Satisfaction with Online Commercial Group Chat: The Influence of Perceived Technology Attributes, Chat Group Characteristics, and Advisor Communication Style

Willemijn M. van Dolen [a,*], Pratibha A. Dabholkar [b,1], Ko de Ruyter [c,2]

[a] *University of Amsterdam Business School, Roetersstraat 11, 1018 WB Amsterdam, The Netherlands*
[b] *University of Tennessee, Department of Marketing and Logistics, 307 Stokely Management Center, Knoxville, TN 37996, United States*
[c] *Maastricht University, Department of Marketing and Marketing Research, P.O. Box 616, 6200 MD Maastricht, The Netherlands*

Abstract

This study examines online commercial group chat from a *structuration theory* perspective. The findings support the influence of perceived technology attributes (control, enjoyment, reliability, speed, and ease of use) and chat group characteristics (group involvement, similarity, and receptivity) on customer satisfaction and the moderating role of advisor communication style on these influences. Furthermore, our results show that chat group characteristics influence customer satisfaction directly as well as indirectly via perceived technology attributes. Online chat satisfaction in turn influences behavioral intentions. Finally, group-level perceptions are found to add considerably to perceptions at the individual level. Our study illustrates that structuration theory provides a sound foundation for theoretical development and empirical investigation of online group chat. Also it shows that retailers need to carefully manage the intricate interplay between technology, chat groups, and online advisors to foster a satisfying experience for customers.
© 2007 New York University. Published by Elsevier Inc. All rights reserved.

Keywords: Online chat; Structuration theory; Customer satisfaction; Multilevel modeling; Advisor communication style; Chat group characteristics; Perceived technology attributes; Behavioral intentions

Introduction

Although online retail sales are growing steadily (Bauerline 2006), it is often reported that automated cyber sales frequently lead to increased cognitive effort, self-service frustration, and navigational confusion among customers (Chen and Yen 2004). Moreover, recent research reveals that online customers are increasingly driven by a need for social interaction, in addition to instrumental goals (Childers et al. 2001). In response to this emerging picture of online customer preference, many companies are implementing chat on their Web sites to supplement automated transactions.

One particular format that is enjoying growing popularity is commercial group chat. This new interactive format represents scheduled online gatherings to which a limited number of customers are invited to actively participate in a text-based discussion of commercial interest which is moderated by a company representative. Bank of America and SunTrust Bank, for instance, offer chat sessions in which issues related to loans or mortgages are discussed. In addition to answering questions and sharing experiences, the group interaction unleashes a wealth of creativity, information, and support and even offers the opportunity to cross- and up-sell through personal offers to clients (Bauerline 2006; Persinos 2006). However, despite raving reports by companies and software vendors (Tedeschi 2006), and in the light of consistently low customer satisfaction ratings across multiple service and sales channels (CRM Today 2004), it remains unclear what determines customer satisfaction with commercial group chat.

Extant research on customer evaluations of technology-mediated service has focused on self-service, and therefore

* Corresponding author. Tel.: +31 20 5254204.
E-mail addresses: w.m.vandolen@uva.nl (W.M. van Dolen), pratibha@utk.edu (P.A. Dabholkar), k.deruyter@mw.unimaas.nl (K. de Ruyter).
[1] Tel.: +1 865 974 1656; fax: +1 865 974 1932.
[2] Tel.: +31 43 3883839; fax: +31 43 3884918.

examined perceived technology attributes, such as speed, control, reliability, enjoyment, and ease of use as drivers of satisfaction (e.g., Dabholkar 1996; Meuter et al. 2000). However, as online group chat represents a social undertaking, we argue that customer evaluations also depend on group interaction characteristics. This is confirmed by a recent study by Andrews and Haworth (2002) who demonstrated that customer satisfaction with (dyadic) chat across five retail Web sites varies considerably not only due to technical issues but also sociability issues such as inattentive interaction. Furthermore, it is reported that the majority of problems that customers experience are related to the communication style of the company representative; "three out of the five problems relate to the use of textual language by the customer service representatives during the chat" (Andrews and Haworth 2002, p. 8). Thus, it seems that customer satisfaction is dependent on the intricate interplay between perceived characteristics of the technology, chat group interaction, and the communication style of the company representative.

In order to account for this complex interplay, we adopt structuration theory (Giddens 1984) as a theoretical lens. Recently, Stewart and Pavlou (2002) have made an elaborate case for the application of structuration theory in the context of interactive marketing. The theory's central tenet is that, in socially enacted environments, structures are influenced and created by the people who interact in these environments. In a technology context, this has also been labeled as an "ensemble" view of technology (Orlikowski and Iacono 2001). This view dictates that the study of interactive technology should go beyond a focus on technology and include the group as part of the structural set (Poole and DeSanctis 2004). Also, it suggests that the perception of structures (e.g., technology and group) is dependent on actors (e.g., customers) as well as on interactions among actors (e.g., peer-to-peer). Moreover, since socially enacted structures are goal oriented, the theory specifies that attainment of goals may be facilitated by so-called appropriation agents (in our case, company representatives) (Dennis and Garfield 2003). The objective of this paper is to develop and test a comprehensive framework based on structuration theory, in order to offer in-depth insights into the determinants of online chat group satisfaction.

Specifically, we address the following conceptual and empirical issues. First, to study chat group characteristics, we focus on interactivity—a multidimensional construct reflecting the social exchange process and capturing characteristics such as group involvement, similarity, and receptivity (Burgoon et al. 2000). This is in line with structuration theory's specification that the focus should not be on the behavior of individual actors but on their reciprocal interactions (Stewart and Pavlou 2002). Second, in keeping with the "ensemble view" of technology advocated by structuration theory, we examine how chat group characteristics influence individual perceptions of technology attributes. Third, structuration theory suggests that a group of people should be considered not only as individuals but as a socially constructed structure in its own right. While interact-

ing, individual perceptions are communicated to other group members through a variety of explicit and implicit processes, thereby forming shared beliefs (Kenny et al. 2002). We use multilevel modeling to reflect group interaction dynamics, as it allows us to simultaneously study individual- and group-level effects. Finally, structuration theory advances the concept of appropriation agents as actors who assist users of technology in creating structures to attain specific objectives (Giddens 1984). In online group chat, the role of the employee/advisor is to facilitate technology use as well as group interaction to help customers attain their objectives, for example, information gathering. In a study on communication within medical teams, Dennis and Garfield (2003) found that appropriation agents influence the *relative strengths* of the effects of technology and group interactivity on participant satisfaction. Therefore, we examine the moderating effects of advisor communication style on the influence of technology and group characteristics on customer satisfaction with online group chat.

A Structuration View of Online Chat

Structuration theory is a generic theory of social behavior that has been applied across a wide variety of research domains, including interfirm networks, organizational teams and group decision support systems (Jones et al. 2000; Maznevski and Chudoba 2000; Sydow and Windeler 1998). Its focus on the development and use of structures in social interaction offers a robust and hereto underrepresented perspective of interactive marketing.

We draw on Peters' (2006) typology for computer-mediated communication (CMC), also based on structuration theory, to select two structural features—"control of contact" and "communication model"—that are both directly relevant for the commercial chat options currently available. In classifying email communications, Peters (2006) explains that "control of contact" is important in helping or hindering the communication between technology users. In our classification for commercial chat, we label this feature "contact initiator" to refer to the party (firm vs. customer) who controls the contact or initiates the chat session (see Fig. 1). The feature "communication model" from Peters' classification fits our scheme directly, as it refers to different types of communication—one-to-one (dyadic), one-to-many, or many-to-many—to represent the expanded scope of communication based on technology (which was only possible previously in face-to-face communication) (see Fig. 1).

The inclusion of the two structural features in our classification draws directly on structuration theory, which proposes that in an interactive setting, structural features determine how information can be gathered, exchanged, and managed by users of interactive technologies. In addition, structuration theory uses the term "appropriation" to describe how structures are used and created to achieve desired outcomes; frequently, appropriation agents or facilitators are embedded

Communication model			
		One-to-one or Dyadic Chat	**Many-to-many or Group Chat**
Contact initiator	**Customer**	**1. Customer Chat** Customer service in response to the customer: Typically a "Help me" question.	**3. Customer Communities** Open chat rooms: Customers are provided with a social environment to share ideas, without an active role by the firm.
	Company	**2. Corporate Chat** Customer service initiated by the company: Typically a "How can I help you?" question.	**4. Advisory Group Chat** Customers actively discuss and exchange information with other customers, and a company representative plays an active role and offers expert advice.

Note: The columns represent the communication model of the interaction: two-way vs. many-to-many. The rows represent the party that initiates the interaction: customer vs. company.

Fig. 1. A classification scheme for online commercial chat.

in the process to assist users in attaining specific objectives and to promote interaction among multiple actors (Dennis and Garfield 2003). The fact that service employees are embedded as chat facilitators in the interaction process is also reflected in our classification. As the category (one-to-many) refers to online seminars rather than online interactive chat, we exclude it from our classification scheme and focus on the other two categories (see Fig. 1). The four categories in our scheme are described below.

The first category of online commercial chat represents dyadic, customer-initiated chat. In these interactions, service employees provide customers with real-time information in response to individual questions. For instance, using chat at Lands' End's site, a customer can get answers to questions about products, shipping, costs, and delivery time. We call this *Customer Chat*.

A second type of online commercial chat is also dyadic, but company initiated. Companies watch visitors and push a dialog box to them at any time, giving information or advice. For example, a new service called "Icontact" tracks consumers through Web sites, and employees step in if they believe they are needed. Wolfinbarger and Gilly (2001) report that this service increased sales substantially at the Marriott site in the first 2 months after its introduction. We refer to this category as *Corporate Chat*.

A third use of online commercial chat is open chat rooms, frequently part of company-hosted virtual communities. Open chat rooms enable customers to share information about common interests. For instance, Recreational Equipment Inc. enables customers to swap tips on adventure trips with other customers. Company representatives may screen and approve messages, but do not get actively involved in the chat. Consequently, these chat sessions have limited com-

merce potential, and are primarily a social environment; their notion of sharing may often be incompatible with commercial activity (Wolfinbarger and Gilly 2001). The commercial relevance is determined by the extent to which companies use the sessions to build communities and to extract relevant information about products or services. We label this as *Customer Communities*.

Finally, a rapidly growing category of online commercial chat is company-initiated group chat, which we refer to as *Advisory Group Chat*. As in the previous category, customers actively share experiences with other participants. However, a key difference compared to open chat rooms is that the firm representative plays an active role and offers expert advice. Another difference is that these sessions are scheduled and participants usually sign up for them in advance. The advisor uses chat sessions to gain trust and interest in the firm's products or services. The group includes prospects as well as existing customers, and the employee is prepared to sell immediately or to get an appointment for further interaction. Given the potential of this format for creating satisfaction and enhancing sales, we focus on Advisory Group Chat in this study.

