agent and the customer was about the underlying services (e.g., how to take out a loan, the credit card application process). When the thread was not related to the bank's products or services but rather to personal happenings or events, the agent–customer interaction content was classified as social (e.g., when the agent talked about a recent sporting event). An interaction was coded as reactive behavior when the agent simply reacted to a customer inquiry. Finally, an interaction was coded as proactive if the agent initiated its own thread, with content ranging from the functional (e.g., financial products) to the social (a recent music concert). Similar to a salesperson, the agent has its own preprogrammed intelligence and can react to a question or initiate its own conversation thread.

For security and privacy reasons, we aggregated the conversations, leaving only the total number of social, functional, proactive, and reactive statements each respondent had during interaction with the online agent. Overall, approximately 8000 conversations were recorded across the 342 respondents during the two-month period. Of these, we classified 44.3% as proactive (55.7% reactive) and 51.2% as functional (48.8% social). On average, respondents indicated approximately 12 interactions with the online agent each month.

To validate the classification approach, three independent judges (customer-contact managers participating in an executive MBA class) coded a sample of 250 different conversations expressed by the agent. The average interrater reliability (Cohen's κ) was .84. The resulting classification provided a coding of statements as either functional or social and either proactive or reactive. The variation within the independent variables reflects the amount of social and functional conversation threads the agent had with the customer as well as the communication style (either reactive or proactive).

We designed the algorithm that determined how the agent conversed proactively with clients on the basis of (1) contact history, (2) context-specific information, and (3) random trials. We based contact history on previous conversations that were entered into the database and used it for initiating a new conversation thread. For example, in a previous conversation, the customer might have mentioned that

he or she was searching for a side job to purchase a second-hand car. The agent would have used this comment as a cue to proactively begin a new conversation when the customer was online again. The agent would use context-specific information to cross-sell the bank's financial products. For example, a client might have mentioned his or her vacation plans in one interaction, and the agent would use this thread in a subsequent interaction to inquire about the client's interest in a credit card that could be used during the vacation. Random trials were proactive conversations the agent would randomly begin to initiate a thread. For example, the agent would initiate a discussion thread by talking about a new product offering in which the client might be interested.

We based the scripts that defined how the agent interacted on a large database of possible conversation threads. This constituted a self-learning process in which new questions the agent could not answer were saved and subsequently answered by employees of the third-party developer to be fed back into the virtual agent database. Therefore, the next time the customer would ask the same or similar question, the agent would be able to provide a more direct answer to the query.

The third and final stage in the data collection was to locate current respondents within the bank's system and match them to a database of customer-specific bank performance measures. To accomplish this, the data were submitted with an identifier to the bank that matched it to the identifier in the bank system. Because not every account holder was also the person who had opened the account and because bank customers might have switched e-mail accounts, we were not able to match 81 customers, which left 261 customers with direct matches in the final sample. The final sample used in our study included 56.7% men, and the age range was between 15 and 22 years, with more than 85% of the participants 19 years of age or younger. Of the participants, 80% had a high school degree or less, which is in line with the age distribution (the average age for completion of high school is 18 in the Netherlands). Moreover, 67.7% of participants indicated that they spent more than ten hours per week on the Internet.

Customer account data included the number of transactions, payments, and credit account level and the number of services actively in use with the bank. We used these data as performance indicators. Although credit account level can be reflective of financial background, it is also an indicator of the extent to which the customer uses bank instruments for purchasing. Furthermore, because it is common for the youth segment to have multiple bank credit accounts across multiple banks to extend overdraft protection (see myfinances.co.uk 2010), the interaction quality between the customer and the online agent may in part influence how much the customer uses the bank's credit instruments, forgoing other savings or checking service alternatives.

Finally, to analyze the dynamic nature of our focal construct newcomer adjustment, we employed a longitudinal design, in which we sent three waves (each wave consisted of a period of two months) of the initial study questionnaire to the same respondents who took part in the main study. In addition to newcomer adjustment, we collected perceptions of interaction content and interaction style using semantic differential scales.