Conceptual Framework

Customer Satisfaction with Advisory Group Chat

As satisfaction is a critical outcome measure of face-to-face encounters, technology-based self-service encounters, and encounters in online environments (Bitner et al. 2000; Evans et al. 2000; Szymanski and Hise 2000), we study customer satisfaction with advisory group chat and investigate

Note: The bold lines represent the basic model, the dashed lines represent group-level effects, and the full lines represent moderating effects.
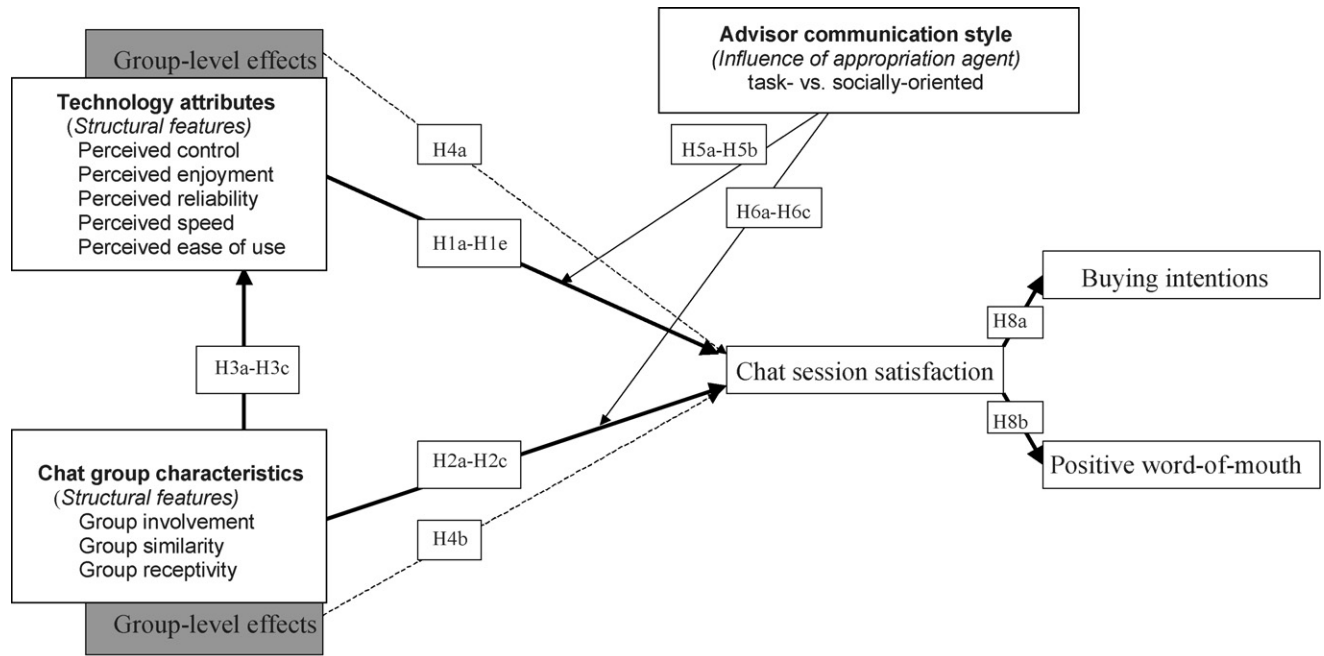
Fig. 2. Conceptual framework: applying structuration theory to online commercial group chat.

its determinants. Also, several studies based on structuration theory focus on satisfaction as an outcome measure (Dennis and Garfield 2003; DeSanctis and Poole 1994). We define chat session satisfaction as a customer's overall evaluation of the chat session, including the advisor, the social contact, the advice, and technology characteristics. Overall measures of satisfaction are better predictors of customer intentions than single-aspect measures (e.g., Garbarino and Johnson 1999).

Our conceptual framework (H1–H8) is developed below and shown in Fig. 2. Only the moderating effect of advisor communication style on the amount of individual- versus group-level variance in satisfaction (H7), which is not easy to depict, is omitted to keep the figure simple.

Influence of Perceived Technology Attributes on Satisfaction

Technology attributes are considered important structural features that influence satisfaction (Dennis and Garfield 2003; DeSanctis and Poole 1994). In the context of self-service based on technology, Dabholkar (1996) suggests five perceived technology attributes that are important to customers: *perceptions of control, enjoyment, reliability, speed of delivery, and ease of use*. Research has demonstrated that these *same* attributes are also important aspects of online shopping—perceived control (Wolfinbarger and Gilly 2001; Zeithaml et al. 2002), perceived enjoyment (Childers et al. 2001; Novak et al. 1999; Wolfinbarger and Gilly 2001), perceived reliability and perceived speed

(Zeithaml et al. 2002), and perceived ease of use (Childers et al. 2001; Wolfinbarger and Gilly 2001). We therefore extend this extant research to the advisory group chat context.

We define *perceived control* as the amount of control that a customer feels that advisory group chat gives him/her over the process of information exchange between the customer, the employee, and other customers. For example, customers may feel in control because they can leave the chat session whenever they want by just logging off. We define *perceived enjoyment* as the extent to which customers feel that advisory group chat is fun and entertaining. Enjoyment may be caused by the novelty of this tool, simply playing with computers, or interaction with other customers. We define *perceived reliability* as the extent to which customers feel that using advisory group chat to exchange information works well. For example, customers may worry that the information given by other customers in the chat session is not reliable, and conclude that the chat process itself is unreliable. We define *perceived speed* as the extent to which customers feel that using chat quickens the process of information exchange. Customers may perceive working from home as time efficient, or they may perceive that chatting with other customers slows down the information process. Finally, we define *perceived ease of use* as the lack of effort and complexity in using advisory group chat. Customers may feel that the chat process is straightforward and not complicated. With these definitions and based on the extant literature cited above, we propose the following.

H1. Perceived (a) control, (b) enjoyment, (c) reliability, (d) speed, and (e) ease of use, in advisory group chat, will have positive effects on chat session satisfaction.

Influence of Chat Group Characteristics on Satisfaction

The influence of group characteristics on an individual's evaluation of group interactions has received ample attention in the CMC (e.g., Kahai and Cooper 1999) and organizational behavior (e.g., Forsyth 1999) literatures. Although the marketing literature examines the influence of other customers (e.g., Gruen et al. 2005; Moore et al. 2005), it does not focus on the influence of customer *groups*. In contrast, research on online communities (e.g., Kozinets 2002; Szmigin et al. 2005) argues that it is critical to study the influence of group characteristics on customer evaluations.

To study chat group characteristics, we focus on interactivity—a key concept in structuration theory. Interactivity is a structural feature whereby customers and marketers interact to satisfy the objectives of both parties (Stewart and Pavlou 2002). It is not a characteristic of the technology, but a process-related construct tied to communication and interaction (Rafaeli and Sudweeks 1997). Interactivity assumes that the effectiveness of the interaction depends on how customers shape the interaction; moreover, the pattern of interaction is jointly determined by the decisions of all the individuals involved (Stewart and Pavlou 2002). According to Burgoon et al. (2000), interactivity is a multidimensional construct, consisting of three properties that reflect the social exchange process: *group involvement*, *similarity*, and *receptivity*.

Group involvement reflects the extent to which users perceive the group as engaged in the interaction, creating a sense of presence, or "here and now" in the group (Burgoon et al. 2000). Involvement is found to be important in offline group settings (e.g., Forsyth 1999), electronic interactions (Burgoon et al. 2000), and online communities (Szmigin et al. 2005), and thus, we expect this factor to influence satisfaction with advisory chat.

Group similarity refers to the extent to which people perceive group members as similar to themselves (Forsyth 1999). Similarity with other people reassures us that our beliefs are accurate (Festinger 1954), creates a feeling of unity, and signals that the interaction will be free of conflict (Insko and Schopler 1972). In face-to-face sales encounters, perceived similarity with a salesperson positively influences customer evaluation of the encounter (Crosby et al. 1990). CMC research suggests that the more customers viewed themselves as similar to their interaction partners, the better they rated the interface (Burgoon et al. 2000). Thus, perceived similarity with online chat group members is likely to lead to satisfaction.

Group receptivity is defined as the extent to which the group members listen and are open to one another's ideas. In face-to-face encounters, Ramsey and Sohi (1997) found that customer perceptions of the listening behavior of the interaction partner (the advisor in their study) influenced customer satisfaction. In CMC research, Burgoon et al. (2000) found that the more customers saw their interaction partner as receptive, the more satisfied they were with the partner's contribution. We expect the same pattern for commercial group chat. Thus, we have the following hypothesis.

H2. Group (a) involvement, (b) similarity with customers, and (c) receptivity will have a positive effect on chat session satisfaction.

Influence of Chat Group Characteristics on Perceived Technology Attributes

According to structuration theory, the technology structures and the group structures are continually intertwined; there is a recursive relationship between technology and the group, each iteratively shaping the other. However, this requires an analytical distinction between technology attributes and group characteristics as structural features (Orlikowski 1992; Orlikowski and Iacono 2001). To understand precisely *how* structural features can trigger satisfaction, we have to uncover the complexity and interplay of the technology–group relationship (DeSanctis and Poole 1994). Regarding this interplay, we propose an influence of chat group characteristics on perceived technology attributes. The rationale for this is as follows. A given technology may be evaluated quite differently depending on the group's internal system, or the characteristics of the group (c.f., Homans 1950). For instance, a highly skilled group may evaluate technology structures (for instance, ease of use) very differently from a less skilled group (Poole and DeSanctis 2004). Although there is no empirical research that links group characteristics directly to technology attributes in the marketing literature, research on online interactions suggests such links that support the rationale presented above.

First, several researchers indicate that online interactivity enables user control (Lombard and Snyder-Duch 2001; McMillan and Hwang 2002). Shoham (2004) illustrates that if chat participants feel that they do not fit demographically with the online community group, they feel less in control. Group similarity may reduce unexpected interactions, so participants feel more in control. Second, CMC literature shows that dyadic interpersonal interactivity influences enjoyment (Burgoon et al. 2000). Szmigin et al. (2005) also suggest that group interactivity creates enjoyment in online communities. Third, Burgoon et al. (2000) illustrate that interactivity influences users' judgments of reliability of the technology. Deighton and Sorrell (1996) suggest that if an individual's response is sought and used (i.e., there is receptivity), then it creates a feeling that the chat works well (i.e., it is reliable). Based on these arguments, we propose that group interactivity, that is, involvement, similarity, and receptivity, will positively influence customer perceptions of technology attributes as follows.

H3. Group involvement, group similarity, and group receptivity will have positive effects on perceived (a) control, (b) enjoyment, and (c) reliability.

Influence of Individual- Versus Group-Level Processes

Structuration theory advocates that structuration processes should be studied from multiple levels, for example, a micro-level and a global level of analysis (DeSanctis and Poole 1994). Studies at different levels provide a more accurate and detailed insight into the structuration process. Micro-level implies that the system is studied from the lowest level feasible given the phenomenon of interest, whereas global-level analysis studies the collection of beliefs or activities (Poole and DeSanctis 2004). This is in line with group research literature arguing that variables that are measured at the individual level can be meaningfully distinguished at the group level (Kelly and Barsade 2001). Although individual perceptions correspond to subjective appraisal processes and variation between customers may stem from actual individual differences, at the same time, individual perceptions are communicated to other group members through a variety of explicit and implicit processes, thereby forming compositional collective effects (Jong and Ruyter 2004). Empirically, several studies demonstrate both individual- and group-level effects of constructs on outcome variables. For instance, Dolen et al. (2006) demonstrate that group efficacy beliefs reflect subjective appraisal processes as well as shared beliefs. They conclude that perceptions of group characteristics at the group level can be distinct from individual-level perceptions, and both types of perceptions influence satisfaction differently. In another study, Dolen and Ruyter (2002) show that perceptions of attributes influence satisfaction at the individual level as well as at the group level. Thus, contemporary theory and research on groups explicitly considers the necessity of estimating both individual- and group-level effects of constructs on individual-level outcomes, as each level reflects a distinct perspective. Based on this background, we propose the following hypothesis.

H4. Group-level perceptions of (a) technology attributes and (b) chat group characteristics will add to the explanatory power of individual-level perceptions of chat group characteristics.

Moderating Effects of Advisor Communication Style

Research has shown that an employee (or advisor) adds a unique dimension to group interaction in the context of service encounters (Dolen et al. 2004), work meetings (Barry and Stewart 1997), and computer-mediated group meetings (Niederman et al. 1996). However, this research examines *direct effects* arising from employee characteristics, suggesting that employee influence is a singular phenomenon. In contrast, researchers (e.g., Dabholkar and Bagozzi 2002) suggest that moderating effects are more meaningful both

theoretically and practically. Indeed, a structuration perspective suggests that agents become meaningful at the moment of interaction by facilitating or reinforcing the use of structural features, thus implying a moderating effect of employee characteristics. Furthermore, Dennis and Garfield (2003) empirically support the influence of technology, and group structural features on outcome measures are moderated by the appropriation agent or facilitator of a group meeting.

In settings where customers participate in the service delivery process, the advisor must develop mechanisms for interaction to ensure satisfaction for all customers involved in the chat session. In this study, we focus on the advisor's management of the interaction through a distinct communication style: task oriented versus socially oriented. This variable has been found to be of critical importance in several studies on computer-mediated group interaction (e.g., Lester et al. 2003), offline group meetings (e.g., Blake and Mouton 1982; Forsyth 1999), and sales encounters (Dolen et al. 2002; Williams and Spiro 1985). An advisor with a task-oriented communication style is relatively goal oriented and focuses on fulfilling responsibilities and satisfying concerns for a productive outcome; with a social communication style, the focus is more personal and on interpersonal relationships and the process of satisfying the emotional needs of group members (Bass 1990).

Perceived Technology Attributes

Based on the above discussion related to structuration theory, we expect that the appropriation agent (or chat advisor) will moderate the effect of structural features such as technology characteristics on chat outcomes. In particular, Lester et al. (2003) suggest that the communication style of the advisor is likely to influence the relative effects of independent variables on chat session satisfaction. Therefore, we expect that advisor communication style will moderate the effects of perceived technology attributes on chat session satisfaction. Specifically, as a task-oriented advisor is focused on control and performance (e.g., Bass 1990), we expect perceived control and reliability to be more important for these groups. In addition, a task style places emphasis on efficient and structured processes; consequently, perceived speed and ease of use will be more valued in these groups. In contrast, with a social advisor, the focus on social aspects (e.g., Forsyth 1999) will implicitly emphasize enjoyment, thereby making it more important for these groups. Therefore, we hypothesize the following.

H5a. The effects of perceived control, reliability, speed, and ease of use on chat session satisfaction will be stronger when the advisor is task (vs. socially) oriented.

H5b. The effect of perceived enjoyment on chat session satisfaction will be stronger when the advisor is socially (vs. task) oriented.

Chat Group Characteristics

As in the case of technology, we expect that the appropriation agent (or chat advisor) will moderate the effect of other structural features such as group characteristics on chat satisfaction, and once again we focus on advisor communication style as the moderating variable of interest. In groups with a socially oriented advisor, people are stimulated to talk and share ideas enthusiastically, so group involvement will be further encouraged and valued (e.g., Forsyth 1999), and be an important determinant of satisfaction. In contrast, given the task advisor's focus on efficiency and goal orientation, group similarity would enhance efficient and smooth interactions, whereas dissimilarity of ideas may cause conflicts (e.g., Insko and Schopler 1972). Therefore, we expect group similarity to be an important determinant of satisfaction in groups with a task-oriented advisor. Finally, research suggests that groups that respond effectively to each other's ideas and feedback (i.e., groups high in receptivity) tend to value task accomplishment (Karakowsky and Miller 2002), and given a task climate (e.g., a task-oriented advisor), will tend to be more satisfied (Forsyth 1999). Therefore, we hypothesize the following.

H6a. The effect of group involvement on chat session satisfaction will be stronger when the advisor is socially (vs. task) oriented.

H6b. The effect of group similarity with customers on chat session satisfaction will be stronger when the advisor is task (vs. socially) oriented.

H6c. The effect of group receptivity on chat session satisfaction will be stronger when the advisor is task (vs. socially) oriented.

Individual- Versus Group-Level Processes

It has been argued that well-functioning interpersonal processes stimulate an atmosphere of sharing of beliefs (Jong and Ruyter 2004). Meijas et al. (1996) show that there is more sharing and consensus in groups that are more socially oriented, focused on belonging, and concerned about the welfare of group. Thus, groups with a socially oriented advisor would tend to create their shared and unique climate as a group as a result of shared ideas and feelings. Furthermore, Jong and Ruyter (2004) contend that group-level variance represents these shared customer perceptions; each group may develop its own beliefs, which is reflected by between-groups differences. Also, Snijders and Bosker (1999) suggest that differences in shared experiences between groups and information sharing within teams, which diverges across groups, create group-level variance. Consequently, we propose that socially oriented advisors create more consensus across individuals in a chat session than do task-oriented advisors. This consensus should be reflected in less variance in chat session satisfaction across individuals and more variance in chat satisfaction across groups. In contrast, for groups where the advisor is highly goal oriented and less focused on group sharing (e.g., task oriented), we expect that people would keep their own, distinct opinions, as less contagion will take place, and therefore, there would be more individual-level variance (i.e., differences *between individuals*) in satisfaction for groups with a task-oriented advisor. Thus, we hypothesize the following.

H7a. There will be more group-level variance in chat session satisfaction when the advisor is socially (vs. task) oriented.

H7b. There will be more individual-level variance in chat session satisfaction when the advisor is task (vs. socially) oriented.

Consequences of Chat Session Satisfaction

Structuration theory suggests that effective interaction, especially that facilitated by appropriation agents (or in our case chat advisors), leads to high levels of outcomes (Dennis and Garfield 2003). Therefore, although satisfaction with the chat session and the determinants of satisfaction are the focus of the study, it is worthwhile to briefly examine two important behavioral consequences of satisfaction in this study—buying intentions and word-of-mouth intentions.

Buying intentions of customers are a very important consideration for any retailer, offline as well as online (e.g., Andrews and Haworth 2002; Evans et al. 2000). We define online buying intentions as the customer's intention to make a purchase via the online retailer. Buying intentions indicate whether customers are willing to spend their money, resulting in revenue for the retailer. Research on offline as well as online consumer behavior suggests that customer satisfaction evaluations are tied fairly strongly to the customer's intention to purchase (e.g., Jarvenpaa et al. 1999; Dabholkar 1995; Zeithaml et al. 1996). Therefore, we have the following hypothesis.

H8a. Chat session satisfaction will have a positive effect on customer intentions to buy via the online retailer.

Research has also found that customer satisfaction leads to an increased likelihood that customers will say positive things about the firm and recommend the retailer to other customers (Bettencourt 1997; Dabholkar 1995; Maxham and Netemeyer 2002). In other words, satisfied customers may be effective promoters of the retailer's products and services. The customer's role as a promoter seems consistent with the social exchange perspective that voluntary behaviors often go beyond role obligations (Bettencourt 1997). We define positive word of mouth as the customer's intention to recommend the online retailer to others, and hypothesize the following.

H8b. Chat session satisfaction will have a positive effect on the customer word of mouth (positive) with respect of the online retailer.

With regard to the behavioral consequences of satisfaction, there is no theoretical basis for expecting different effects for the two facilitating styles, so no moderating effects of advisor communication style are proposed.

Methodology

Research Design and Context

Chat sessions were organized in which respondents (students) chatted with an advisor and with each other in small groups (four to six persons). The objective was to gather information about two financial investment funds and obtain financial advice. The advisor followed a social orientation in half the sessions and a task orientation in the other.

The context of financial advice was selected for several reasons. First, pretests indicated that investing is a topic most respondents could relate to for various reasons, either because they or a friend/family member had invested money, or because they read about it in newspapers or magazines. Secondly, the popularity of non-commercial financial chat sessions on the Internet (e.g., www.financialchat.com) indicates the relevance of the topic to consumers. In addition, investing is a topic where people like to know the opinions of other consumers. In fact, financial group sessions organized in offline, face-to face settings have proved to be very successful (O'Connor 1998). As a result, it was anticipated that most respondents would find the context of chatting in groups about investing both realistic and comfortable. Finally, chat sessions are currently being initiated by many financial service providers to attract both current customers looking for specific information as well as new customers (Information Week 2001; Pruitt 2002). Therefore, this is a context of direct, practical significance.

A laboratory experiment was used over a field study for several reasons. Chatting is one of the most popular activities on the Internet. However, its use as a service delivery channel is relatively new and as yet widely unavailable, so a study of potential customers was thought to be appropriate. Secondly, given the comprehensive framework being tested, the questionnaire was too long to be administered in a field study. Furthermore, people experienced in chatting would probably self-select in a field study sample, creating a non-respondent bias. Finally, the experimental approach allowed manipulation of advisor communication style, something not easily replicated in field studies.

Procedure

For each experimental chat session, small groups were invited to a research laboratory. To avoid offline interaction and to guarantee anonymity, each customer was placed in a separate experimental cubicle in front of a computer on which a Web-based chat program was installed. Respondents could see and respond to each other's text, but side conversations were not possible. The advisor had a different screen and was able to send scripts. All respondents (indicated by name or number, depending on advisor style) knew how many people were in the session.

The experiment started with an explanation of the chat program. Respondents were told they were going to chat about investment funds with other customers and an advisor from a bank. To eliminate possible brand bias regarding the bank, we explained that the bank preferred to stay anonymous. Next, each customer was presented with the same scenario. It was explained that the respondent had planned to invest part of a recent inheritance (approximately $1,500) and had made an appointment with the bank to obtain specific information about two investment funds of interest and additional investment advice. A short description of the funds was given. Two funds that are currently available (a Global Life Society equity and Global Property equity fund) were chosen. A financial expert had found these funds to be equally appropriate for experienced and inexperienced investors. The scenario mentioned that a week before this appointment, an advisor had called about a new service offered by the bank and had suggested a chat session with consumers who were interested in these funds, rather than a face-to-face meeting. Finally, it was stated that the respondent had agreed to participate in the chat session.

After all of the respondents had read the scenario, the chat session started. The groups were restricted to chat for a maximum of 45 min. Pretests had shown that this was the average time the groups needed to cover all relevant questions and issues. At the end of the session, a questionnaire was administered electronically to each respondent. After finishing, the customers were debriefed about the purpose of the research.

Treatments

An investment specialist was hired for the advisor's role. He was trained to behave in both task and social orientations to control for personality differences that would come up in using different people as advisors. The task and social treatments were based on a review of the communication and leadership style literatures and the manipulated behaviors were consistent with the behaviors identified by Bales (1958) and Williams and Spiro (1985). For the task-oriented style, the advisor was trained to be highly goal oriented and purposeful. He was told to be concerned about the efficiency and structuring of the session. His role was to give direction and information; he repeated, clarified, and evaluated information. For the socially oriented style, the advisor was asked to be more personal and social, even to the extent of sometimes ignoring the task at hand. His role included making jokes and showing understanding; he used 'emoticons' (punctuation symbols used to denote emotions, e.g., "☺") and rewarded the input of the customers.

In order to standardize the manipulation of the advisor communication style as much as possible, scripts were developed for use by the advisor during every session. These scripts

were different for the task and social treatment, but the same for every group within each treatment (see Appendix A). The advisor started the session with a standard introduction. During the session, three planned interactions took place with a customer who was in fact one of the researchers. This person assumed the role of a customer in all the sessions in order to control these interactions. Since all conversation in a session could not be controlled, standard sentences were developed for each treatment separately. The advisor used these as appropriate for different situations. To ensure that spontaneous behavior was also in accordance with the different treatments, responses were practiced with the advisor while chatting with him about investment funds. This training continued until the advisor had a thorough understanding of the differences in behavior, was able to use the scripts, and the standardized interactions ran smoothly. Finally, the advisor closed the session following a standard script. In the task treatment, customers were addressed by numbers assigned to them. In the social treatment, customers were addressed by their first names to make the interactions more personal. Actual examples of different online communication styles (used by SunTrust Bank employees) are presented in Appendix B.

Pretesting

The scenario and scripts were developed based on extensive pretesting. The scenario was tested with different amounts of detail regarding the situation and the investment products. The scenario used in the study rated 6.0 on a Likert scale of one to seven (items "The situation as described is realistic" and "It was not difficult to imagine myself in the situation") (see Dabholkar 1996).