Analyses and Results

Partial least squares path modeling. We employed a partial least squares (PLS) approach (SmartPLS; Ringle, Wende, and Will 2005) to path modeling to estimate the measurement and structural parameters in our structural equation model. Unlike the covariance-based approach to structural equation modeling (e.g., EQS or LISREL), PLS path modeling is component based and does not require multivariate normal data. It places minimal requirements on the measurement level of the manifest variables and is more suitable for small samples than the covariance-based approach (Chin 1998; Hulland 1999; Tenenhaus et al. 2005). In addition, PLS path modeling is more appropriate for models that contain complex relationships, a large number of manifest variables (>25), and reflective second-order constructs (Chin 1998; Wetzels, Odekerken-Schroeder, and Van Oppen 2009). Finally, PLS path modeling allows latent constructs to be measured formatively, which is necessary for a construct in our model.

Measurement validation. We used both reflective and formative indicators (Mode A and Mode B; Chin 1998) for our constructs (see Table 1). We evaluated reliability by means of composite scale reliability (CR; Chin 1998; Fornell and Larcker 1981) and average variance extracted (AVE; Chin 1998; Fornell and Larcker 1981). For all measures, the CR was well above the cutoff value of .70, and the AVE exceeded the cutoff value of .50 (Fornell and Larcker 1981). In addition, we evaluated convergent validity by inspecting the standardized loadings of the measures on their respective constructs (Chin 1998); we found that all measures exhibited standardized loadings exceeding .70 (Hulland 1999). Furthermore, we measured newcomer adjustment as a second-order construct that contained three dimensions (i.e., self-efficacy, role clarity, and social acceptance). The PLS path modeling allows for the conceptualization of higher-order factors through its repeated use of manifest variables (Wetzels, Odekerken-Schroeder, and Van Oppen 2009). We also report the loadings of the first-order constructs on the second-order socialization construct in Table 1. The CR and AVE calculated on the basis of these loadings still fulfill the necessary requirements with respect to the cutoff values.

Next, we assessed the discriminant validity of the measures. Because a construct should share more variance with its measures than with other model constructs (Chin 1998), the square root of the AVE should exceed the intercorrelations of the construct with the other model constructs (Fornell and Larcker 1981). In our study, none of the intercorrelations of the constructs exceeded the square root of the AVE of the constructs (see Table 2). We also inspected the Theta matrix (Θ) and confirmed that no item cross-loads higher on another construct than on its associated constructs (Chin 1998); in addition, the correlations of the residual terms across blocks do not exceed $|.2|$ (Falk and Miller 1992). Consequently, we concluded that all constructs exhibit satisfactory discriminant validity. To control for

TABLE 2
Discriminant Validity

Construct	1	2	3	4	5	6	7	8	9	10	11
1. Age	N.A.										
2. Functional	−.01	N.A.									
3. Newcomer adjustment	.00	.31	.91								
4. Performance	.27	.13	.39	N.A.							
5. Proactive × functional	−.04	−.15	.30	.08	N.A.						
6. Proactive × social	.03	.02	.31	.18	.20	N.A.					
7. Proactive × social^2	−.03	−.09	−.40	−.22	−.11	−.02	N.A.				
8. Proactive	−.02	−.02	−.18	−.23	−.04	−.04	.57	N.A.			
9. Reactive	−.03	.11	−.22	−.16	−.09	−.02	.07	.06	N.A.		
10. Social^2	.00	.02	−.40	−.17	−.10	−.22	.00	−.01	.03	N.A.	
11. Social	.00	.01	.41	.17	.02	−.01	−.24	−.12	−.02	.05	N.A.

Notes: Square root of the AVE is on the diagonal. N.A. = not applicable.

additional variables, we examined respondents' Internet experience, online banking experience, perceived ease of use and perceived usefulness (both related to the bank Web site), average time spent per week visiting the bank's Web site, and age. None of these control variables displayed a significant influence on the relationships in our model. One interpretation for this is that the youth segment forms a relatively homogeneous group—that is, as a whole, this generation has grown up active on the Internet. In assessing nonresponse bias, we compared the actual agent–customer interactions and performance data of nonrespondents with that of the respondents and found no differences in interaction content and style and performance measures.

Hypothesis testing. Because the exogenous variables do not have multiple items but are indicators of frequency (number of social, functional, proactive, or reactive statements and interactions), we calculated the interaction terms by multiplying the standardized variables scores. We constructed the squared terms in a similar way. To test our model and the hypothesized relationships for their statistical significance, we used a (nonparametric) bootstrapping procedure with 500 resamples (Chin 1998; Ringle, Wende, and Will 2005). As Chin, Marcolin, and Newsted (2003) suggest, we employed a hierarchical approach to test our hypotheses in which we first estimated a model with the main effects (and covariates) only and then added the interaction effects. We tested whether the model without interactions and the model with interactions were significantly different from each other in terms of explained variance (Chin, Marcolin, and Newsted 2003). Using an incremental F-test, we confirmed that the interaction effects added explanatory power to the final model ($F(5, 251) = 50.69$, $p < .001$). We take the estimates reported next from the final model that includes the interaction effects. We employed age as a covariate and found that it did not significantly change the model, though it did control for some of the variance. Therefore, we do not report it here.

The results illustrate that several of our hypotheses are confirmed. The results reveal a strong positive, significant effect of functional content ($\beta_{Functional} = .35$, $p < .001$) on newcomer adjustment, in support of H$_1$. Social content exhibits an inverted U-shaped relationship to newcomer adjustment ($\beta_{Social} = .35$, $p < .001$; $\beta_{Social}^2 = -.36$, $p < .001$).

Thus, we can confirm H$_2$. We found no support for H$_3$, which predicted a positive relationship between proactive interaction style and newcomer adjustment, because it was not significant. However, reactive interaction style was significant and negatively influenced newcomer adjustment ($\beta_{Reactive} = -.17$, $p < .01$). Thus, we found support for H$_4$.

Although we found no support for the main effect of proactive interaction style, we found a significant result for proactive style moderating the relationship between functional content and newcomer adjustment ($\beta_{Functional \times Proactive} = .23$, $p < .001$). Thus, we confirm support for H$_5$. Furthermore, we found evidence that proactive interaction style moderates the curvilinear relationship between social content and newcomer adjustment ($\beta_{Social \times Proactive} = .17$, $p < .001$; $\beta_{Proactive \times Social}^2 = -.28$, $p < .01$), in support of H$_6$.

Finally, we found a significant, positive influence of newcomer adjustment on objective account performance ($\beta_{Newcomer} = .39$, $p < .001$), which we estimated through a formative indicator model consisting of four customer matrix variables. This yields support for H$_7$. Table 3 provides an overview of all the results.

We tested for mediation (Iacobucci, Saldanha, and Deng 2007; Shrout and Bolger 2002) and found that newcomer adjustment significantly mediates all relationships. That is, newcomer adjustment fully and significantly mediates the effects of functional content ($z = 3.05$, $p = .0012$), social content ($z = 7.46$, $p < .001$), the quadratic term of social content ($z = 6.49$, $p < .001$), reactive style ($z = 4.75$, $p < .001$), the interaction between proactive style and functional content ($z = 4.89$, $p < .001$), the interaction between proactive style and social content ($z = 3.77$, $p < .001$), and the interaction between proactive style and the quadratic term of social content ($z = 5.83$, $p < .001$) on performance. We did not test for mediation of the main effect of proactive style because it was not significant (Iacobucci, Saldanha, and Deng 2007). An F-test confirms that the increase in the variance explained in the dependent variable performance was not significant when we included the direct effects ($F(8, 242) = 1.62$, $p = .20$).