Regarding the manipulation of advisor communication style, we first tested a number of scripts to identify the behaviors that appropriately represented the task and social communication style. After reading a script, pretest subjects (20 college students) were given a questionnaire to assess the validity of the manipulations. Based on these pretests, the scripts were modified and tested again. Once the written scripts were judged satisfactory, they were pretested along with advisor behaviors during four test chat sessions using a new sample of 22 college students. After each chat session, these subjects responded to a series of items assessing the validity of the manipulations and were asked to comment on the believability and realism of the script and advisor behavior. Based on these pretests, additional modifications were made to the scripts. The *t* tests indicated that the manipulations worked well for the pretest. The mean for the *social* manipulation check was 5.76 for a social advisor and 3.60 for a task advisor ($t = 6.80$, $p < .001$). The mean for the *task* manipulation check was 3.70 for a social advisor and 5.73 for a task advisor ($t = 6.32$, $p < .001$). Furthermore, the pretests showed that none of the subjects identified one of the customers as a member of the research project during the standardized interactions in the chat session.

Post-experiment interviews with subjects also indicated this result.

Sample

The customers in this computer-based experiment were 212 business students from a large Western university. As these students had taken an investing course at the university, it was anticipated that they would be an appropriate customer group for financial advising. Indeed, the level of interest in investing of the respondents was high, 5.01 (on a scale of 1–7). The level of experience with chatting varied widely, with a mean rating of 4.26 (on a scale of 1–7). The age of the respondents ranged from 17 to 38 with an average of 22 years, and 54 percent of the sample were men. In total, 40 chat groups were formed. Each group was randomly assigned to the treatment (task vs. social), but ensuring that 20 groups (106 respondents) received each treatment.

Measures

All constructs were measured using 7-point Likert-scales, and the items for each construct (and their source) are shown in Appendix C. We adapted all items to the context of our study. Confirmatory factor analysis (CFA) with LISREL 8 (Jöreskog and Sörbom 1993) was used to assess the factor structure and the critical measurement properties of the scales (see Appendix C). For all three proposed factor models (technology attributes, chat group characteristics, and consequences of satisfaction), the fit indices were good, thus supporting the underlying factors. Reliability coefficients for all the scales were higher than .80. Convergent validity was examined by investigating the significance and magnitude of individual item loadings. All items loaded significantly on their respective construct (minimum *t* value = 9.19) and had a standardized loading of at least .61. Finally, chi-squared difference tests used to test for unity between pairs of constructs, were significant at the .05 level, thus indicating discriminant validity.

Multilevel analysis

Our conceptual framework of antecedents includes variables at two levels of aggregation: the individual and the group level, as customers are nested within chat groups. Such data are designated as multilevel data (where the levels are hierarchical) and the question of how to investigate hierarchically ordered systems has been a concern for quite some time. Conventional statistical techniques ignore this hierarchy, but a multilevel model is an effective approach to deal with hierarchically nested data structures.

For our study, a two-level model was specified for the dependent variable "chat session satisfaction" and was analyzed through the computer program MLwiN (Rasbash et al. 2000). To compare individual- and group-level effects of the antecedents on chat session satisfaction, we split the antecedent variables into (1) the group mean (based on the

averaged scores within a chat group) and (2) the within-group deviation score (i.e., individual score minus group mean). The coefficient of the group mean ($X_{\cdot j}$) reflects the group-level effect, whereas the coefficient of the within-group deviation score ($X_{ij} - X_{\cdot j}$) reflects the individual-level effect (Snijders and Bosker 1999). Coefficients in multilevel models are called "*B* coefficients," and are divided by their standard errors to determine significance. For moderating effects, the significance of *B* coefficients is compared for different treatments or independent variables.

The predictive power of multilevel models can be compared by a likelihood ratio test. Multivariate significance of effects is tested by computing (stepwise) the increase in model fit compared to the previous step. The increase in model fit is represented by a decrease in a deviance statistic which follows a χ^2-distribution (with the number of added predictors as degrees of freedom). The null hypothesis is that the model does not predict significantly better than the previous model, and the whole analysis starts with an intercept-only model.

Results

Manipulation checks were made for the communication style of the advisor, task versus social (adapted from Williams and Spiro 1985; see items in Appendix D). The results showed that the treatment worked well. In the groups with a task-oriented advisor, the means of the manipulation check items were 5.54 for task and 3.78 for social ($t = -13.33$, $p < .001$). In the groups with a socially oriented advisor, these means were 3.78 for task and 5.60 for social ($t = 14.77$, $p < .001$).

Group-level variance and individual-level variance of all independent variables included in the multilevel model were decomposed to examine within-group agreement and between-groups differences (see Appendix C). Between-groups variance ranged from 8 to 19 percent of total variance and intra-class correlations ranged from .10 to .22. These results suggest that perceptions of independent variables were partly shared by customers in the chat group, and that it was appropriate to include these variables in the model at the group level (Kashy and Kenny 2000). The same is true for chat session satisfaction (the dependent variable), that is, group variance (22 percent) and intra-class correlation (.23) indicate that a multilevel approach is appropriate.

As multilevel models may be subject to multi-collinearity, ordinary regression analyses were conducted to investigate multi-collinearity by means of the Variance Inflation Factor (VIF). VIFs of the predictor variables were lower than 2.8, so no severe multi-collinearity problems were expected. Means, standard deviations, and correlations are presented in Table 1.

Table 2 presents the results of our multilevel analyses regarding chat session satisfaction. None of the random slopes were significant, suggesting only inclusion of a random intercept for this context (c.f., Snijders and Bosker 1999). The fixed effects of the predictor variables were tested using one-tailed *t* tests; coefficients and standard errors are shown in Table 2.

Parametric bootstrapping was applied, and the results based on 500 replications are also indicated in Table 2. Bootstrap re-sampling involves the repeated drawing of samples from the data followed by fitting the model to each such sample. Particularly for small samples, the results obtained by this re-sampling method have been shown to be better than those obtained by simply applying Iterated Generalized Least Squares (IGLS) to the one original sample (Efron 1987; Snijders and Bosker 1999). In our case, the results of the bootstrapping were very similar to those from the original sample, thus offering greater credence to the results.

The Influence of Perceived Technology Attributes

To test the influence of technology attributes on chat session satisfaction, we analyzed the total data set (the task and social treatment combined). The *B* coefficients (last column in Table 2) indicate that perceived control, enjoyment, reliability, and speed of delivery significantly influence chat session satisfaction, thus supporting H1(a)–(d). The same results also show that perceived ease of use does not significantly influence chat session satisfaction, so hypothesis H1(e) is rejected. This finding is in line with respondents' comments during debriefings that ease of use is not important to them as they are confident and experienced in using the Internet and also familiar with online chat. Thus, our results suggest that satisfaction with advisory group chat is positively influenced by whether customers perceive the chat gives them control over the service process, and whether they perceive it to be reliable, enjoyable, and fast.

The Influence of Chat Group Characteristics

Similarly, the results of the analysis of the total data set (*B* coefficients, Table 2, last column) indicate that group involvement, group similarity, and group receptivity significantly influence chat session satisfaction, thus supporting H2(a)–(c). These results suggest that satisfaction with advisory group chat is positively influenced by whether customers perceive the group to be similar to them, involved, and receptive.

Influence of Chat Group Characteristics on Perceived Technology Attributes

To test the influence of the chat group characteristics on perceived technology attributes, we ran a multilevel model for each attribute as a dependent variable, with the chat group characteristics as independent variables. For perceived control, the *B* coefficients (first column in Table 3) indicate that group involvement, similarity, and receptivity significantly influence perceived control, thus supporting H3(a). Also for perceived enjoyment (second column in Table 3) and perceived reliability (third column in Table 3), the results show that group involvement, similarity, and receptivity are significant, thus supporting H3(b) and (c). These results suggest that perceived control, enjoyment, and reliability are positively influenced by whether customers perceive the group to be similar to them, involved, and receptive. Furthermore, we conclude from this that the chat group characteristics influence satisfaction directly as well as indirectly.

Although not hypothesized, we found that group involvement also has a significant influence on perceived speed and perceived ease of use. However, the addition of the chat group characteristics to the model with perceived speed as a dependent variable (fourth column in Table 3) and with perceived ease of use as a dependent variable (last column in Table 3) does not significantly

Table 1
Means, standard deviations, and correlations

Variables	Mean (SD)	1	2	3	4	5	6	7	8	9.	10	11
Groups with a task-oriented advisor												
1. Satisfaction	3.45 (1.59)	–	.32[a]	.15[a]	.27[a]	.15[a]	.09[a]	.10[a]	.04[a]	.25[a]	–	–
2. Perceived control	3.94 (1.39)	.65	–	.54	.58	.50	.51	.24	.03	.51	.36[b]	.40[c]
3. Perceived enjoyment	4.48 (1.40)	.57	.52	–	.28	.39	.37	.54	.17	.29	.32[b]	.31[c]
4. Perceived reliability	3.85 (1.27)	.62	.53	.51	–	.52	.23	−.01	.14	.51	.40[b]	.50[c]
5. Perceived speed	4.61 (1.51)	.54	.47	.55	.40	–	.47	.03	.40	.12	.30[b]	.29[c]
6. Perceived ease of use	4.61 (1.46)	.40	.38	.31	.42	.41	–	.08	.13	.18	.24[b]	.19[c]
7. Group involvement	4.77 (1.02)	.27	.12	.32	.33	.16	.14	–	.27	.34	.21[b]	.23[c]
8. Group similarity	3.32 (1.33)	.46	.40	.29	.43	.22	.17	.37	–	.46	.19[b]	.34[c]
9. Group receptivity	4.31 (1.09)	.38	.26	.38	.19	.18	.21	.29	.43	–	.15[b]	.21[c]
10. Buying intentions	2.79 (1.50)	.59	.39	.39	.43	.33	.23	.23	.26	.17	–	.22[c]
11. Word of mouth	3.66 (1.78)	.72	.63	.54	.74	.55	.39	.28	.34	.31	.61	–
Groups with a socially oriented advisor												
1. Satisfaction	4.70 (1.30)	–	.48[a]	.24[a]	.53[a]	.47[a]	.51[a]	.35[a]	.02[a]	.26[a]	–	–
2. Perceived control	4.24 (1.48)	.57	–	.40	.84	.68	.68	.52	−.19	.09	.19[b]	.40[c]
3. Perceived enjoyment	5.42 (1.03)	.46	.48	–	.44	.33	.49	.20	−.14	−.01	.30[b]	.34[c]
4. Perceived reliability	4.24 (1.26)	.57	.76	.53	–	.71	.69	.55	−.13	.20	.28[b]	.65[c]
5. Perceived speed	4.92 (1.46)	.38	.46	.19	.47	–	.75	.33	−.13	.11	.35[b]	.25[c]
6. Perceived ease of use	5.04 (1.39)	.26	.37	.40	.27	.36	–	.38	−.09	.26	.20[b]	.33[c]
7. Group involvement	5.59 1 (.94)	.32	.30	.40	.32	.22	.22	–	.20	.54	.24[b]	.21[c]
8. Group similarity	3.74 (1.11)	.16	.13	.27	.13	.01	.02	.19	–	.65	.19[b]	.11[c]
9. Group receptivity	4.77 (1.19)	.09	.21	.24	.19	.06	.10	.27	.32	–	.10[b]	.22[c]
10. Buying intentions	3.25 (1.47)	.40	.28	.30	.37	.24	.24	.19	.12	.04	–	.35[c]
11. Word of mouth	4.66 (1.49)	.76	.64	.49	.66	.46	.42	.46	.06	.25	.44	–

Note. Individual-level correlations are in the lower triangle and group-level correlations are in the upper triangle. Correlations in the upper triangle are the correlations between the group averages.

[a] These are the correlations between satisfaction at the individual level and the group averages of the group-level variables. All correlations >.18 are significant at $p < .05$ (two tailed).