Longitudinal analysis. In addition to the presented data and analysis, we collected data for further analysis. We obtained data from 202 respondents (due to panel attrition) over three additional periods (in which one period equaled

TABLE 3
Hypotheses Testing

Hypothesis	Relationship[a]	Direction	Standardized Coefficient (β)	Result
H_1	FUNC $\rightarrow$ NEWCOMER	Positive	.35*	Supported
H_2	SOC $\rightarrow$ NEWCOMER	Positive	.35*	Supported
	$SOC^2 \rightarrow$ NEWCOMER	Negative	$-.36$*	Supported
H_3	PRO $\rightarrow$ NEWCOMER	Positive	n.s.	Not supported
H_4	REA $\rightarrow$ NEWCOMER	Negative	$-.17$*	Supported
H_5	PRO $\times$ FUNC $\rightarrow$ NEWCOMER	Positive	.23*	Supported
H_6	PRO $\times$ SOC $\rightarrow$ NEWCOMER	Positive	.17*	Supported
	PRO $\times$ $SOC^2 \rightarrow$ NEWCOMER	Negative	$-.28$*	Supported
H_7	NEWCOMER $\rightarrow$ PERF	Positive	.39*	Supported

Fit Measures	Endogenous Construct	Model		
R^2	NEWCOMER	.67		
	PERF	.22		

*$p < .01$.
[a]FUNC = functional content, SOC = social content, NEWCOMER = newcomer adjustment, PRO = proactive style, REA = reactive style, SOC^2 = social content squared, and PERF = performance.
Notes: n.s. = not significant.

two months). Using a four-wave longitudinal research design, which employed multivariate second-order latent growth curve modeling (LGCM), we modeled the change in the level of newcomer adjustment over time (Bollen and Curran 2006; Preacher et al. 2008) and used the change in perceived interaction content and style as predictors. We specified a second-order LGCM in which we modeled newcomer adjustment as a higher-order (i.e., second-order) latent variable (Hancock, Kuo, and Lawrence 2001). We allowed the error variance of the same manifest variables to be correlated over time. We estimated the parameters in the LGCM model using maximum likelihood estimation in EQS 6.1 (Bentler 2006). Because we were interested in whether newcomer adjustment increased over time, we investigated whether the mean of the slope factor was positive and significant. Moreover, multivariate LGCM enables us to relate the slope factors of perceived interaction content and style to newcomer adjustment.

A meaningful interpretation of growth trajectories requires the assumption of measurement invariance over time, homoskedastic error variances for the manifest variables over time, and scalar invariance of the manifest variables over time (Bollen and Curran 2006; Lance, Vandenberg, and Self 2000). The results suggest that using a series of nested models with the appropriate restrictions shows that the assumptions are tenable according to the chi-square difference test, as well as ΔTLI and ΔCFI (changes in Tucker–Lewis index and change in comparative fit index, respectively). To investigate the form of growth trajectories related to interaction style, content, and newcomer adjustment, we estimated linear and nonlinear models. Using the free-loading LGCM approach (Bollen and Curran 2006), we relaxed the restrictions on the slope factors and compared the restricted model using a chi-square difference test test. The results suggest that a linear model shows a better fit to the data than a nonlinear model.

The multivariate LGCM showed a good fit to the data ($\chi^2 = 2037.63$, d.f. = 1550, $p < .001$; Tucker–Lewis index =

.98; comparative fit index = .98; root mean square error of approximation = .027; and standardized root mean square residual = .07). The growth factor explained a substantial proportion of variance in newcomer adjustment (R^2 = .65–.74). The estimated slope parameter for newcomer adjustment equals .43 (t = 5.96), indicating that newcomer adjustment increases over time. Furthermore, we found that the slope parameters for newcomer adjustment and perceived interaction content were positively correlated (r = .51, t = 5.61). However, the slope parameters for newcomer adjustment and perceived interaction style were not significantly correlated (r = .03, t = .33).

Conclusion

This study investigates the effects of innovative approaches to building firm–customer relationships through online agent–customer interactions. We developed and tested a framework that examines online agent interaction design (communication content and style), its effect on newcomer adjustment, and the effect of the adjustment process on objective company outcomes. This enabled us to gain a deeper understanding of the new customer adjustment process through the use of online socialization agents. We offer empirical support for a broadened view of the customer socialization process that can help companies better understand how they can attract new customers and maintain current customer relationships over time.