[b] These are the correlations between buying intentions at the individual level and the group averages of the group-level variables. All correlations >.18 are significant at $p < .05$ (two tailed).

[c] These are the correlations between word of mouth at the individual level and the group averages of the group-level variables. All correlations >.18 are significant at $p < .05$ (two tailed).

increase the model fit. The chi-square values, $\chi^2(3) = 7.46$ for perceived speed of delivery and $\chi^2(3) = 7.40$ for perceived ease of use are not significant so the models do not predict significantly better than a model without independent variables (e.g., the intercept-only model).

Finally, we find that group involvement has strong, significant group-level effects on perceived control, enjoyment, and reliability in addition to its effects on these attributes at the individual level. In contrast, group similarity is not significant at the group level for any attribute, and group receptivity is only significant for perceived reliability (third column in Table 3). Overall, it appears that group involvement has the strongest effect on technology attributes.

Individual- Versus Group-Level Effects

Referring back to Table 2, it is seen that adding the attributes at the group level results in a significant increase in model fit of $\chi^2(5) = 47.0$ (last column in Table 2). So, H4(a) is accepted. Similarly, adding the chat group characteristics at the group level results in a significant increase in model fit of $\chi^2(3) = 14.9$. So, H4(b) is accepted. Therefore, we conclude that group-level perceptions of antecedents variables (perceived technology attributes and chat group characteristics) add significantly to the explanatory power based on the customer's individual-level perception of antecedents.

Moderating Effects of Advisor Communication Style

Perceived Technology Attributes

The results of the analyses for each communication style separately (the columns labeled "Task" and "Social" in Table 2) indicate differences in the effects of perceived technology attributes on chat session satisfaction for the two communication styles. The effect of perceived control on chat session satisfaction is stronger for the task style [$B = .42$ (.09), $p < .01$] compared to the social style [$B = .28$ (.08), $p < .01$]. Also for perceived reliability [task: $B = .39$ (.09), $p < .01$ vs. social: $B = .21$ (.10), $p < .01$] and perceived speed of delivery [task: $B = .20$ (.07), $p < .01$ vs. social: $B = .16$ (.07), $p < .01$], we find that the effects in the task treatment are stronger. Therefore, the results indicate that the effects of perceived control, reliability, and speed on chat session satisfaction are stronger when the advisor is task (vs. socially) oriented, as proposed in H5a. Perceived ease of use is not significant for both treatments and consequently H5a cannot be tested for this variable. Furthermore, we find that the effect of perceived enjoyment on chat session satisfaction is stronger when the advisor is socially [$B = .30$ (.09), $p < .01$] versus task [$B = .21$ (.09), $p < .01$] oriented, as proposed in H5b.

To test whether these differences between treatments were significant, we estimated multilevel models using the total data set, adding advisor communication style, and interaction effects

Table 2
Results of multilevel models for chat session satisfaction

Independent variables	Dependent variable: chat session satisfaction				
	Task		Social		Total
	Coefficients[a]	Bootstrap	Coefficients[a]	Bootstrap	Coefficients[a]
Individual-level analyses					
Initial unexplained individual-level variance	2.512		1.304		1.918
Technology attributes					
Step 1 (individual level)					
Perceived control	.42 (.09)[c]	.42 (.10)[c]	.28 (.08)[c]	.28 (.09)[c]	.28 (.05)[c]
Perceived enjoyment	.21 (.09)[c]	.19 (.08)[c]	.30 (.09)[c]	.30 (.10)[c]	.13 (.05)[c]
Perceived reliability	.39 (.09)[c]	.40 (.10)[c]	.21 (.10)[b]	.20 (.09)[b]	.35 (.06)[c]
Perceived speed	.20 (.07)[c]	.20 (.09)[b]	.16 (.07)[b]	.16 (.07)[b]	.22 (.04)[c]
Perceived ease of use	.05 (.08)	.06 (.14)	−.05 (.07)	−.05 (.08)	.03 (.04)
Increase in model fit	$\chi^2(5) = 105.2^b$		$\chi^2(5) = 87.7^b$		$\chi^2(5) = 188.0^b$
Unexplained individual-level variance	.754		.489		.660
Chat group characteristics					
Step 2 (individual level)					
Group involvement	−.05 (.18)	−.01 (.02)	.17 (.08)[b]	.18 (.06)[c]	.11 (.06)[b]
Group similarity	.43 (.12)[c]	.41 (.12)[c]	.10 (.10)	.08 (.09)	.12 (.04)[c]
Group receptivity	.31 (.15)[b]	.30 (.14)[b]	−.08 (.10)	−.07 (.07)	.09 (.05)[b]
Increase in model fit	$\chi^2(3) = 12.1^b$		$\chi^2(3) = 9.2^b$		$\chi^2(3) = 19.8^b$
Unexplained individual-level variance	.655		.444		.589
Group-level analyses					
Initial unexplained group-level variance	.322		.502		.550
Technology attributes					
Step 3 (group level)					
Perceived control	.77 (.20)[c, d]	.79 (.22)[c, d]	.03 (.17)	.01 (.08)	.23 (.14)[b]
Perceived enjoyment	−.02 (.15)	−.01 (.17)	.55 (.15)[c, d]	.53 (.13)[c, d]	.22 (.12)[b, d]
Perceived reliability	.62 (.23)[c, d]	.62 (.26)[b, d]	.69 (.19)[c, d]	.68 (.23)[c, d]	.68 (.16)[c, d]
Perceived speed	−.07 (.14)	−.08 (.20)	.06 (.13)	.09 (.26)	.01 (.11)
Perceived ease of use	−.14 (.13)	−.14 (.14)	.16 (.15)	.13 (.16)	.08 (.10)
Increase in model fit	$\chi^2(5) = 24.8^b$		$\chi^2(5) = 45.2^b$		$\chi^2(5) = 47.0^b$
Unexplained group-level variance	.100		.090		.119
Chat group characteristics					
Step 4 (group level)					
Group involvement	.30 (.33)	.27 (.25)	.42 (.16)[c, d]	44. (.14)[c, d]	.31 (.14)[c, d]
Group similarity	−.07 (.14)	−.08 (.20)	.06 (.13)	.09 (.26)	−.05 (.15)
Group receptivity	.54 (.25)[b, d]	.53 (.26)[b, d]	.28 (.26)	.25 (.20)	.33 (.15)[b, d]
Increase in model fit	$\chi^2(3) = 14.9^b$		$\chi^2(3) = 21.3^b$		$\chi^2(3) = 14.9^b$
Unexplained group-level variance	.016		.000		.043

[a] B coefficients with standard errors.
[b] $p < .05$ (one tailed).
[c] $p < .01$ (one tailed).
[d] Differences in magnitude between within-group coefficients (individual level) and between-groups coefficients (group level) were tested by means of raw-score analyses. The results indicated that the coefficients significantly differ in magnitude across levels.

between perceived technology attributes and advisor communication style as independent variables. All interaction terms are significant [$B = .24$ (.09), $p < .01$ for perceived control × style; $B = .15$ (.09), $p < .05$ for perceived enjoyment × style; $B = .25$ (.10), $p < .01$ for perceived reliability × style; and $B = .18$ (.09), $p < .05$ for perceived speed × style], thus supporting H5a (three out of four effects) and H5b. We conclude that the effects of perceived control, enjoyment, reliability, and speed on chat session satisfaction are significant for both treatments, but that the communication style of the advisor influences the extent of these effects.

Chat Group Characteristics

The moderating hypotheses for the chat group characteristics were supported as seen by comparing the B coefficients across the two advisor communication styles in Table 2. The results indicate that group involvement is significant only with a socially oriented advisor [$B = .17$ (.08), $p < .01$] and not significant for the task advisor [$B = −.05$ (.18), ns], thus confirming the moderating effect hypothesized in H6a. Likewise, group similarity [$B = .43$ (.12), $p < .01$] and group receptivity [$B = .31$ (.15), $p < .01$] are significant only with a task-oriented advisor and not significant for the socially oriented advisor, thus confirming the moderating effects hypothesized

Table 3
Results of multilevel models

Independent variables	Dependent variables				
	Perceived control (coefficients[a])	Perceived enjoyment (coefficients[a])	Perceived reliability (coefficients[a])	Perceived speed (coefficients[a])	Perceived ease (coefficients[a])
Chat group characteristics					
Step 1 (individual level)					
Group involvement	.17 (.10)[c]	.33 (.09)[c]	.37 (.09)[c]	.22 (.11)[b]	.20 (.11)[b]
Group similarity	.22 (.09)[c]	.13 (.07)[c]	.20 (.07)[c]	.06 (.09)	.02 (.09)
Group receptivity	.16 (.09)[c]	.20 (.08)[c]	.16 (.08)[c]	.07 (.10)	.12 (.10)
Increase in model fit	$\chi^2(3) = 19.62^b$	$\chi^2(3) = 36.26^b$	$\chi^2(3) = 28.72^b$	$\chi^2(3) = 7.46$	$\chi^2(3) = 7.40$
Step 2 (group level)					
Group involvement	.42 (.20)[c,d]	.74 (.17)[c,d]	.40 (.14)[c]	.23 (.26)	.30 (.24)
Group similarity	−.39 (.25)	.10 (.20)	−.17 (.17)	.36 (.29)	−.08 (.27)
Group receptivity	.38 (.25)	−.01 (.20)	.44 (.17)[c,d]	−.11 (.30)	.24 (.28)
Increase in model fit	$\chi^2(3) = 10.48^b$	$\chi^2(3) = 21.61^b$	$\chi^2(3) = 10.89^b$	$\chi^2(3) = 3.5$	$\chi^2(3) = 4.17$

[a] B coefficients with standard errors.
[b] $p < .05$ (one tailed).
[c] $p < .01$ (one tailed).
[d] Differences in magnitude between within-group coefficients (individual level) and between-groups coefficients (group level) were tested by means of raw-score analyses. The results indicated that the coefficients significantly differ in magnitude across levels.

in H6b and H6c. To further support these differences, we added advisor communication style, and interaction effects between chat group characteristics and communication style to the analysis of the total data set. All interaction effects were found to be significant [$B = .23$ (.12), $p < .05$ for group involvement × style; $B = .20$ (.10), $p < .05$ for group similarity × style; and $B = .37$ (.11), $p < .01$ for group receptivity × style], thus confirming support for H6a–H6c. We conclude that the communication style of the advisor strongly influences whether group involvement, similarity, and receptivity influence chat session satisfaction.

Individual- Versus Group-Level Processes

Table 2 shows that at the *group level*, there is greater initial unexplained variance for the social model (.502) compared to the task model (.322). Therefore, the consensus of people *within* social groups creates more variance *between groups* (group level) in the social treatment compared to groups in the task treatment, implying that H7a is supported. Also from Table 2, it is seen that at the *individual level*, there is greater initial unexplained variance in chat session satisfaction for the task models (2.512) compared to social models (1.304). Thus, there are more differences *between individuals* in satisfaction for groups with a task-oriented advisor than for groups with a socially oriented advisor, implying that H7b is supported. Overall, we conclude that the communication style of the advisor determines the amount of consensus on satisfaction within chat groups.

Consequences of Chat Session Satisfaction

We estimated multilevel models for buying intentions and positive word of mouth as dependent variables (see Table 4), *adding satisfaction as an independent variable* to the attributes and chat group characteristics (i.e., to the independent variables shown in Table 2). The results (in Table 4) show that satisfaction significantly influences buying intentions [$B = .53$ (.11), $p < .01$] and positive word of mouth [$B = .47$ (.09), $p < .01$]. Therefore, H8a and H8b are supported, and suggest strong practical

implications for the behavioral consequences of chat session satisfaction.

The results in Table 4 also show that reliability significantly influences positive word of mouth, at the individual level [$B = .32$ (.10), $p < .01$] and at the group level [$B = .51$ (.22), $p < .01$]. We conclude that reliability has a direct influence on satisfaction (Table 2) *and* on positive word of mouth (Table 4), and this latter effect is not mediated by satisfaction. Other than the direct effect of reliability on word of mouth, the results in Table 4 combined with those in Table 2 indicate that satisfaction strongly mediates the influence of the perceived technology attributes and chat group characteristics on buying intentions and positive word of mouth.

Discussion

Conceptual Contribution

We propose and find that structuration theory provides a powerful lens for viewing the dynamics of online commercial group chat and its structural characteristics. We show that the potent combination of structural features, for example, technology *and* chat group attributes, makes it possible for online retailers to construct commercial chat sessions that foster a satisfying experience for the customers. Our results emphasize that for commercial, technology-based group encounters that include live communication, traditional research models have to be extended. Although we verify that technology attributes have a strong effect on chat session satisfaction, we demonstrate that there is a need to develop richer theoretical insights related to the ways in which group processes and employee style also contribute to user evaluations of the online encounter.

Based on structuration theory, we study the influence of group interactivity in commercial group chat without ignor-

Table 4
Results of multilevel models for buying intentions and positive word of mouth

Independent variables	Dependent variables	
	Buying intentions (coefficients[a])	Word of mouth (coefficients[a])
Initial unexplained variance	2.410	3.002
Technology attributes (individual level)		
Step 1 (individual level)		
Perceived control	−.16 (.11)	.01 (.09)
Perceived enjoyment	.06 (.11)	.14 (.09)
Perceived reliability	.12 (.12)	.32 (.10)[c]
Perceived speed	−.09 (.09)	.09 (.07)
Perceived ease of use	.01 (.08)	.03 (.07)
Chat group characteristics (individual level)		
Group involvement	−.04 (.11)	.06 (.09)
Group similarity	.15 (.10)	.02 (.08)
Group receptivity	−.15 (.10)	.07 (.08)
Technology attributes (group level)		
Perceived control	−.31 (.22)	−.05 (.19)
Perceived enjoyment	.32 (.20)	.14 (.15)
Perceived reliability	.16 (.28)	.51 (.22)[c,d]
Perceived speed	.11 (.18)	−.09 (.15)
Perceived ease of use	.15 (.16)	.19 (.13)
Chat group characteristics (group level)		
Group involvement	−.23 (.23)	−.04 (.20)
Group similarity	−.29 (.24)	−.04 (.20)
Group receptivity	.34 (.24)	.03 (.21)
Satisfaction	.53 (.11)[c]	.47 (.09)[c]
Increase in model fit	$\chi^2(17) = 84.90$[b]	$\chi^2(17) = 202.12$[b]
Unexplained variance	1.615	1.118

[a] B coefficients with standard errors.
[b] $p < .05$ (one tailed).
[c] $p < .01$ (one tailed).
[d] Differences in magnitude between within-group coefficients (individual level) and between-groups coefficients (group level) were tested by means of raw-score analyses. The results indicated that the coefficients significantly differ in magnitude across levels.

ing the potency of technology. By modeling and empirically demonstrating the influence of group interactivity on technology attributes and customer satisfaction, we extend current marketing theory on group selling (Young and Albaum 2003), group service delivery (Dolen et al. 2006), and online communities (Szmigin et al. 2005). Our findings demonstrate that all dimensions of group interactivity influence customer satisfaction with the chat session, directly and indirectly. The indirect influence occurs via the technology attributes of perceived control, enjoyment, and reliability. By making a distinction between technology and group structural features and studying the interplay between the two types of features, we uncover the complexity of the technology–group relationship. Our study is the first to empirically support suggestions made in the literature (e.g., Burgoon et al. 2000; Szmigin et al. 2005) that group interactivity may influence attributes such as enjoyment and reliability.

Also based on structuration theory, we study the role of the online chat advisor as an appropriation agent. We advance research on the effect of advisor behavior in group interac-

tions (Forsyth 1999; Lester et al. 2003) by demonstrating the *moderating* effects of advisor communication style. We find as proposed that perceptions of control, reliability, and speed on chat session satisfaction are stronger when the advisor is task oriented. This is expected given the task-oriented advisor's focus on control, performance, and efficiency. Also as proposed, the effect of perceived enjoyment on chat session satisfaction is stronger when the advisor is socially oriented. This is also logical, given the advisor's focus on social aspects and creating an enjoyable atmosphere. We demonstrate that group similarity and group receptivity are more important determinants of chat session satisfaction with a task advisor; these findings are expected, given the advisor's focus on efficiency and lack of receptivity, respectively. The verification that group involvement is more important as a determinant of chat session satisfaction with a social advisor is also understandable, given the stimulation in such groups for members to interact with each other.

Finally, structuration theory argues that individual actors *and* their reciprocal interactions are the relevant units of analysis to reflect interaction dynamics (DeSanctis and Poole 1994; Stewart and Pavlou 2002). However, no study applying structuration theory has empirically tested the influence of structural features (i.e., technology and group) at multiple levels. We extend research applying structuration theory and also extend research on group interactions (e.g., Aribarg et al. 2002) by revealing the influence of individual *and* collectively shared customer beliefs. We find two different effects. First, effects are found at the group level that also occur at the individual level: perceived control, enjoyment, and reliability, and group involvement and receptivity. Second, effects are found that only occur at the individual level: perceived speed of delivery and group similarity. The first set of effects implies consistency across levels and might be an indication of the strong influence of these variables (c.f., Ostroff 1993) on chat session satisfaction. These effects not only happen for single customers, but are experienced by entire chat groups. The second set of effects supports research that suggests that different processes may operate at the different levels (e.g., Jong and Ruyter 2004). The findings indicate that some perceptions are related to a single individual and not to the group. Perceptions exist that stem from actual differences among customers which may be caused by diversity in demographics, psychological factors (including values, personality factors, and needs), as well as the specific role of the customer within the group. As a result, the same, jointly experienced chat session leads to different perceptions of speed of delivery and group similarity, and these factors differently influence chat session satisfaction.

Apart from a few exceptions (e.g., Jong and Ruyter 2004), this issue of individual versus collectively shared beliefs has been largely ignored in the marketing literature. However, our study underscores the incremental value of a multilevel approach, since both individual- and group-level variables were found to be important in explaining the variance in chat session satisfaction. Our results demonstrate that in group

research, analyzing only individual-level data or only group-level data may lead to the loss of important information. Although one unfortunate consequence of the use of most conventional analysis methods is an emphasis on only one of the two levels, our analysis reinforces the idea that multilevel modeling provides an opportunity to study the group as well as the individual, within one study.

Finally, our results regarding the consequences of satisfaction are consistent with prior research (e.g., Dabholkar et al. 2000; Shankar et al. 2003). Furthermore, for buying intentions, we find that satisfaction fully mediates the effects of all technology attributes and group characteristics. For word of mouth, this same pattern is found, except that perceived reliability has a direct as well as indirect effect through satisfaction. The substantial direct effect of chat satisfaction on buying intentions and positive word of mouth in our study strongly supports the rationale for focusing on customer satisfaction in planning this new interactive format.

Managerial Implications

Advisory group chat is a relatively new marketing tool, and the results of our study provide online retailers with information for strategic direction. As we provide strong evidence that satisfied customers of commercial chat have intentions to buy from the Web site and to promote the firm's services, therefore, it is also worth examining what satisfies these customers.

The importance of perceived technology attributes as determinants of customer satisfaction suggests that retailers can better design and promote these attributes of commercial group chat. Retailers could use a chat design and related technology that is perceived as reliable and quick to increase satisfaction. Also, the technology and chat design must ensure that customers have and maintain the feeling that they are in control during the chat process. Finally, the fun aspect might be enhanced by using technology to create colorful and humorous chat design elements.

In addition, our study shows that group characteristics influence chat satisfaction directly as well as indirectly via perceived technology attributes, suggesting that retailers would need to carefully plan the management of group processes. Specifically, the finding that group involvement, similarity, and receptivity influence customer perceptions of control, enjoyment, and reliability suggests that these group characteristics can be enhanced to increase satisfaction even further. To stimulate specific group processes and group-level effects, certain tools might be installed within the chat mode. Tools that provide group feedback that aims at communal goals and group processes instead of individual actions might be particularly effective. For instance, with respect to group receptivity, one can highlight key moments, coloring threads of subjects, circling stand-alone messages, which still have to be answered, and classifying text into color-coded categories. In this way, the patterns and texture of the discussion within the group are reflected in the patterns and texture of the interface. This allows group members to monitor which topics have been dealt with already, to assess their progress as a group, and to be more receptive as a group. Such increased group receptivity will increase customer satisfaction directly, and also have positive effects on customers' perceptions of control, enjoyment, and reliability.

Finally, it is clear that the online chat advisor's communication style influences the importance of technology attributes to customers and causes different group dynamics to develop which influence customer satisfaction. Therefore, it is crucial to match advisor communication styles with the target group, the purpose of the chat session, and the group dynamics a retailer may want to develop. For example, to serve online customers who value reliable and quick service, retailers should select an advisor with a task-oriented communication style, whereas for those who value an enjoyable experience, a socially oriented advisor would fit better. Similarly, to enhance group receptivity, a task style would be appropriate, whereas to create group involvement, a social style would be better. Depending on the retailer's objectives, the matching of advisors might be realized by hiring advisors who are either goal oriented and efficient or who exhibit social skills. Alternatively, individuals with flexible communication styles could be hired and trained to adapt their behavior (e.g., Spiro and Weitz 1990) to fit the target audience and the goal of the chat session.

Limitations and Suggestions for Further Research

The experiment and questionnaire approach was thought appropriate for this study for reasons explained. However, a real experience of a commercial chat session (as opposed to a simulation) might evoke more reliable responses from customers. Future research could test our framework in an actual online service encounter.

We assumed a strict separation between social and task behaviors of the advisor, but it is possible that an advisor combines both communication styles (e.g., Spiro and Weitz 1990). The manipulation of these extremes, however, enabled us to disentangle the influence of the two different communication styles. Future research could investigate a combination of communication styles.

Future research could apply our framework in a variety of offline and online contexts, for instance, in *online communities* where customers share ideas and which are seen as more objective information sources (e.g., Kozinets 2002) and *social* Internet Chat sessions as opposed to commercial ones (e.g., Andrews and Haworth 2002). Offline settings include *focus groups*, contexts where *group decision making* takes place, such as retail buying committees allocating shelf space or families deciding on vacation destinations (e.g., Chandrashekaran et al. 1996), and *offline selling*, such as Tupperware parties or financial seminars (e.g., Young and Albaum 2003).

Although recent multilevel research recognizes the importance of comparing effects across levels, the focus is primarily

restricted to methodological issues. In contrast, our study incorporates a conceptual perspective on multilevel effects that motivates future in-depth investigations to address the underlying theoretical mechanisms that cause across-level effects. Additional theoretical work (for example, on group involvement as a shared perception versus as a subjective appraisal process in groups with a socially oriented advisor) may offer insights on the implicit and explicit processes between individual customers and members in their online or offline groups.

Although we focused on the influence of group characteristics on technology perceptions, it is possible that technology perceptions may influence the dynamics of the group. For instance, future research could investigate how a closed system may influence group dynamics differently than an open system, accessible for every consumer and resulting in a large group, which may not be evaluated as highly on group involvement, as it might be more difficult to participate actively. Similarly, different formats may be tested, for example, a small group of customers that chats actively compared to a format allowing customers who merely follow the dis-cussion (like a forum discussion). Also, a study of the ways in which the structure develops and changes over time may offer useful insights on the use, creation, and management of information exchange structures.