We showed that functional content has a strong significant impact on newcomer adjustment. This finding extends research on salespeople and customer relationships (Williams and Spiro 1985; Williams, Spiro, and Fine 1990) and research on online group chats (Mathwick, Wiertz, and De Ruyter 2008; Van Dolen, Dabholkar, and De Ruyter 2007). It suggests that the delivery of functional content is critical for newcomer adjustment and that online agents should be designed to provide current or prospective customers with relevant and functional content about the ser-

vice; in turn, this should help customers develop greater perceptions of self-efficacy, help them feel more accepted by the organization, and enhance their ability to use the firm's services.

We also showed that social content has a positive impact on newcomer adjustment, in line with pervious research (Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007). However, this held true only to a certain extent. We found that interactions largely dominated by social content actually decreased newcomer adjustment. It seems that a mismatch in social versus functional content creates a situation in which bank customers become dissatisfied with the lack of substance in the interaction. Although social content is important when entering into a "friendly" relationship with the online agent (as a proxy for dealing with the actual firm), firms should design online agent interactions so that the focus evolves from social to functional to convey information relevant for subsequent business exchanges. This is in line with research on self-disclosure (e.g., Cozby 1973), in which the agent self-discloses social information and thus the customer feels the need to "return the gesture." Although social interaction may motivate the customer to disclose more about his or her private and social life, by itself it does not help facilitate newcomer adjustment.

Moreover, as organizational research showing the positive effects of proactive behavior on newcomer adjustment suggests (Ashforth, Sluss, and Saks 2007; Bauer et al. 2007), the effect of functional and social content on newcomer adjustment was enhanced through the use of a more proactive agent interaction style. It is important to note that in contrast with a reactive interaction style, which had a lower impact on newcomer adjustment, a proactive interaction style in and of itself had a positive moderating impact on newcomer adjustment. This shows that online agents should not function merely as standard FAQ interfaces reacting only to questions; rather, they should be designed also to proactively initiate and maintain customer interactions. Proactive interactions (e.g., when the agent initiated a conversation) positively influenced newcomer adjustment when combined with the appropriate content (social or functional). Furthermore, as previous research on newcomer adjustment suggests (e.g., Bauer et al. 2007), the impact of newcomer adjustment on firm performance was, as we expected, positive and significant. This leads us to conclude that as a result of both online socialization agent–customer interactions and the socialization process fostering newcomer adjustment, more informed and knowledgeable customers will exhibit favorable firm-level behavior, such as a higher degree of account activity.

In the longitudinal analysis, we ran an LGCM on longitudinal data using a third-order approach in which we treated newcomer adjustment as a second-order construct. The results show an increase in newcomer adjustment over time. To account for this, we incorporated a parallel process model, which showed that social content related to the interaction with the agent primarily accounted for the upward trend in newcomer adjustment. This suggests that the amount of social interaction over time affects the newcomer adjustment slope positively.

Research Implications

Our findings contribute to the extant body of knowledge related to firm–customer interactions by (1) incorporating an extended set of interaction attributes related to the virtual employee as a socialization agent beyond the basic verbal and visual cues that have been examined in the past, (2) introducing the multidimensional concept of newcomer adjustment and examining its central role in accounting for the impact of virtual agent–customer interactions, and (3) assessing the impact of socialization (newcomer adjustment) on service usage outcomes and financial performance rather than on attitudinal measures that have previously been used. The primary contribution of our findings to the development of theory is that online socialization agents can significantly influence newcomer adjustment within a relatively complex service setting. This extends previous research examining the effectiveness of online agents by more deeply evaluating the process by which these agents are effective. Our results are consistent with the view that simply satisfying customers may not be enough to ensure positive financial performance (Oliver, Rust, and Varki 1997; Rust and Oliver 2000). These findings suggest that for complex service environments, online agent attributes beyond physical appearance and basic verbal cues are needed to improve firm–customer interactions.

We show that beyond possessing superficial cues, online agents designed for more advanced firm–customer interactions (i.e., the ability to proactively convey both functional and social content on the basis of recall of past conversations) can favorably influence the newcomer adjustment process and increase customers' perceived social acceptance, self-efficacy, and role clarity with the service provider. Our results are based on actual firm–customer interactional data, questionnaire data over time, and objective customer account data from the bank employing the online agent, and thus they extend current theory. A potential limitation of this longitudinal analysis is that the predictors in the cross-sectional study were different from the predictors in the longitudinal analysis. We used actual customer interaction data for the main cross-sectional study, whereas we used perceptions of interaction content and style for the longitudinal study.

As we hypothesized, the conveyance of functional content in the customer–company interaction positively affected newcomer adjustment. Moreover, we found that social content positively influenced newcomer adjustment, but only to a certain extent. Our findings suggest that a limited amount of social content can be positive, but after a certain limit, social content has a negative impact on newcomer adjustment. This extends previous research on firm–customer interactions (e.g., Williams and Spiro 1985), employee–organization interactions (e.g., Bauer et al. 2007), and online agents (e.g., Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007) that examines only social content in a linear manner. Furthermore, the relationship between functional and social content related to newcomer adjustment might differ depending on the nature of the service context (e.g., in hedonic contexts in which social content might exhibit a stronger impact). The sequence of the inter-

action content (i.e., social and functional) might also influence the level of newcomer adjustment. Note that our findings are restricted to a utilitarian view and do not incorporate other hedonic constructs that could influence new customer adjustment.

We found that a reactive interaction style had a negative impact on newcomer adjustment. However, we did not find a significant relationship between proactive style and newcomer adjustment. Still, we found that a more proactive style moderates the influence of functional and social content. This extends prior research by examining the interaction between content and style in dyadic communications (Holzwarth, Janiszewski, and Neumann 2006; Wang et al. 2007). Thus, it is not enough for an online agent to be reactive. Rather, our findings suggest that the interaction effect of functional and social content delivered in a proactive manner represents an optimal approach to managing customer relationships in service settings.

Whereas prior research on online agents is based on social response theory, we drew on a social learning perspective to account for a more complex agent–customer interaction. Although an assumption in our study is that customers actively communicate and interact with the virtual agent as they might a person, future studies should investigate the extent to which people perceive online agents as peers that possess humanlike qualities. Research might discover a moderating effect of these perceptions on the relationship between the online agent design and newcomer adjustment.

Finally, we emphasize that our study is only a first step toward understanding the newcomer adjustment process in a complex service setting. An important avenue for further research would be to conduct a more detailed analysis of the effects of the level of customer engagement or involvement with the online socialization agent (e.g., including the concept of flow in an online setting). Our study was based on a correlational design using cross-sectional data; however, further research could be conducted in an experimental setting to establish causality. Moreover, research has shown that higher levels of trust in recommendation agents increase consumer acceptance (Bart et al. 2005). Therefore, further research could examine our model within a trust-based perspective and investigate whether trust in the socialization agent moderates the relationships between the socialization agent design and the newcomer adjustment process.

Managerial Implications

Our findings suggest that company-designed online agents can effectively serve as customer socialization agents, influencing customer attitudes and behaviors and satisfying the demands of new generations of customers for richer online interactions. As our findings show, online agents function as important elements within a firm's social marketing and communications strategy. The depth of the agent–customer interactions in this research suggests that the bank's virtual agent is recognized not only as an important source of financial information but also as a friend, a mentor, and an advisor. In this finding lies the practical relevance of our study, one that evaluates the strategic role of this technology in helping young consumers adjust to their part as financial customers and the impact of this on firms' bottom lines. Moreover, our findings should be considered in the context of a firm's current customers who might be interested in new services or products or who need assistance with services with which they are not familiar.