Our focus on the structures within chat groups also raises the question of whether alternative structures exist that might produce similar outcomes. For instance, the environment in which customers chat may create additional structures; a customer chatting with a friend/spouse physically present may have an additional structural set (the dyad with the friend) that could influence the interaction. An understanding of the structural features available to customers in a chat session will help explain the evaluation of that interaction and intended behaviors. Also, interaction may produce new, unanticipated goals that may drive the behavior of customers and change the structure of interaction over time. In our chat session, the goal of the customers was information gathering, but the chat session may results in another goal, for instance, starting an investment club. Longitudinal research could include such evolutions of structures and goals.

Appendix A

Task versus social treatment.

Task treatment
Introduction
The advisor structures the session: he sets goals, explains that his role is to advise the customers about investments, stresses the importance of staying goal oriented, states that he will give sound advice, clarifies that there is a time limit of 45 min, and sets an agenda for the session
During the session
● Customers are addressed by numbers
● Three standard interactions take place
For example:
Nr 3: This is fun, chatting about investments. Isn't it possible to do this more often…we could start an investment club or something like that…or invest together….
Advisor: That's an interesting idea but not particularly relevant to the goal of this session. Let's not lose track of what we're discussing today…we're talking about the details of investing in two of our funds
● Standard sentences
For example:
I will summarize what you said. Keep our objective in mind. Let me clarify this point. We have 10 min left
Closing of the session
The advisor explains what the bank can offer the customers, expresses that he tried to give as much information as possible, that an investment via his bank would be a good choice, and that he will send all of the customers personal advice and an offer by e-mail
Social treatment
Introduction
The advisor is personable and social: he introduces himself (including personal information, e.g., married, children), he shows his appreciation for the customers' participation, explains that his role is to help them, and expresses his hope that they will enjoy it and that this session will be the start of a longstanding relationship with the bank
During the session
● Customers are addressed by names
● Three standard interactions take place
For example:
Robin: This is fun, chatting about investments. Isn't it possible to do this more often…we could start an investment club or something like that…or invest together….
Jim: I think that is a great idea! Other groups did that before. Perhaps we could exchange e-mail addresses at the end of this session…What do you think?
● Standard sentences
For example: I think we are doing a good job. I like your idea! I understand what you mean. That's a good remark!
Closing of the session
The advisor praises the input of the customers, expresses his own enjoyment of the session, and his hope that it was enjoyable and useful for them, provides an opportunity for extra questions via e-mail or appointment and focuses on meeting again in the near future

Appendix B

   Actual examples of different online communication styles used by service providers in SunTrust Bank's online chat discussions.

Examples of *task-oriented* communication style:
   "SunTrust has the best construction program that I know of."
   ". . .around 6.5% on a 30 year fixed rate or 6.0% on a 15 year fixed."
   "Have you applied for a loan with anyone yet? What state are you buying in? I would be happy to work with you on financing."
   "An 80/20 is available from SunTrust and I will get you the best rate and deal possible."
Examples of *socially oriented* communication style:
   "I know you are anxious/excited.   Take a deep breath-we are going to get through this together. I have been doing this for a long time and you are in
      good hands so to speak."
   "Just write you questions down and if I do not know the answer I will find it out."
   (To a veteran): "Thank you so much for your service. I am glad you made it home."
   "How is your new year so far?"

Appendix C

   Results of confirmatory factor analyses.

Measures	Factor loadings	*t* value
Technology attributes ($\chi^2 = 296.24$, *df* = 142, RMSR = 0.07, RMSEA = 0.07, NNFI = 0.93, and CFI = 0.93)		
Perceived control ($\alpha = .89$)[a]		
Variance: 9 percent group factors; 86 percent individual factors; intra-class correlation: .10		
I feel much control over the service process when using chat	.78	13.09
Through this chat-based service I have a direct influence on getting the information I need	.83	14.30
This chat-based service enables to get a grip on the necessary information	.85	14.80
Chat will give me more control over the service process	.85	15.01
Perceived enjoyment ($\alpha = .90$)[a]		
Variance: 15 percent group factors; 79 percent individual factors; intra-class correlation: .16		
Using chat for service is enjoyable	.92	17.14
Using chat for service is fun	.93	17.61
This chat-based service is entertaining	.82	14.20
This chat-based service is interesting	.70	11.45
Perceived reliability ($\alpha = .80$)[a]		
Variance: 8 percent group factors; 80 percent individual factors; intra-class correlation: .10		
Chat-based service delivers what it promises	.84	14.28
This chat-based service is something I expect to work well	.83	13.97
This chat-based service is reliable	.61	9.19
Perceived speed of delivery ($\alpha = .89$)[a]		
Variance: 17 percent group factors; 78 percent individual factors; intra-class correlation: .18		
This chat-based service is a fast way of service delivery	.75	12.37
This chat-based service takes a long time	.80	13.59
This chat-based service is time efficient	.80	13.61
This chat-based service takes too much time[b]	.90	16.24
Perceived ease of use ($\alpha = .86$)[a]		
Variance: 17 percent group factors; 71 percent individual factors; intra-class correlation: .20		
This chat-based service is complicated[b]	.70	11.23
This chat-based service is confusing[b]	.65	10.15
This chat-based service takes a lot of effort[b]	.92	16.54
This chat-based service requires a lot of work[b]	.86	14.99
Chat group characteristics[c] ($\chi^2 = 54.40$, *df* = 32, RMSR = 0.04, RMSEA = 0.06, NNFI = 0.95, and CFI = 0.98)		
Group involvement ($\alpha = .85$)		
Variance: 19 percent group factors; 69 percent individual factors; intra-class correlation: .22		
The group was intensively involved in our conservation	.75	12.00
The group was interested in talking	.77	12.34
The group showed enthusiasm while talking	.78	12.61
The group seemed to find the conversation stimulating	.79	12.97

Appendix C (*Continued*)

Measures	Factor loadings	*t* value
Group similarity ($\alpha = .85$)		
Variance: 8 percent group factors; 80 percent individual factors; intra-class correlation: .10		
The group was different than me[b]	.71	11.19
The group made me feel we had a lot in common	.84	14.06
The group made me feel they were similar to me	.88	14.78
Group receptivity ($\alpha = .83$)		
Variance: 10 percent group factors; 75 percent individual factors; intra-class correlation: .12		
The group was willing to listen to me	.70	10.91
The group was unresponsive to my ideas[b]	.83	13.53
The group was open to my ideas	.84	13.80
Satisfaction, buying intentions, positive word of mouth ($\chi^2 = 53.70$, *df* = 32, RMSR = 0.03, RMSEA = 0.06, NNFI = 0.98, and CFI = 0.99)		
Satisfaction ($\alpha = .95$)[d]		
I am satisfied with the way in which my needs were addressed	.82	14.57
I am satisfied with this way of personal interaction	.87	15.96
I am satisfied with the social contact that took place	.69	11.39
I am satisfied with the advisor as a financial expert	.79	13.59
I am satisfied with this type of financial service	.95	18.42
Based on my experience, I am satisfied with this service	.92	17.42
Positive word of mouth ($\alpha = .93$)[e]		
I will recommend this chat service when someone seeks my advice	.92	16.97
I will say positive things about this service provider to other people	.94	17.58
Buying intentions ($\alpha = .83$)[f]		
I will invest in the portfolio of the service provider in the next 6 months	.98	16.42
I probably will not invest my money via this financial service provider	.73	11.33

[a] Adapted from Dabholkar (1996).
[b] Reversed coded.
[c] Adapted from Burgoon et al. (1987).
[d] Adapted from Evans et al. (2000).
[e] Adapted from Zeithaml et al. 1996.
[f] Developed for this study.

Appendix D

Manipulation check items.

Manipulation check items for the social communication style of the advisor
The advisor was easy to talk with
The advisor was interested in socializing with customers
The advisor genuinely liked to help customers
The advisor was cooperative and friendly
The advisor tried to establish a personal relationship
The advisor seemed interested in us not only as customers, but also as persons
The advisor liked to talk and put people at ease
Manipulation check items for the task communication style of the advisor
The advisor worked hard to provide information
The advisor was clearly goal oriented
The advisor wanted the sessions to be highly informative
The advisor's primary concern was to focus on the details of the investment funds/trip
The advisor's main objective was to provide investment/travel information
The advisor wanted to make sure we made a decision about the investment funds/trip

Note. All items are based on 7-point Likert scales.

References

Andrews, Corine C. and Karla Haworth (2002). "Online Customer Service Chat: Usability and Sociability Issues," *Journal of Internet Marketing,* 2 (1) 1–20.

Aribarg, Anocha, Neeraj Arora and Onur Bodur (2002). "Understanding the Role of Preference Revision and Concession in Group Decisions," *Journal of Marketing Research,* 336–349.

Bales, Richard F. (1958). "Task Roles and Social Roles in Problem-Solving Groups," in *Readings in Social Psychology*, Maccoby, et al. eds. New York: Holt, Reinhart, and Winston., 437–447.

Barry, Bruce and Greg L. Stewart (1997). "Composition, Process, and Performance in Self-Managed Groups: The Role of Personality," *Journal of Applied Psychology,* 82 (1) 62–78.

Bass, Bernard M. (1990). *Stogdill's Handbook of Leadership: Theory, Research, and Managerial Applications*, third ed. New York: Free Press.

Bauerline, Valerie. (2006, July 6). "Online Banking Strives For the Human Touch," *Wall Street Journal Online*, wsj.com/article_print/SB115215206112899183.html

Bettencourt, Lance A. (1997). "Customer Voluntary Performance: Customers as Partners in Service Delivery," *Journal of Retailing,* 73 (3) 383–406.

Bitner, Mary-Jo, Stephen Brown and Matthew Meuter (2000). "Technology Infusion in Service Encounters," *Journal of the Academy of Marketing Science,* 28 (1) 138–149.

Blake, Robert R. and Jane S. Mouton (1982). "How to Choose a Leadership Style," *Training and Development Journal,* 36 39–46.

Burgoon, Judee K., Joseph Bonito, Bjorn Bengtsson, Artemio Ramirez, Norah E. Dunbar and Jerold L. Hale (1987). "Validation and Measurement of the Fundamental Themes of Relational Communication," *Communication Monographs,* 54 19–41.

Burgoon, Judee K., Joseph Bonito, Bjorn Bengtsson, Ramirez Artemio, Norah E. Dunbar and Nathan Miczo (2000). "Testing the Interactivity Model," *Journal of Management Information Systems,* 16 (3) 33–56.

Chandrashekaran, Murali, Beth Walker, James Ward and Peter Reingen (1996). "Modeling Individual Preference Evolution and Choice in a Dynamic Group Setting," *Journal of Marketing Research,* 33 (2) 211–224.

Chen, Kuanchin and David Yen (2004). "Improving the Quality of Online Presence Through Interactivity," *Information and Management,* 42 (1) 217–226.

Childers, Terry, Charles Christopher, Joann Peck and Stephen Carson (2001). "Hedonic and Utilitarian Motivations for Online Retail Shopping Behavior," *Journal of Retailing,* 77 511–535.

CRM Today (2004). "New Study Reveals Sweeping Dissatisfaction With Customer Service Channels," www.crm2day.com/news/crm/EpApFEkEyZGpuQYtYA.php

Crosby, Lawrence A., Kenneth R. Evans and Deborah Cowles (1990). "Relationship Quality in Services Selling: An Interpersonal Influence Perspective," *Journal of Marketing,* 54 68–81.

Dabholkar, Pratibha A. (1995). "The Convergence of Customer Satisfaction and Service Quality Evaluations with Increasing Customer Patronage," *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior,* 8 32–43.

Dabholkar, Pratibha A. (1996). "Consumer Evaluations of New Technology-Based Self-Service Options: An Investigation of Alternative Models of Service Quality," *International Journal of Research in Marketing,* 13 (1) 29–51.

Dabholkar, Pratibha A. and Richard P. Bagozzi (2002). "An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors," *Journal of the Academy of Marketing Science,* 30 (3) 184–201.

Dabholkar, Pratibha A., C. David Shepherd and Dayle I. Thorpe (2000). "A Comprehensive Framework for Service Quality: An Investigation of Critical Conceptual and Measurement Issues Through a Longitudinal Study," *Journal of Retailing,* 76 (2) 139–174.

Deighton, John and Martin Sorrell (1996). "The Future of Interactive Marketing," *Harvard Business Review,* 74 (6) 151–161.

Dennis, Alan and Monica Garfield (2003). "The Adoption and Use of GSS in Project Teams: Toward More Participative Processes and Outcomes," *MIS Quarterly,* 27 (2) 289–323.

DeSanctis, Gerardine and Marshal Scott Poole (1994). "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory," *Organization Science,* 5 (2) 121–147.

Dolen, Willemijn van and Ko de Ruyter (2002). "An Empirical Examination of Moderated Group Chat: A Technology Acceptance Model Perspective," *International Journal of Service Industry Management,* 13 (5) 496–512.

Dolen, Willemijn van, Jos Lemmink, Ko de Ruyter and Ad de Jong (2002). "Sales Encounter Satisfaction from Both Sides," *Journal of Retailing,* 78 (4) 265–279.

Dolen, Willemijn van, Ko de Ruyter and Jos Lemmink (2004). "An Empirical Assessment of the Influence of Contact Employee's Behaviors on Encounter and Relationship Satisfaction," *Journal of Business Research,* 57 437–444.

Dolen, Willemijn van, Ko de Ruyter and James Carmen (2006). "The Role of Self- and Group-Efficacy in Moderated Group Chat," *Journal of Economic Psychology,* 27 (3) 324–343.

Efron, Bradley (1987). "Better Bootstrap Confidence Intervals," *Journal of the American Statistical Society,* 82 (March) 171–185.

Evans, Kenneth R., Robert E. Kleine III, Timothy D. Landry and Lawrence A. Crosby (2000). "How First Impressions of a Customer Impact Effectiveness in an Initial Sales Encounter," *Journal of the Academy of Marketing Science,* 28 (4) 512–526.

Festinger, Leon (1954). "A Theory of Social Comparison Processes," *Human Relations,* 7 117–140.

Forsyth, Donelson R. (1999). *Group Dynamics*, Belmont: Wadsworth Publishing Company.

Garbarino, Ellen and Mark S. Johnson (1999). "The Different Roles of Satisfaction, Trust, and Commitment in Customer Relationships," *Journal of Marketing,* 63 (April) 70–87.

Giddens, Anthony (1984). *The Constitution of Society: Outline of the Theory of Structure*, Berkeley: University of California Press.

Gruen, Thomas, Talai Osmonbekov and Andrew Czaplewski (2005). "How E-Communities Extend the Concept of Exchange in Marketing: An Application of the Motivation, Opportunity, Ability (MOA) Theory," *Marketing Theory,* 5 (1) 33–49.

Homans, George (1950). *The Human Group*, New York: Harcourt, Brace & Company.

Information Week (2001). Citibank to Create Virtual Communities to Service Customers, http://www.informationweek.com

Insko, Chester and John Schopler (1972). *Experimental Social Psychology*, New York: Academic Press.

Jarvenpaa, Srikka, Joam Tractinsky, L. Saarinen and Michael Vitale (1999). "Consumer Trust in An Internet Store: A Cross-Cultural Validation," *Journal of Computer-Mediated Communication,* 5 (2).

Jones, Oswald, Tim Edwards and Martin Beckinsale (2000). "Technology Management in a Mature Firm: Structuration Theory and the Innovation Process," *Technology Analysis and Strategic Management,* 12 (2) 161–177.

Jong, Ad de and Ko de Ruyter (2004). "Adaptive Versus Proactive Behavior in Service Recovery: The Role of Self-Managing Teams," *Decision Sciences,* 35 (3) 457–470.

Jöreskog, Karl G. and Dag Sörbom (1993). *LISREL: 8 Structural Equation Modeling With the SIMPLIS Command Language*, Hillsdale: Lawrence Erlbaum Associates.

Kahai, Surinder S. and Robert B. Cooper (1999). "The Effect of Computer-Mediated Communication on Agreement and Acceptance," *Journal of Management Information Systems,* 16 (1) 165–188.

Karakowsky, Len and Diana Miller (2002). "Teams that Listen and Teams that Do Not: Exploring the Role of Gender in Group Responsiveness to Negative Feedback," *Team Performance Management,* 8 146–156.

Kashy, Deborah A. and David##A. Kenny (2000). "The Analysis of Data From Dyads and Groups," in *Handbook of Research Methods in Social Psychology*, Harry T. Reis, et al. eds. Cambridge: Cambridge University Press., 451–477.

Kelly, Janice and Sigal G. Barsade (2001). "Mood and Emotions in Small Groups and Work Teams," *Organizational Behavior and Human Decision Processes,* 86 99–130.

Kenny, David##A., Lucia Mannetti, Antonio Pierro, Stefano Livi and Deborah A. Kashy (2002). "The Statistical Analysis of Data From Small Groups," *Journal of Personality and Social Psychology,* 83 (1) 117–130.

Kozinets, Robert (2002). "The Field Behind The Screen: Using Netnography for Marketing Research in Online Communities," *Journal of Marketing Research,* 39 (February) 61–72.

Lester, Scott, Kathryn Ready, Todd Hostager and Marilyn Bergmann (2003). "The Human Side of Group Support Systems: Influences on Satisfaction and Effectiveness," *Journal of Managerial Issues,* XV (3) 317–337.

Lombard, Matthew and Jennifer Snyder-Duch (2001). "Interactive Advertising and Presence: A Framework," *Journal of Interactive Advertising,* 1 (2) 13–28.

Maxham, James G. III and Richard G. Netemeyer (2002). "Modeling Customer Perceptions of Complaint Handling Over Time: The Effects of Perceived Justice on Satisfaction and Intent," *Journal of Retailing,* 78 (4) 239–252.

Maznevski, Marthe and Katherine Chudoba (2000). "Bridging Space Over Time: Global Virtual Team Dynamics and Effectiveness," *Organization Science,* 11 (5) 473–492.

McMillan, Sally and Jang-Sun Hwang (2002). "Measures of Perceived Interactivity," *Journal of Advertising,* 31 (3) 41–54.

Meijas, Roberto, Morgan Shepherd, Dough Vogel and Leo Lazaneo (1996). "Consensus and Perceived Satisfaction Levels," *Journal of Management Information Systems,* 13 (3) 137–161.

Meuter, Matthew, Amy Ostrom, Robert Roundtree and Mary-Jo Bitner (2000). "Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters," *Journal of Marketing,* 64 (3) 50–64.

Moore, Robert, Melissa Moore and Michael Capella (2005). "The Impact of Customer-to-Customer Interactions in a High Personal Contact Service Setting," *Journal of Services Marketing,* 19 (7) 482–491.

Niederman, Fred, Catherine Beise and Peggy Beranek (1996). "Issues and Concerns About Computer-Supported Meetings: The Advisor's Perspective," *MIS Quarterly,* 20 1–22.

Novak, Thomas, Donna Hoffman and Yeomans Yung (1999). "Measuring the Customer Experience in Online Environments: A Structural Modeling Approach," *Marketing Science,* 19 (1) 22–42.

O'Connor, Jeanne M. (1998). *Seminar Marketing: Beyond the Basics*, Denver: Practice and Technology: Institute of Certified Financial Planners.

Orlikowski, Wanda (1992). "The Duality of Technology: Rethinking the Concept of Technology in Organizations," *Organization Science,* 3 (3) 398–427.

Orlikowski, Wanda and Suzanne Iacono (2001). "Research Commentary: Desperately Seeking "IT" in IT Research—A Call to Theorizing the IT Artifact," *Information Systems Research,* 12 (2) 121–132.

Ostroff, Cheri (1993). "Comparing Correlations Based on Individual-Level and Aggregated Data," *Journal of Applied Psychology,* 78 (4) 569–582.

Persinos, John (2006). "The End of Business as Usual: The Internet as a Means for Rapid Product Rollout in Financial Services," *Larstan Business Reports*, www.webex.com

Peters, Linda (2006). "Conceptualising Computer-Mediated Communication Technology and Its Use in Organizations," *International Journal of Information Management,* 26 142–152.

Poole, Marshall and Gerardine DeSanctis (2004). "Structuration Theory in Information Systems Research: Methods and Controversies," in *The Handbook of Information Systems Research*, M. E. Whitman and A. B. Woszczynski eds. Hershey: Idea Group Publishing., 206–249.

Pruitt, Scarlet (2002, April 10). "Financial Industry Embraces Instant Messaging," *PC World Magazine*.

Rafaeli, Sheizaf and Fay Sudweeks (1997). "Networked Interactivity," *Journal of Computer-Mediated Communication,* 2 (4).

Ramsey, Rosemary O. and Ravipreet S. Sohi (1997). "Listening to Your Customers: The Impact of Perceived Advisor Listening Behavior on Relationship Outcomes," *Journal of the Academy of Marketing Science,* 25 (2) 127–137.

Rasbash, Jon, Wiliam Browne, Harvey Goldstein and Min Yang (2000). *A User's Guide to MLwiN*, second ed. London: Institute of Education.

Shankar, Venkatesh, Amy Smith and Arvind Rangaswamy (2003). "The Relationship Between Customer Satisfaction and Loyalty in Online and Offline Environments," *International Journal of Research in Marketing,* 20 153–175.

Shoham, Aviv (2004). "Flow Experiences and Image Making: An On-Line Chat Rooms Ethnography," *Psychology & Marketing,* 21 (10) 855–882.

Snijders, Tom and Roel Bosker (1999). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*, London: Sage Publications.

Stewart, David and Paul Pavlou (2002). "From Consumer Response to Active Consumer: Measuring the Effectiveness of Interactive Media," *Journal of the Academy of Marketing Science,* 30 (4) 376–396.

Spiro, Rosann L. and Barton A. Weitz (1990). "Adaptive Selling: Conceptualization, Measurement, and Nomological Validity," *Journal of Marketing Research,* 27 (February) 61–69.

Sydow, Jorg and Arnold Windeler (1998). "Organizing and Evaluating Interfirm Networks: A Structurationist Perspective on Network Processes and Effectiveness," *Organization Science,* 9 (3) 265–284.

Szmigin, Isabelle, Louise Canning and Alexander Reppel (2005). "Online Community: Enhancing the Relationship Marketing Concept Through Customer Bonding," *International Journal of Service Industry Management,* 16 (5) 480–496.

Szymanski, David M. and Richard T. Hise (2000). "E-Satisfaction: An Initial Examination," *Journal of Retailing,* 76 (3) 309–322.

Tedeschi, Bob (2006, August 7). "E-Commerce Report: Salesmanship Comes to the Online Stores, But Please Call It a Chat," *New York Times,* www.nytimes.com/2006/08/07/technology/ecom

Williams, Kaylene C. and Rosann L. Spiro (1985). "Communication Style in the Advisor–Customer Dyad," *Journal of Marketing Research,* 22 (November) 434–442.

Wolfinbarger, Mary and Mary Gilly (2001). "Shopping Online for Freedom, Control, and Fun," *California Management Review,* 43 (2) 34–56.

Young, Louise and Gerald Albaum (2003). "Measurement of Trust in Advisor–Customer Relationships in Direct Selling," *Journal of Personal Selling & Sales Management,* 23 (3) 253–265.

Zeithaml, Valerie, Leonard Berry and A. Parasuraman (1996). "The Behavioral Consequences of Service Quality," *Journal of Marketing,* 60 (April) 31–46.

Zeithaml, Valerie, A Parasuraman and Arvind Malhotra (2002). "Service Quality Delivery Through Websites: A Critical Review of Extant Knowledge," *Journal of the Academy of Marketing Science,* 30 (4) 362–375.