Our research highlights several implications for marketing practice. First, our findings reveal the role of online socialization agents in fostering new customer adjustment through both functional and social interaction content. We show that the agent's ability to communicate both functional and social content is a significant driver of positive performance outcomes, including account activity related to company financial performance. We also show that agent–customer interactions based on functional content significantly influence customers' perceptions of effectiveness and acceptance within the organization and enhance their ability to evaluate and use the bank's services. Although social content positively influenced the newcomer adjustment process, we also found that agent–customer interactions dominated by social content diminished the customer adjustment process. This emphasizes the need for mangers to recognize the role of functional versus social interactions when developing content within online agent–customer communications. Furthermore, because we drew the communication constructs employed in this study (content and style) from the communications and sales performance literature, the results should be considered in the use of real-life agents. With virtual agents, the process of communication and the capture of information to be used in the agent–customer interaction are automated and, thus, controllable. With real-life agents, even those supported by sophisticated customer relationship management systems, the challenges to reaching this level of consistency include human error, emotions and moods, and other factors that might affect the dynamics and quality of the firm–customer interaction.

Second, our results highlight the role of proactive agent–customer interactions. We found that the effect of both functional and social content on newcomer adjustment was enhanced through the use of a proactive agent interaction style. Whereas previous generations of online agents have been designed to react to customers' FAQs or requests, we found that merely reacting to queries limits agents' ability to truly "socialize" customers. This suggests that service providers and customer service functions can benefit from investments in the design and development of online agents that are proactive and that base the interaction on memory of past interaction content to address or respond to customers' needs.

Third, because of the ability to instill a social element in agent–customer interactions online, the findings suggest that firms could provide online agents at additional locations in which current or prospective customers are active, not just solely on the firm's Web site. For example, in addition to the bank's Web site, the online agent in this study has a presence on Microsoft's Live Messenger (an online chat service/client), on an online social networking site similar to Facebook, on television programs, and at events targeting young audiences. Increasing the agent's presence beyond the firm's Web site may help foster the perception

of the socialization agent as a friend and a peer rather than merely a representative of a larger enterprise. Future customer touch points could involve Twitter, Facebook, blogs, and even location-based social media in which the agent can communicate dyadically, not only with one customer but also with multiple customers at the same time, possibly even facilitating social interactions between different customers. These multiple consumer touch points could help convey a humanlike quality to what might be perceived as merely an impersonal online avatar. This also helps the firm build awareness for the online agent and creates a more intimate relationship with (prospective) customers through nonconventional channels.

Fourth, the framework we present and test in this research could be considered a basis for measuring the financial return of investing in new interactive service and sales technologies. Building on our research showing the importance of interpersonal interactions in generating closer firm–customer relationships and positive firm-based outcomes (e.g., increased account performance), companies should continue to invest in and develop innovative and interactive platforms that enable greater control over online customer engagement—interactions that in the past might have varied widely in quality depending on the specific employee providing the service or participating in the interaction. Proactive and personalized service or product suggestions facilitated by online agents can also result in increased revenues through cross-selling opportunities, and the efficiencies gained from the use of advanced online agents can reduce overall call center costs. However, because the four measures of financial performance we used were key indicators for the focal bank, we can only surmise that companies in different industries will benefit from a similar approach, while using different performance metrics. In addition, the analysis of financial returns (e.g., those from cross-selling opportunities, cost reductions gained from efficiencies, reduced call center costs) should be balanced with increased activity in terms of how these performance indicators might also result in increased variable costs to the bank.

Finally, our findings emphasize the importance of aligning interaction content (e.g., functional and social content) with the service offering at hand. Depending on the specific industry and service environment, the customer socialization process may differ with respect to the relative importance of more social or hedonic content versus functional and utilitarian content. Companies should develop customer–firm online interaction content that is congruent with the nature of the service (or product) and accounts for the levels of risk (social or financial) involved in the transaction. Because our findings are limited to the consumer banking context, the use of online agents in other service settings, such as high- and low-involvement consumer goods and business-to-business settings, should be explored.

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